

Strategic Project Management for Human Resources

STRATEGIC PROJECT MANAGEMENT FOR HUMAN RESOURCES

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Fanshawe College Pressbooks
London, Ontario



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CONTENTS

Introduction	xi
Acknowledgements	xii
About This Book	xiv
Changes from Adapted Resource	xvi

Chapter 1 – Introduction to Project Management for Human Resources

1.1. Learning Outcomes	3
1.2. Project Management (PM) Definitions	5
1.3. Categories of Project Management	9
1.4. Aspects of Project Management	12
1.5. Life Cycle	16
1.6. Knowledge Check	19
1.7. Key Terms	25

Chapter 2 – Culture and Structures of Organizations

2.1. Learning Outcomes	29
2.2. Structures	30
2.3. Culture	40
2.4. Strategy and Effective Project Management	47
2.5. Project Selection	52
2.6. Knowledge Check	57
2.7. Key Terms	59

Chapter 3 – Project Manager as a Leader

3.1. Learning Outcomes	63
3.2. Roles of Project Manager	64
3.3. Project Manager Characteristics	67
3.4. Managing the Team	72
3.5. Knowledge Check	77
3.6. Key Terms	79

Chapter 4 – Project Team

4.1. Learning Outcomes	83
4.2. Successful Team	84
4.3. Developing Team	85
4.4. Team Communication	91
4.5. Team Motivation	98
4.6. Diversity, Inclusion and Leadership	101
4.7. Knowledge Check	105
4.8. Key Terms	109

Chapter 5 – Project Life Cycle, Scope, Charters, Proposals

5.1. Learning Outcomes	115
5.2. Initiation	116
5.3. Planning	120
5.4. Execution or Implementation Phase	125
5.5. Monitoring	128
5.6. Closure and Evaluation	131
5.7. S.M.A.R.T. Goals in Projects	135

5.8. Project Scope	139
5.9. Managing the Scope	144
5.10. Project Charter	150
5.11. Example of a Simple Project Charter	154
5.12. Request for Proposal and Contracts	160
5.13. Knowledge Check	167
5.14. Key Terms	172

Chapter 6 – Risk Management

6.1. Learning Outcomes	179
6.2. Risk Management and Project Success	180
6.3. The 5 Steps of the Risk Management Process	181
6.4. Contingency Plan, Risk Response Plan	189
6.5. Risks in Project Phases	191
6.6. Knowledge Check	195
6.7. Key Terms	198

Chapter 7 – Scheduling Resources and Budgets

7.1. Learning Outcomes	201
7.2. Scheduling Terms	202
7.3. Scheduling Resources, Benefits, Constraints	204
7.4. Defining Activities	206
7.5. Work Breakdown Structures	207
7.6. Time Estimation	210
7.7. Managing the Schedule	218
7.8. Estimating Resources	223
7.9. Estimating Costs	227

7.10. Understanding Budgets	232
7.11. Creating a Project Budget	234
7.12. Contingency Funds	236
7.13. Managing Budget	239
7.14. Knowledge Check	241
7.15. Key Terms	247

Chapter 8 – Role of Communication

8.1. Learning Outcomes	253
8.2. Role of Communication in PM	254
8.3. Types of Communication	257
8.4. Written Communication: Requests for Proposals and Proposals	259
8.5. Communication with Virtual Teams	265
8.6. Knowledge Check	270
8.7. Key Terms	275

Chapter 9 - Project Closure and Evaluation

9.1. Learning Outcomes	279
9.2. Reasons for Closing Projects	280
9.3. Contract Closing and Audits	283
9.4. Releasing the Resources	285
9.5. Reporting	288
9.6. Retrospectives	292
9.7. Performance Evaluation	295
9.8. Performance Appraisals	297
9.9. Knowledge Check	304
9.10. Key Terms	311

Chapter 10 - International Projects

10.1. Learning Outcomes	315
10.2. Environmental Factors in Projects	316
10.3. Selection of Projects	320
10.4. Selection of Employees (Expatriates)	321
10.5. A Look at Cross-Cultural Conditions and Human Resources	323
10.6. Culture Shock and Coping	326
10.7. Training International Project Teams	329
10.8. Knowledge Check	332
10.9. Key Terms	337

Chapter 11 – Agile PM

11.1. Learning Outcomes	341
11.2. Definition	342
11.3. Scope in Agile	345
11.4. Agile Procurement	346
11.5. Agile Teams	348
11.6. Roles and Responsibilities	351
11.7. Scrum Process and Meetings	353
11.8. Estimating Resources	356
11.9. Knowledge Check	358
11.10. Key Terms	362

Student Resources

Videos	367
References	371

INTRODUCTION

Two skills sets, Human Resources and Project Management have never been as essential to the world of work than in today's workforce. This Strategic Project Management for Human Resources text is designed to learn about Project Management from a Human Resources perspective. First, it is designed for college students enrolled in Human Resources Management Programs at two-year, three-year, one-year grad level diploma level of learning, or students who are completing university level Human Resources programs. Second, it may be of interest to Human Resources Specialists who are full time and part time students looking to upgrade their Human Resources credentials in continuing education. It will help them understand Project Management's influence in the jobs. Third, other academic fields may benefit from this integrated Project Management and Human Resources course who are in a wide variety of business programs, business administration, and leadership and management. Finally, since all industries have moved toward a more Project Management focus, with emphasis on people as the greatest assets, students in most academic programs can increase their knowledge and skills in two important areas of study and work-Project Management and Human Resources.

It describes the Project Management and Human Resources processes and applications, and the role the Project Manager and team in implementing these processes. The text is designed to help students understand and apply the knowledge and skills learned about projects and people.

An increase in Project Management and Human Resources functions in businesses in all industries and professions has led to project managers and teams having a wide variety of skills including how to complete a project, business acumen, leadership, technical knowledge, and human resources skills. Both at a domestic and international level employees require diverse and broad competencies. Most Project Management texts teach students the technical systems of projects. Yet, many of the Project Management problems such as conflicting priorities, inadequate client satisfaction, poor communication and scheduling delays are behavioural, not technical issues. Most Project Managers in today's world of work understand that a clear understanding of human behaviour are keys to success on projects. The types of employees and expertise required for various phases of the project cycle depend on the tasks to be completed, competencies of the team members, and the team dynamics.

Human Resources Specialists are experts with "people" as a resource. By including Human Resources in projects to identify roles to fulfill goals, assist in acquiring project teams for the project, training and developing team members, and helping to manage the team improves the efficiency over the life cycle of the project. The role Human Resources plays in projects increases the quality and timelines of project deliverables. Human Resources involvement in project management is key to turning a group of employees into high-performing teams who are prepared to deliver a successful project.

ACKNOWLEDGEMENTS

This open textbook has been adapted by Debra Patterson, in partnership with the [OER Design Studio](#) and the Library Learning Commons at [Fanshawe College](#) in London, Ontario. This work is part of the FanshaweOpen learning initiative and is made available through a [Creative Commons Attribution-NonCommercial-ShareAlike 4.0 International License](#) unless otherwise noted.



Attribution

This book is an adaptation of [Essentials of Project Management](#) by Adam Farag is licensed under a [Creative Commons Attribution-NonCommercial-ShareAlike 4.0 International License](#), except where otherwise noted.

Other resources have been incorporated into the book and are listed in the [references](#) section at the end of the book. Changes from the adapted work can be found in the [Changes From Adapted Source](#).

Collaborators

To the students in the Business Administration-Human Resources program at Fanshawe College (listed below) who participated in this research process for this book, it is deeply appreciated. Your exemplary research, effort and interest in completing assignments that align with the Human Resources perspective has enriched the new book.

- Brenden Bellan, Christopher Fink, Dylan Gosselin, Tammy Hughes, Chantelle Johnson, Alysha Koster, Hillary Maier, Nathaniel Medeiros, Vanessa Osei, Bailey Pavey, David Perez Medina, Jillian Racine, Larissa Trachy, Paige Vandendriessche

To all those who helped to create this book, your effort and energy helped to adapt and refine the new book that offers a unique lens of Human Resources and Project Management. Thank you to Diana Sinatra-Araujo, Coordinator who shared the vision of the new book; Tarek Ibrahim, Program Manager who provided continuous support to move the project forward, and to the OER Studio team who worked tirelessly to ensure a high-quality adaptation became a reality.

This project was a collaboration between the author and the team in the OER Design Studio at Fanshawe. The following staff and students in the Studio were involved in the creation of this project:

- Shauna Roch – *Project Manager, Instructional Designer*
- Lavisha Asija – *Instructional Designer*
- Meghan Hallam-Wood – *Ancillary Developer*
- Davandra Earle – *Copyeditor*
- Robert Armstrong – *Graphic Design*

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- Don McMurry, *Professor, Fanshawe College, Lawrence Kinlin School of Business*

ABOUT THIS BOOK

This textbook is an adaptation of a project management book, and has been re-designed specifically for students studying Human Resources. The purpose of this textbook is to provide a free resource to college students studying Project Management (PM) principals as they relate to Human Resources. By linking Project Management to Human Resources, the text is able to show the important role that Human Resources play at a strategic level. Human Resources focuses on people, both organizing them and managing them to achieve project success.

The book is comprised of eleven chapters which can be delivered over a one semester course. Each chapter discusses a project management concept in the context of the Human Resources field. The chapters themselves cover the definition of Project Management and its cycles and elements. It also describes Project Management from an organizational perspective including the effect of culture and structure on Project Management. The five steps of the processes are then discussed individually in different chapters, in addition to the sub-processes such as: budgeting, scheduling, international PM, and communication. Both the project manager and the project team are introduced, separately, so that their characteristics and relationship are appreciated. Thereafter, in the last chapter, Agile Project Management is presented as a contrast to traditional Project Management.

The text discusses the strategic role Human Resources plays in Project Management, either in a strategic direct way or a supportive indirect way. The text includes recruitment and selection, training and development, career counselling and coaching, communication, managing, and evaluation and assessment as it weaves through the reading and learning of Project Management.

The text delivers all the necessary knowledge and skills to align Project Management and Human Resources. The text is organized into eleven chapters covering the project management process including the life cycle, risk management, scheduling resources, and budgets. This unique educational resource includes the following:

1. Various Human Resources roles as a support to projects, or how they can be directly involved with the project team and the project
2. Critical thinking and reflective thinking activities for students
3. HR in Focus sections
4. Easy to follow steps and processes for Human Resources Specialists to implement throughout the project cycle

5. Check your Knowledge question and answers for each chapter
6. Chapter Key Terms
7. Supplemental Resources for student assignments.
8. Video resources have been embedded in the text, and are listed at the end of the text.

Accessibility Statement

We are actively committed to increasing the accessibility and usability of the textbooks we produce. Every attempt has been made to make this OER accessible to all learners and is compatible with assistive and adaptive technologies. We have attempted to provide closed captions, alternative text, or multiple formats for on-screen and off-line access.

The web version of this resource has been designed to meet [Web Content Accessibility Guidelines 2.0](#), level AA. In addition, it follows all guidelines in [Appendix A: Checklist for Accessibility](#) of the [Accessibility Toolkit – 2nd Edition](#).

In addition to the web version, additional files are available in a number of file formats including PDF, EPUB (for eReaders), and MOBI (for Kindles).

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CHANGES FROM ADAPTED RESOURCE

The following list provides a high-level overview of the changes made to the adapted text in the development of this one.

- Changed several of the titles of the chapters to incorporate Human Resources terms.
- Added the Human Resource perspective into the chapter text. For example, provided this perspective anywhere Human Resources could provide support to the project i.e. steps, processes.
- Expanded on concepts as they relate to Human Resources i.e. teams, project manager, communication.
- Added Human Resources role as a strategic partner in Structures.
- Added HR in Focus boxes.
- Added information about the culture of organizations.
- Grouped some of the chapters together i.e. Project Life Cycle (took pieces from other chapters that fit with life cycle like scope, charters and proposals).
- Grouped Scheduling Resources and Budgets together.
- Included a section on Evaluation in Project Closure.
- Added a Chapter on International Projects (CH10).
- Added Human Resources Check Your Knowledge interactive resources to existing questions
- Added videos related to Project Management
- Added key terms at the end of each chapter.
- Added Think! Boxes for critical and reflection thinking.
- Reorganized the chapters so students get a “feel” for structure, culture, roles of project manager and teams before immersing themselves into the actual details of projects
- Removed 2 chapters: Ch 12: Outsourcing and Ch. 13: Progress and Performance Measurement and Evaluation

CHAPTER 1 – INTRODUCTION TO PROJECT MANAGEMENT FOR HUMAN RESOURCES



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1.1. LEARNING OUTCOMES

Learning Outcomes

By the end of this chapter, you should be able to:

1. Define the characteristics of a project and its relationship to Human Resources.
2. Compare the difference between traditional and Agile project management.
3. Describe how program management differs from project management.
4. List the functions of a Project Management Office and Project Portfolio Management.
5. Explain the difference between a Project Lifecycle and the PMI Project Processes.
6. Explain the three broad categories of projects.



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project success.

There is no greater example of the art and science of Project Management (PM) than those demonstrated in the building of the Pyramids of Egypt. Since then, builders and engineers have applied specific processes systematically which have evolved into PM. The objective of PM, in general, is to establish and deliver the customer's goals in an organized and detailed manner. Whether the business is in production, construction, service delivery or Human Resources, the need for planning and carrying out a project requires clearly-defined processes. Today, in every field of work, including Human Resources, PM is an essential practice to achieve

HR in Focus

Many activities in Human Resources require planning. Examples include: attracting and retaining new employees, completing an onboarding program, designing and facilitating training and development, completing performance reviews/appraisals, and reviewing employee benefits. Just like Human Resources processes and procedures follow protocols; project management uses conventional processes and procedures to improve the success of short and long-term Human Resources objectives.

Human Resources employees have become more involved with organizations at a strategic level, and with strategic projects. While the general management function may include many tasks, PM is specifically oriented towards processes and requires a specific set of tools and skills. When PM is performed correctly, organizations gain greatly. Project management can reduce risk and improve the likelihood of success. It approaches HR tasks in an organized, detailed, and accountable way. Even when organizations have limited resources and a small chance of success, Human Resources experts with project management skills can help in leading through recessions and economic uncertainty, and ensure future strategic goals are met. Therefore, performing project management requires dedicated Human Resources individuals with good discipline who understand the processes, and are able to follow through to completion. Good HR project managers and their teams keep the project on track and ensure the alignment of project objectives within the strategic objectives of the organization.

Many HR strategic projects involve several departments and collaborative teams. HR experts are often asked to work with projects that impact the entire organization's culture and employees. Also, they may be included to help other project teams related to communication, recruiting members for the project, developing training for the team, and helping the team evaluate the project and its members. For example, if the marketing team is developing a marketing strategy for a new product, HR may provide training in the product uses.

The role HR plays in project management is critical. The starting point in discussing how projects should be properly managed is to first understand what a project is and, just as importantly, what it is not.

1.2. PROJECT MANAGEMENT (PM) DEFINITIONS

Project

An HR project has distinctive attributes that distinguish it from ongoing work or business operations. A **project** according to PMBOK Guide (Project Management Book of Knowledge) is “a temporary endeavour undertaken to create a unique project service or results” (PMBOK Guide, 4th Ed. PMI, 2008a, p.434). Specifically, projects are temporary in nature. Therefore, they are not an everyday business process. They are unique and have definitive start dates and end dates. This characteristic is important because a large part of the project effort is dedicated to ensuring that the project is completed at the appointed time. To do this, schedules are created showing when tasks should begin and end. Projects can last minutes, hours, days, weeks, months, or years.

HR projects exist to bring about a product or service that has not existed before. In this sense, a project is unique. Unique means that this is new; it has never been done before. Maybe it's been done in a very similar fashion before but never exactly in this way.

HR in Focus

The Human Resources department in a company has many functions which may include: payroll, recruitment, employee relations, and training and development. Each function is comprised of specific activities and tasks as well as specific projects. Some project examples could be:

- Recruitment and hiring may design a project to upgrade their orientation program.
- Payroll and benefits might coordinate a project to explore a Human Resources Information System (HRIS).

The projects are different from each other with different team members who have different skills specific to the project. Each project would also have a different purpose. The design of each project

would be unique to the outcomes of the project. Yet, the actual human resources department would be considered an operation with ongoing, repetitive tasks.

Watch this [video: What is project management?](#) by the Association for Project Management [2:17] below. The transcript is available on YouTube.



One or more interactive elements has been excluded from this version of the text. You can view them online here: <https://ecampusontario.pressbooks.pub/hrstrategicprojectmanagement/?p=24#oembed-1>

Program

When a group of projects are arranged towards achieving a certain goal this is said to be a **program**. A program is a collection of smaller projects that deliver or achieve a certain higher goal. The simplest example for a program is an educational degree program in a school or college, where multiple courses correspond to the projects. The program will be completed when all projects (courses) are completed and the certificate/degree is awarded.

Operations

In contrast to projects, **operations** are ongoing and repetitive. They involve work that is continuous without an ending date and with the same processes repeated to produce the same results. The purpose of operations is to keep the organization functioning, while the purpose of a project is to meet its goals and objectives. Therefore, operations are ongoing while projects are unique and temporary.

A project is completed when its goals and objectives are accomplished. It is these goals that drive the project, and all the planning and implementation efforts undertaken to achieve them. Sometimes projects end when it is determined that the goals and objectives cannot be accomplished or when the product or service of the project is no longer needed and the project is cancelled.

Definition of a Project

There are many written definitions of a project. All of them contain the key elements described above. However, for those looking for a formal definition of a project, the Project Management Institute (PMI) defines a **project** as a temporary endeavor undertaken to create a unique product, service, or result. The temporary nature of projects indicates a definite beginning and end. The end is reached when the project's objectives have been achieved or when the project is terminated because its objectives will not or cannot be met, or when the need for the project no longer exists.

The term “project” is used several ways in popular culture, from describing everyday tasks (planting a garden, hanging a picture, running errands) to large scale enterprises (building a house, constructing a new highway, purchasing an HRIS). However, when professional HR project managers talk about projects, they use a narrower definition. Let's start out with the six defining characteristics of a project. Just about every book, organization, or standards body in the project management field agrees that a project:

1. is a temporary endeavor, with a defined start and end.
2. has a specific objective.
3. has customers or stakeholders.
4. has constraints, such as time, cost and scope.
5. has measures for success.
6. includes some amount of uncertainty.
7. has a beginning and an end

Watch the [video: What is a Project](#) by Prof C [3:23] for more information on how these six aspects help define what a project is and is not. Transcript is available on YouTube.



One or more interactive elements has been excluded from this version of the text. You can view them online here: <https://ecampusontario.pressbooks.pub/hrstrategicprojectmanagement/?p=24#oembed-2>

Operations vs. Projects

Projects are different from ongoing operations, even though some techniques (such as network diagramming) overlap. Project management addresses temporary endeavors, with a start and end date, while operations management focuses on improving ongoing operations. For example, constructing a new factory is a project,

while producing bicycle tires in that factory is an operation. This textbook concentrates on traditional project management techniques. Adaptations related to Agile project management, which is often used for software development, are mentioned along the way, but Agile is not a main topic in this chapter. This will be discussed in [chapter 11](#).

Think!

What is a project you have worked on either at school, work, or your own time? How did you set up your project?

1.3. CATEGORIES OF PROJECT MANAGEMENT

There are three broad categories of projects to consider: Strategic Projects, Operational Projects, and Compliance Projects.

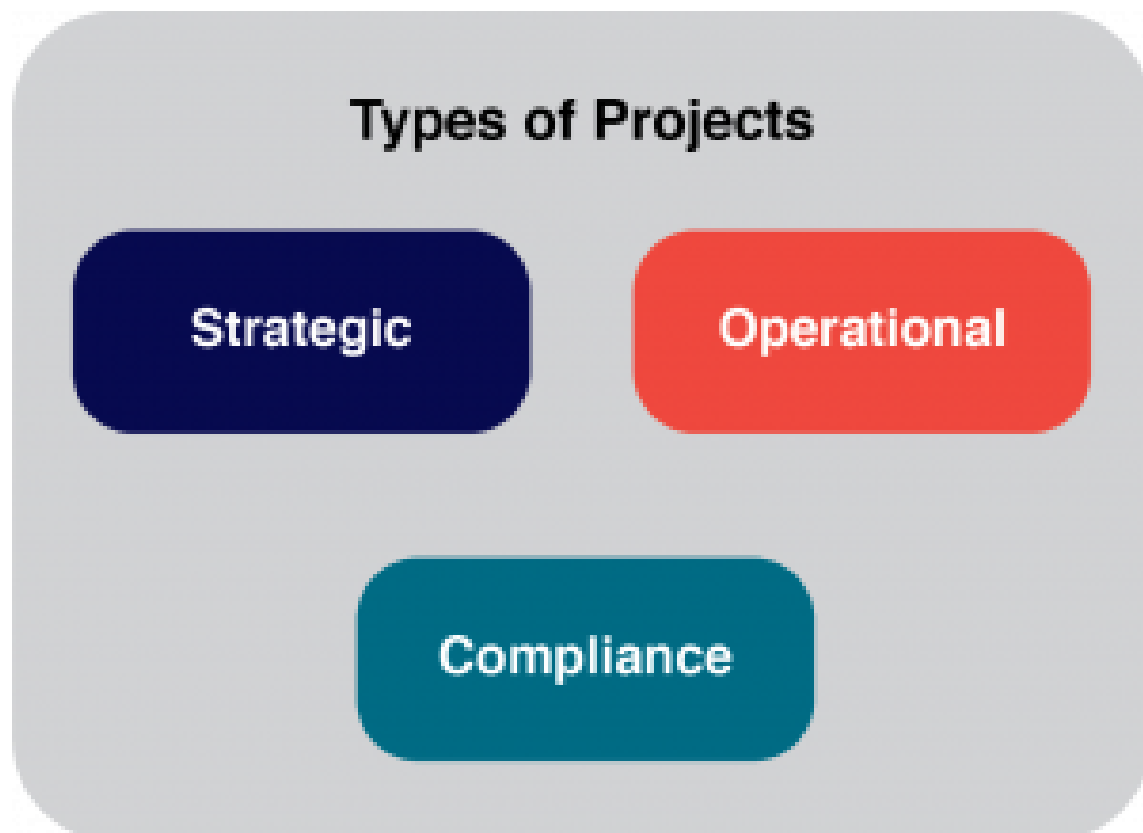


Figure 1-1: Three broad categories of projects

- **Strategic** Projects involve creating something new and innovative. A new product, a new service, a new retail location, a new branch or division, or even a new factory might be a strategic project, because it will allow an organization to gain strategic advantage over its competitors. Example: HR is involved in the strategic decision to add an international satellite office in a different country from the corporate location. HR would be involved in recruitment and selection, cultural training, providing expatriates with support, aligning performance reviews in the new country with those at corporate office, learning and implementing different laws and policies.
- **Operational** Projects improve current operations. These projects may not produce radical

improvements, but they will reduce costs, get work done more efficiently, or produce a higher quality product. Example: HR could be involved in purchasing a Human Resources Information System (HRIS) to increase efficiency of payroll, optimize scheduling, provide improved training capacity, and better employee engagement through a self-service option.

- **Compliance** Projects must be done in order to comply with an industry or governmental regulation or standard. Often there is no choice about whether to implement a project to meet a regulation, but there may be several project options to consider, any of which would result in meeting compliance requirements. Government regulations are date driven and may be subject to penalties if regulations are not met. Example: HR could be involved in designing a company wide program through a project related to sexual harassment through publications, researching legal requirements, training employees, designing policy and procedures, and review and complaint processes.

Traditional Project Management

While project management can be traced back to the building of the Great Pyramids in Egypt, it was really in the post-WW2 industrial boom of the 1950s that project managers started to develop the tools and techniques used in modern project management. These tools were used to complete large industrial and military projects, where the scope of work (what we need to accomplish in a project) was well defined. For example, the scope of what we have to do can be planned out well when we are constructing an apartment building, making a nuclear submarine missile, or building an oil refinery.

These traditional techniques have been elaborated and standardized by organizations such as the Project Management Institute (PMI) in the US and The International Project Management Association (headquartered in Switzerland) and AXELOS (the organization behind the PRINCE2 certification used in Great Britain). These traditional techniques were also adapted to software development. Techniques such as **waterfall** (where phases of projects are sequential) and **function point analysis** (a set of rules to measure functionality to users) were advanced as effective ways to manage software development projects. However, as the world of software development changed—from large, time-consuming projects that were loaded on mainframe computers to fast-moving, fast changing, internet-based applications many programmers found waterfall and similar methods to be limiting. These techniques lacked flexibility and were inadequate to deal with a rapidly changing, competitive landscape. As a result, a “revolution” of sorts was mounted and out of that revolution came several so-called Agile project management methods.

Agile Project Management

Agile project management is a broad term for project management techniques that are **iterative** (repetitive) in nature (divided into specific periods of time). Rather than trying to develop all aspects of a project or

software application and then presenting that result to the customer after a long development cycle (6 to 24 months), Agile techniques use short development cycles in which features of high value are developed first and a working product/software can be reviewed and tested at the end of the cycle (20-40 days). Chapter 11 is dedicated to discussing agile project management.

1.4. ASPECTS OF PROJECT MANAGEMENT

The Science of Project Management

Project management has been around for centuries if not millennia. From the building of the pyramids to the construction of the great buildings of 19th century London, people have developed ways to breakdown large projects into smaller more manageable chunks, schedule the work and obtain the materials needed for the projects. During that time, many tools were developed to manage projects. However, it was not until the large, highly complex defence projects undertaken by the United States during the 1950s drove a push for a more scientific and data-driven, management approach to projects, and which was the beginning of the science of modern-day project management.

HR in Focus

Project management for HR professionals improves effectiveness and productivity for the HR department, the entire company and its employees. Project management improves work flow and processes. HR project management has never been more important than in today's work world. Wise hiring, managing the changing work culture, and day-to-day operations are all project management priorities.

The Art of Project Management

The art of project management is specific to the skills that are used in projects. When communication and managing people are the priority, this would be the 'art'. Even though the logistics of assumptions, planning, design, and scheduling is considered the 'science', these components could not be managed in a scientific method. They are guided by the skills and experience of the project manager and the project team.

Project Management Institute

The [Project Management Institute](#) started in 1969 as an effort to share best practices, and today, it is a non-profit organization with over 500,000 members. PMI has chapters throughout the world, each offers additional benefits in the form of professional development and networking opportunities (PMI, 2022).

The PMI has codified the standards for project management in the [Project Management Body of Knowledge \(PMBOK\) guide](#). The PMBOK is best used as a reference guide; it is not recommended for cover to cover reading. The PMBOK Guide has been recognized as a Standard by the American National Standards Institute (ANSI) and the Institute of Electrical and Electronics Engineers (IEEE).

The PMBOK guide is organized into nine knowledge domains:

- Project Integration Management
- Project Scope Management
- Project Time Management
- Project Cost Management
- Project Quality Management
- Project Human Resource Management
- Project Communications Management
- Project Risk Management
- Project Procurement Management
- Project Stakeholder Management

(Project Manager, 2019)

Managing a project includes identifying your project's requirements and writing down what everyone needs from the project. What are the objectives for your project? When everyone understands the goal, it's much easier to keep them all on the right path. Make sure you set mutually agreed upon goals to avoid team conflicts later on. Understanding and addressing the needs of everyone affected by the project means the end result of your project is far more likely to satisfy your stakeholders. Last but not least, as project manager, you will also be balancing the many competing project constraints.

Project Constraints

On any project, you will have a number of **project constraints** that are competing for your attention. They

are cost, scope, quality, risk, resources, and time. When one changes, something else has to change. It is the trade-off.

- **Cost** is the budget approved for the project including all necessary expenses needed to deliver the project. Within organizations, project managers have to balance between not running out of money and not underspending because many projects receive funds or grants that have contract clauses with a “use it or lose it” approach to project funds. Poorly executed budget plans can result in a last-minute rush to spend the allocated funds. For virtually all projects, cost is ultimately a limiting constraint; few projects can go over budget without eventually requiring a corrective action.
- **Scope** is what the project is trying to achieve. It entails all the work involved in delivering the project outcomes and the processes used to produce them. It is the reason for and the purpose of the project.
- **Quality** is a combination of the standards and criteria to which the project’s products must be delivered for them to perform effectively. The product must perform to provide the functionality expected, solve the identified problem, and deliver the benefit and value expected. It must also meet other performance requirements, or service levels, such as availability, reliability, and maintainability, and have acceptable finish and polish. Quality on a project is controlled through quality assurance (QA), which is the process of evaluating overall project performance on a regular basis to provide confidence that the project will satisfy the relevant quality standards.
- **Risk** is defined by potential external events that will have a negative impact on your project if they occur. Risk refers to the combination of the probability the event will occur and the impact on the project if the event occurs. If the combination of the probability of the occurrence and the impact on the project is too high, you should identify the potential event as a risk and put a proactive plan in place to manage the risk.
- **Resources** are required to carry out the project tasks. They can be people, equipment, facilities, funding, or anything else capable of definition (usually other than labor) required for the completion of a project activity.
- **Time** is defined as the time to complete the project. Time is often the most frequent project oversight in developing projects. This is reflected in missed deadlines and incomplete deliverables. Proper control of the schedule requires the careful identification of tasks to be performed and accurate estimations of their durations, the sequence in which they are going to be done, and how people and other resources are to be allocated. Any schedule should take into account vacations and holidays.

Project Priority

Triple constraint traditionally consisted of only time, cost, and scope. These are the primary competing project constraints that you have to be most aware of. The triple constraint is illustrated in the form of a

triangle to visualize the project work and see the relationship between the scope/quality, schedule/time, and cost/resource (*Figure 1-2*).

Projects may have additional constraints, and as the project manager, one needs to balance the needs of these constraints against the needs of the stakeholders and your project goals. For instance, if the sponsor wants to add functionality to the original scope, more money is needed to finish the project. On the other hand, if the budget is cut, there will be a reduction of the quality of the scope. Further, and if there are not appropriate resources to work on the project tasks, the schedule may need to be extended and take much longer to finish the work.

In summary, the constraints are all dependent on each other. Think of all of these constraints as the classic carnival game of Whac-a-mole. Each time you try to push one mole back in the hole, another one pops out. The best advice is to rely on your project team to keep these moles in place.

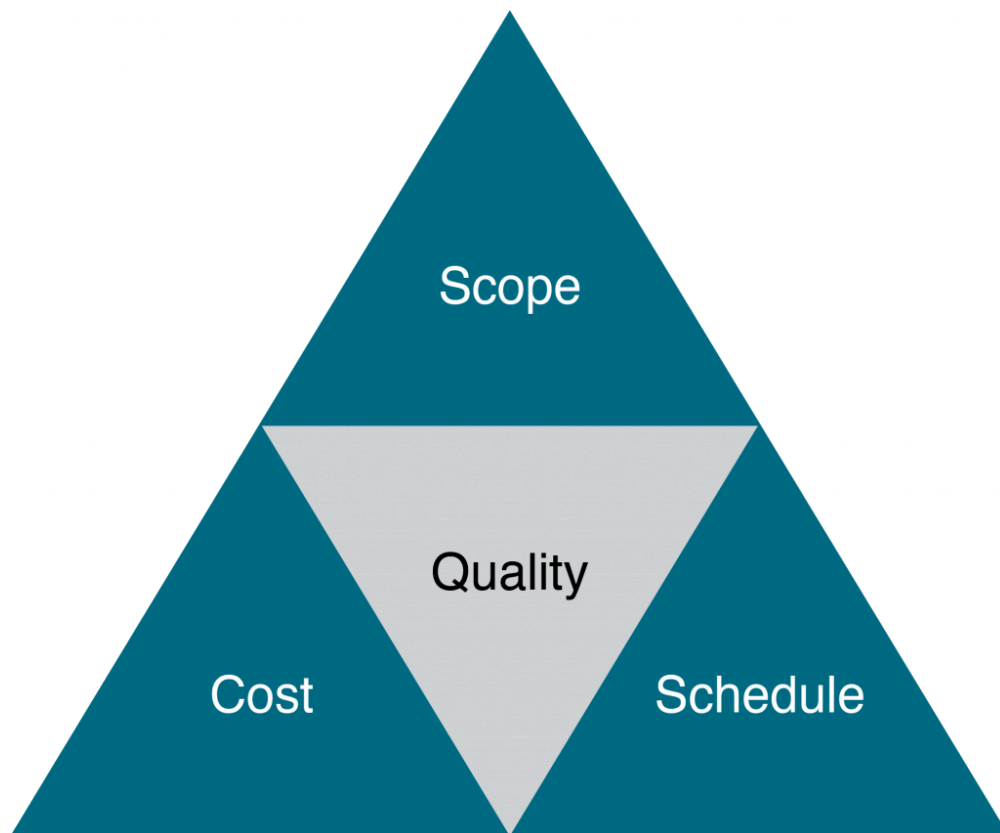


Figure 1-2: A schematic of the triple constraint triangle. Adapted from The [triad constraints](#) by John M. Kennedy T. [CC-BY-SA license](#).

In this triangle, each side represents one of the constraints (or related constraints) wherein any changes to any one side cause a change in the other sides. The best projects have a perfectly balanced triangle. Maintaining this balance is difficult because projects are prone to change. For example, if scope increases, cost and time may increase disproportionately. Alternatively, if the amount of money you have for your project decreases, you may be able to do as much, but your time may increase.

1.5. LIFE CYCLE

The project manager and project team have one shared goal: to carry out the work of the project for the purpose of meeting the project’s objectives. Every project has beginning and middle periods, during which activities move the project towards completion, and an ending that is either successful or unsuccessful.

A standard project typically has the following four major phases (each with its own agenda of tasks and issues): **initiation, planning, implementation, and closure**. Taken together, these phases represent the path a project takes from the beginning to its end and are generally referred to as the project “life cycle” (*Figure 1-3*).

Initiation Phase

During the first of these phases, the **initiation phase**, the project objective or need is identified; this can be a business problem or opportunity. An appropriate response to the need is documented in a business case with recommended solution options. A feasibility or needs analysis study is conducted to investigate whether each

option addresses the project objective and a final recommended solution is determined. Issues of feasibility (“can we do the project?”) and justification (“should we do the project?”) are addressed.

Once the recommended solution is approved, a project is initiated to deliver the approved solution and a project manager is appointed. Thereafter, the major deliverables and the participating work groups are identified, and the project team begins to take shape. Approval is then sought by the project manager to move onto the detailed planning phase.

Planning Phase

The next phase, the **planning phase**, is where the project solution is further developed in as much detail as

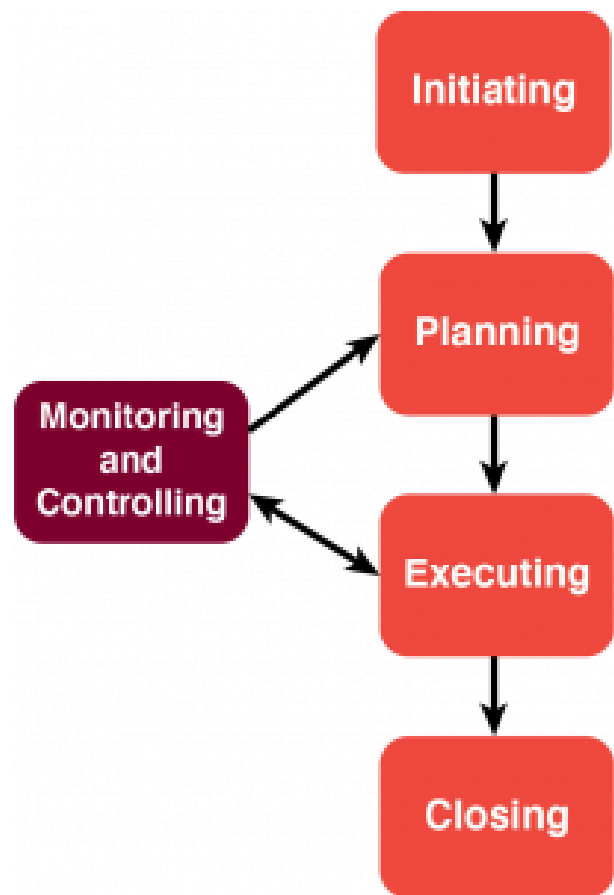


Figure 1-3: Project management phases.

possible and the steps necessary to meet the project's objective are planned. In this step, the team identifies all of the work to be done. The project's tasks and resource requirements are identified, along with the strategy for producing them. This is also referred to as "**scope management.**" A project plan is created outlining the deliverables, milestones, constraints, activities, tasks, lesson plans (if a training plan), dependencies, and timeframes. The project manager coordinates the preparation of a project budget by providing cost estimates for the labor, equipment, and materials costs. The budget is used to monitor and control cost expenditures during project implementation.

Once the project team has identified the work, prepared the schedule, and estimated the costs, the three fundamental components of the planning process are complete. This is an excellent time to identify and try to deal with anything that might pose a threat to the successful completion of the project. This is called **risk management.** In risk management, "high-threat" potential problems are identified along with the action that is to be taken on each high-threat potential problem, either to reduce the probability that the problem will occur or to reduce the impact on the project if it does occur. This is also a good time to identify all project stakeholders and establish a communication plan describing the information needed and the delivery method to be used to keep the stakeholders informed.

Finally, you will want to document a quality plan, providing quality targets, assurance, control measures, and evaluation along with an acceptance plan, listing the criteria to be met to gain customer acceptance. At this point, the project would have been planned in detail and is ready to be executed.

Implementation (Execution) Phase

During the third phase, the **implementation phase**, the project plan is put into motion and the work of the project is performed. It is important to maintain control and communicate as needed during implementation. Progress is continuously monitored and appropriate adjustments are made and recorded as variances from the original plan.

In any project, a project manager spends most of the time in this step. During project implementation, people are carrying out the tasks, and progress information is being reported through regular team meetings. **Gantt charts** are sometimes used in project management to show activities and their dependencies, as well as events and tasks in relation to time. The project manager uses this information to maintain control over the direction of the project by comparing the progress reports with the project plan to measure the performance of the project activities and take corrective action as needed.

The first course of action should always be to bring the project back on course (i.e., to return it to the original plan). If that cannot happen, the team should record variations from the original plan and record and publish modifications to the plan. Throughout this step, project sponsors and other key stakeholders should be kept informed of the project's status according to the agreed-on frequency and form of communication. The plan should be updated and published on a regular basis.

Status reports should always emphasize the anticipated end point in terms of cost, schedule, and quality

of deliverables. Each project deliverable produced should be reviewed for quality and measured against the acceptance criteria. Each project deliverable produced needs to be reviewed for quality and measured against the acceptance criteria. Once all the deliverables have been produced and the customer has accepted the final solution, the project is ready for closure. The status report is based on the approved baseline of the project cost, scope, and schedule. It is reported truthfully with any new risks and issues. Accurate reporting allows the management team support the project and team “before” the project gets off track.

Closure Phase

During the final **closure phase**, or completion phase, the emphasis is on releasing the final deliverables to the customer, handing over project documentation to the business, terminating supplier contracts, releasing project resources, and communicating the closure of the project to all stakeholders. The last remaining step is to conduct evaluations and lessons-learned studies to examine what went well, what did not go well, and what could be learned to improve the next time a project of similar nature is completed. Through this type of analysis, the wisdom of experience is transferred back to the project organization, which will help future project teams.

Think!

Think about a project that you have completed in the past? Did you follow the 4 phases of Project Management? If you didn't, would it have been helpful if you had followed the 4 phases?

1.6. KNOWLEDGE CHECK

Question 1



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Question 2



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Question 11



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Question 12



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1.7. KEY TERMS

Agile project management: A broad term for project management techniques that are iterative (repetitive) in nature (divided into specific periods of time). [1.3](#)

Closure Phase or Completion Phase: the emphasis is on releasing the final deliverables to the customer, handing over project documentation to the business, terminating supplier contracts, releasing project resources, and communicating the closure of the project to all stakeholders. [1.5](#)

Compliance Projects: Must be done in order to comply with industry or governmental regulations or standards. [1.3](#)

Cost: The budget approved for the project includes all necessary expenses needed to deliver the project. [1.4](#)

Function Point Analysis: A set of rules to measure functionality to users. [1.3](#)

Gantt Charts: is sometimes used in project management to show activities and their dependencies, as well as events and tasks in relation to time [1.5](#).

Implementation Phase: the project plan is put into motion and the work of the project is performed. [1.5](#)

Initiation Phase: the project objective or need is identified; this can be a business problem or opportunity. [1.5](#)

Life Cycle: The project manager and project team have one shared goal: to carry out the work of the project for the purpose of meeting the project's objectives. [1.5](#)

Operation: Involve work that is continuous without an ending date and with the same processes repeated to produce the same results. [1.2](#)

Operational Projects: Improve current operations. These projects may not produce radical improvements, but they will reduce costs, get work done more efficiently, or produce a higher quality product. [1.3](#)

Planning Phase: is where the project solution is further developed in as much detail as possible and the steps necessary to meet the project's objective are planned [1.5](#)

Program: A group of projects are arranged towards achieving a certain goal. A cluster of interconnected projects [1.2](#)

Projects: Temporary initiatives that companies put into place alongside their ongoing operations to achieve specific goals. They are clearly defined packages of work, bound by deadlines and endowed with resources including budgets, people, and facilities [1.2](#)

Quality: A combination of the standards and criteria to which the project's products must be delivered for them to perform effectively. [1.4](#)

Quality Assurance (QA): is the process of evaluating overall project performance on a regular basis to provide confidence that the project will satisfy the relevant quality standards. [1.4](#)

Resources: are required to carry out the project tasks. They can be people, equipment, facilities, funding, or

anything else capable of definition (usually other than labour) required for the completion of a project activity [1.4](#)

Risk: is defined by potential external events that will have a negative impact on your project if they occur. [1.4](#)

Risk Management: “high-threat” potential problems are identified along with the action that is to be taken on each high-threat potential problem, either to reduce the probability that the problem will occur or to reduce the impact on the project if it does occur. [1.5](#)

Scope: This is what the project is trying to achieve. It entails all the work involved in delivering the project outcomes and the processes used to produce them. [1.4](#)

Scope Management: a project plan is created outlining the deliverables, milestones, constraints, activities, tasks, lesson plans (if a training plan), dependencies, and timeframes. [1.5](#)

Strategic Projects: Involve creating something new and innovative. A new product, a new service, a new retail location, a new branch or division, or even a new factory might be a strategic project because it will allow an organization to gain a strategic advantage over its competitors. [1.3](#)

Time: is defined as the time to complete the project. Time is often the most frequent project oversight in developing projects. [1.4](#)

Triple Constraint: traditionally consisted of only time, cost, and scope. These are the primary competing project constraints that you have to be most aware of. [1.4](#)

Waterfall: Where phases of projects are sequential [1.3](#)

CHAPTER 2 – CULTURE AND STRUCTURES OF ORGANIZATIONS



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2.1. LEARNING OUTCOMES

Learning Outcomes

By the end of this chapter, you will be able to:

1. Describe the different types of organizational structures
2. Explain the relative advantages and disadvantages of each structure as it relates to project management
3. Define terms related to business and HR strategy and portfolios
4. Discuss basic concepts related to strategy
5. Distinguish between strategy and operational effectiveness
6. Discuss issues related to aligning projects with strategy
7. Explain the three broad categories of projects
8. Identify project selection methods.

2.2. STRUCTURES

There are three broad structures by which an organization can be organized: **functional, matrix, and projectized**. These structures represent a continuum, from structures where the project manager has very little authority (functional) to those where project managers have very broad power (projectized) (See *Figure 2-1*).

There have been many studies about the impact that organizational structure has on project success, and it is not uncommon for corporations to change their organizational structure in order to increase their relative success in executing projects on time and within budget. This type of change takes great effort and may take a long period of time to fully implement. Instead of changing their entire structure, an organization may elect to create a dedicated project team in order to carry out a critical project without reorganizing the entire enterprise. This way, they can get many of the same benefits of the projectized organization without reorganizing the enterprise. This approach is not without risk, as we'll explore in the section on dedicated project teams.

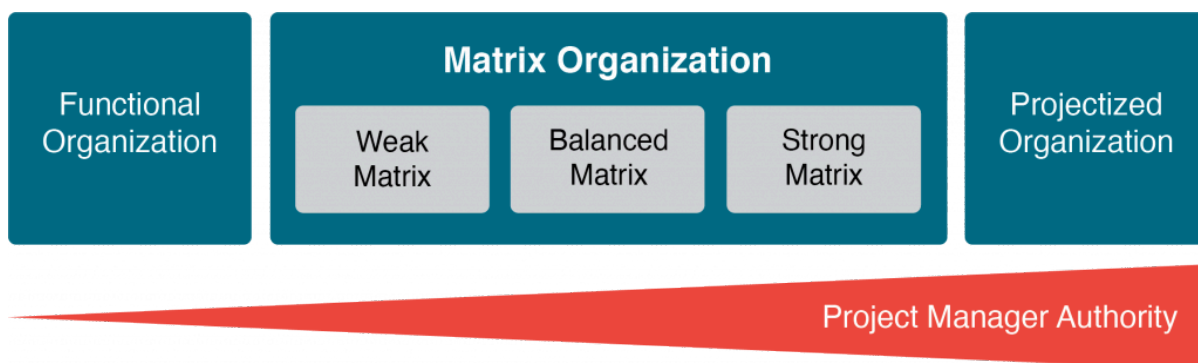


Figure 2-1: Project Manager Authority and Organization Type

Functional Organizations

Perhaps the least project-focused type of organization are **functional organizations**. Large organizations are traditionally organized by function into various departments, with staff in each department reporting to a departmental manager or head of department. This allows for groupings of specialists within the organization where they can work together, share knowledge and prioritize their work. Traditional functional departments might include:

- Human resources
- Accounting
- Procurement
- Marketing

- Sales
- Shipping

These functional units work independently of each other, and the **functional managers (regular managers)** serve as conduits for communications and collaboration (*See Figure 2-2*). This type of structure is very efficient for operations management where continuous process improvement can be conducted on all regular departmental operations. However, it is not optimal for the completion of projects. Human resources departments often work within functional organizations.

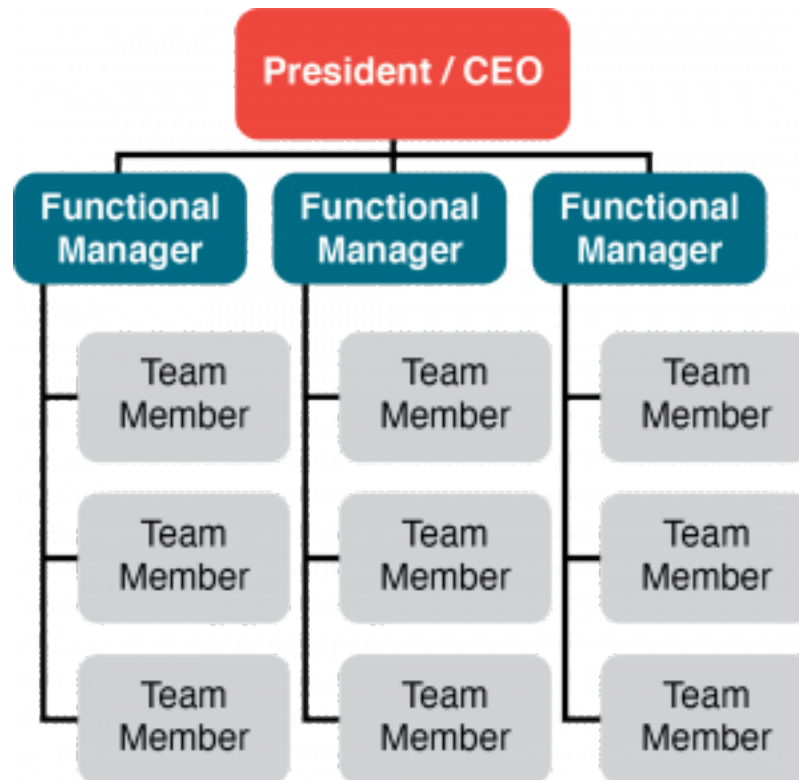


Figure 2-2: Functional Organization Structure

HR in Focus

Primarily, there are six functions within human resources and they include: recruitment and selection, health and safety, employee-employer or industrial relations, compensation/benefits,

labour law compliance, and training and development. The HR function strengthens the employer-employee relationship. Within a functional organization, the HR department provides the structure and aptitude to meet business needs through the company's most valuable asset-the employees.

Projects often require work across disciplines. There are several HR disciplines, however HR specialists in each discipline may fulfill one or more of the six functions. In the functional organization, with staff isolated inside their departmental "silos," communication is directed through the functional managers. These managers often have differing priorities, which can make communications slow and error-prone in a functional organization. However, human resources, as a department, may act as a conduit to the other departments and help them work collaboratively as departments, or with projects.

The success of projects within a functional organization depends on functional managers working together and co-operating. While someone may be designated as the project manager for a particular project, that person may not have much authority (*See Figure 2-3*). Often titles such as Project Coordinator, Project Scheduler, or Project Expediter will be used instead. Regardless of title, those in charge of projects are often put in the role of simply trying to maintain a schedule of what is happening.

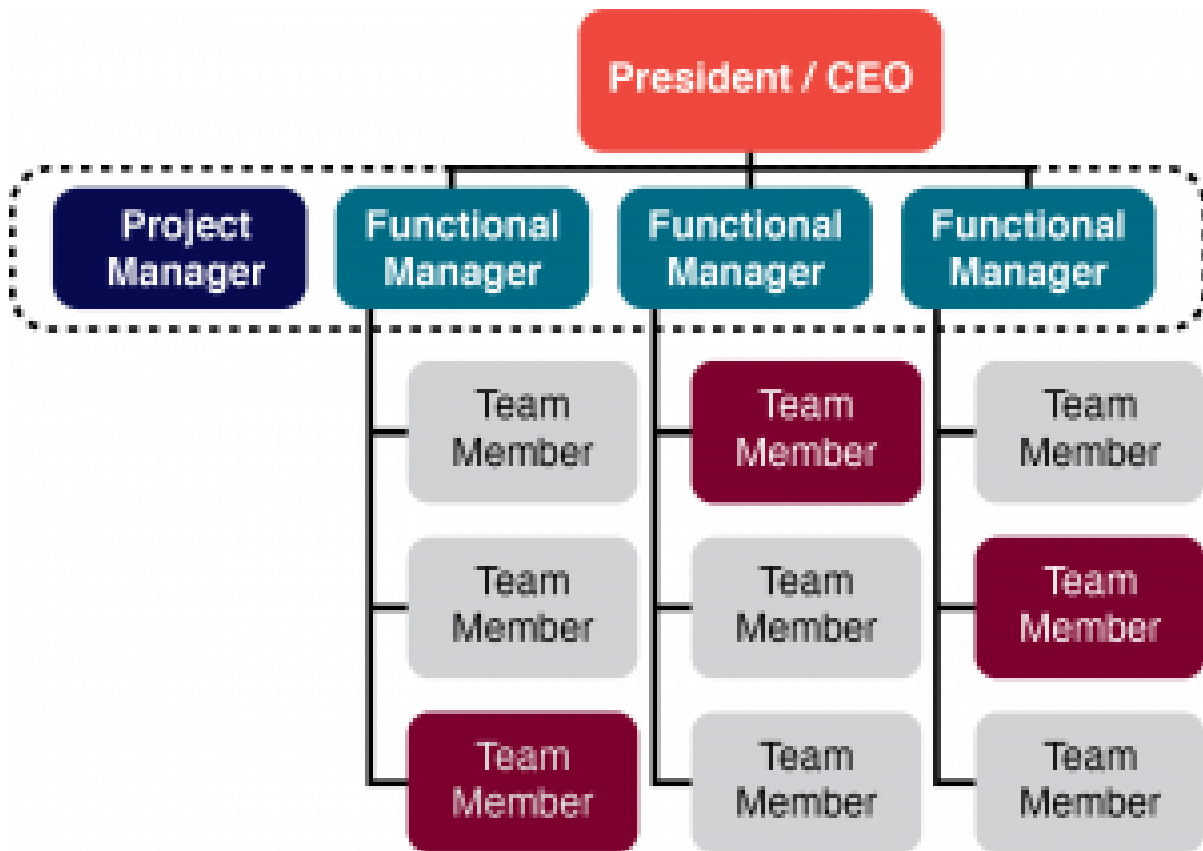


Figure 2-3: A “Project Manager” in a functional organization

The [PMI](#) identifies the following project characteristics for projects conducted in functional organizations:

- Project Manager’s Authority: Little or None
- Resource Availability: Little or None
- Who Manages the Project Budget: Functional Manager
- Project Manager’s Role: Part-time
- Project Management Administrative Staff: Part-time

Projectized Organizations

Projectized organizations are at the opposite end of the organizational spectrum from functional organizations. Organizational energy and resources are focused on completing projects rather than ongoing

operations. In a **projectized organization**, operations are minimal and the project manager has great authority over resources and personnel decisions. Projectized organizations may have organizational units called departments and these groups either report directly to the project manager or provide support services to projects. In the project-based structure, personnel are specifically assigned to the project and report directly to the project manager (See Figure 2-4). The project manager is responsible for the performance appraisal and career progression of all project team members while on the project.

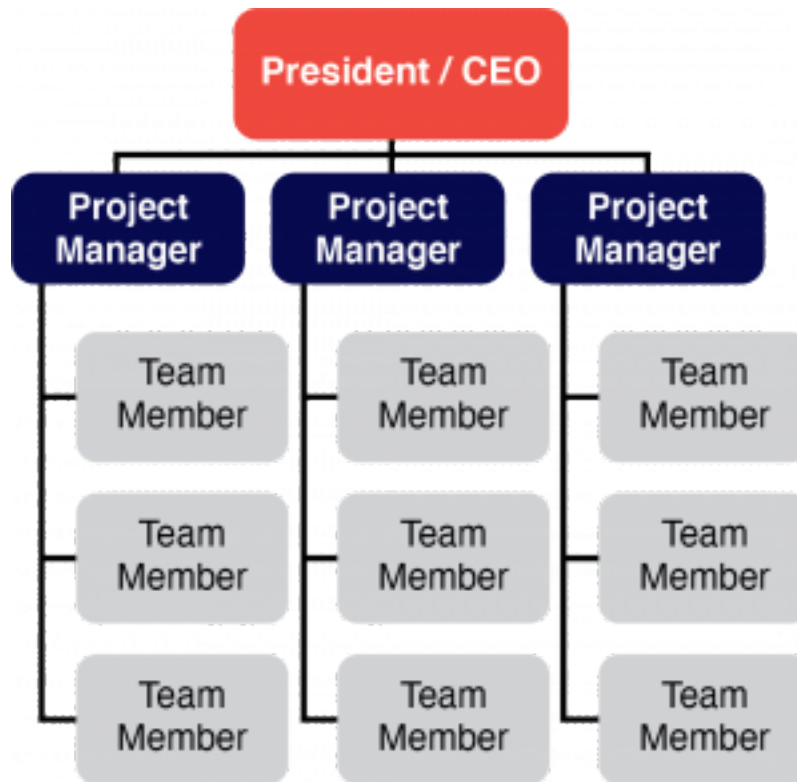


Figure 2-4: Projectized Organizations

HR in Focus : HR & Projectized Organizations

An HR Project Manager in a projectized organization would work with any or all departments on projects. They could manage the project if it was part of an HR function, or they may support the project in relation to “people.” In this case, the Project Manager would determine the people who would be needed for the project, participate in the hiring or assigning of team members,

support coordination related to communication between and among the stakeholders, create job descriptions for the team members, ensure all the roles and responsibilities for the team are assigned, understand and provide all the training for the team as it relates to the project, provide reports on performance of team members individually and as a group, or create recognition and reward systems for the project team.

Employees in a dedicated team in this type of environment are able to focus their loyalty to a project rather than their particular discipline. Not all people can succeed in such an organization, as they must adapt to the leadership styles and organizational skills of different project managers. Human resources specialists can support this adaptation by training team members in various leadership styles and how to modify their behaviour to match different project manager leadership styles.

Examples of project-based organizations include construction companies, aeronautical manufacturers, training and development companies, personnel and hiring companies, and many software development companies. This type of organizational structure can put additional stress on employees if they have no home to return to once their project is over, or if they are not selected for a subsequent project. Human resources can play an active role in supporting employees to find other work within the organization, or to provide external job search support.

Projectized organizations are considered ideal for project management since there is a significant reduction in the layers of bureaucracy that a project manager must navigate. PMI identifies the following project characteristics for projects conducted in projectized organizations:

- Project Manager's Authority: High or Absolute
- Resource Availability: High or Absolute
- Who Manages the Project Budget: Project Manager
- Project Manager's Role: Full-time
- Project Management Administrative Staff: Full-time

Matrix Organizations

While the functional structure may work well in times of little change, it has some serious limitations when the success of a company depends on being adaptable. A **matrix structure** tries to combine the strengths a functional organization provides for operations management with the strengths a projectized organization provides for project management. In a matrix organization, the functional and project manager share authority and responsibility. This can lead to several negatives:

- Employees can have two supervisors to which they have to report, breaking the rule of a solitary chain of command.
- Employees have to balance their work between the needs of the projects, they are working on, and their functional unit.
- Supervisors may find that it is more difficult to achieve a consistent rate of progress since employees are often pulled in different directions.
- Costs and communication channels can increase.

However, there are several advantages to a matrix structure in terms of projects:

- It significantly disrupts the communication “silos” of a functional organization, creating a more horizontal structure for teams and increasing the flow of information.
- It allows people to concentrate of their areas of specialty and bring that strength to current projects.

PMI recognizes three types of matrix structures, as described below (*See also Figure 2-5*).

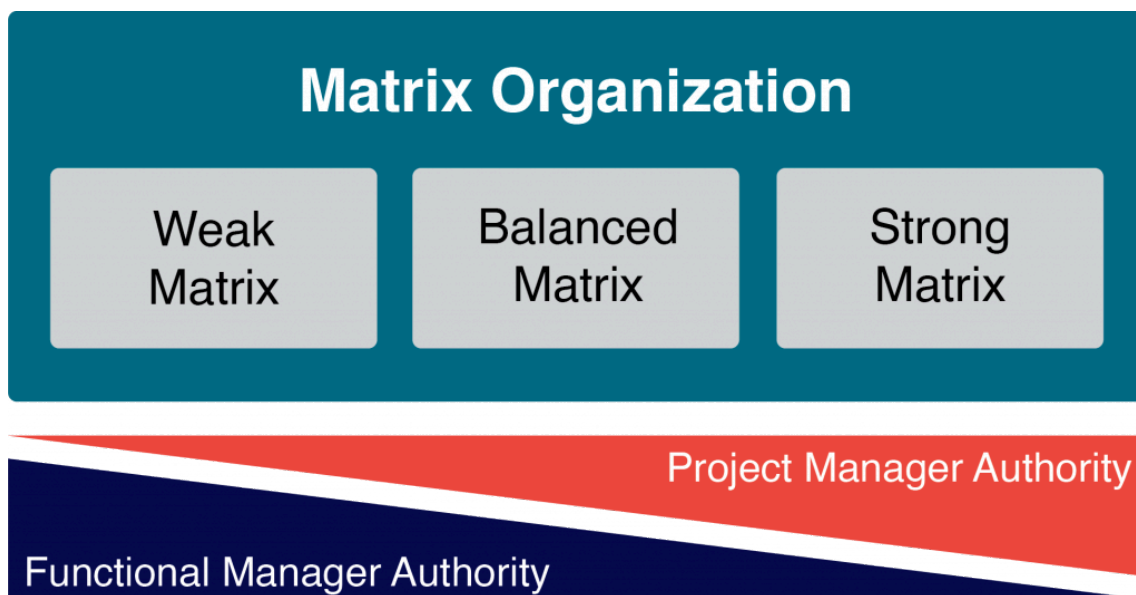


Figure 2-5: Matrix Organization

Weak Matrix: The project manager has less authority over resources and people than the functional managers. Project managers in a weak matrix may go by other titles such as a project coordinator or project scheduler.

Balanced Matrix: In a balanced matrix, the project manager and functional managers equally share authority over resources and staff. This allows the organization to experience the “best of both worlds” by receiving the benefits of a projectized organization and functional organization at the same time. However, this system presents many challenges:

- Functional managers and project managers have to work well together and maintain regular communications. Staff will have two managers to which they have to report, breaking the concept of the chain of command and organization.
- If functional and project managers have conflicting priorities, subordinates may be unable to meet expectations.

Strong Matrix: In a strong matrix, the project manager has more direct control over resources and staffing, while the functional manager will provide support to the project staff in terms of hiring, technical expertise, and professional development. Of all the matrix structures, this is the one in which the project manager has the most authority, and the functional manager has the least.

HR in Focus: Human Resources and Matrix Organizations

Human Resources departments can assist projects and project managers in matrix organization similar to a functional organization or a projectized organization. Human resources specialists can reduce or eliminate the negatives of a matrix organization.

1. They can support team members and supervisors in streamlining the reporting systems to avoid confusion and frustration for all concerned.
2. They can provide assistance in helping the employees balance their work between projects and their functional role within the unit. Extra workers can be hired to temporarily replace project team members. Clear job descriptions can be created to reduce confusion of loyalty to the project and the functional unit, as well as helping to avoid burn-out of employees attempting to balance two different roles.
3. These strategies also reduce the stress for supervisors and project managers; in turn improve the rate of progress for the projects.
4. Human Resources departments can create clear and coordinated communication channels between all the stakeholders improving relationships, resolving problems, and building trust among the stakeholders.

Dedicated Project Team

Many functional organizations find that they often need to carry out important projects but do not want to change their entire organizational structure. Recognizing the advantages that are achieved by giving authority to a project manager, functional organizations often organize **dedicated project teams** where a project manager can have authority over the staff assigned to that particular project. The project manager and project team members are sometimes located in a special office, away from the desks and duties that they normally have within the functional organization (See Figure 2-6). This can be a very effective way to complete projects. However, some difficulties can arise:

- Temporary loss of staff from the functional groups.
- Integration of project team members back into the functional organization after the project is completed can be difficult.
- An “us versus them” mentality, where the people on the project team are deemed to be more special than those working in the functional departments. There have been numerous case studies of conflict arising from dedicated project teams.

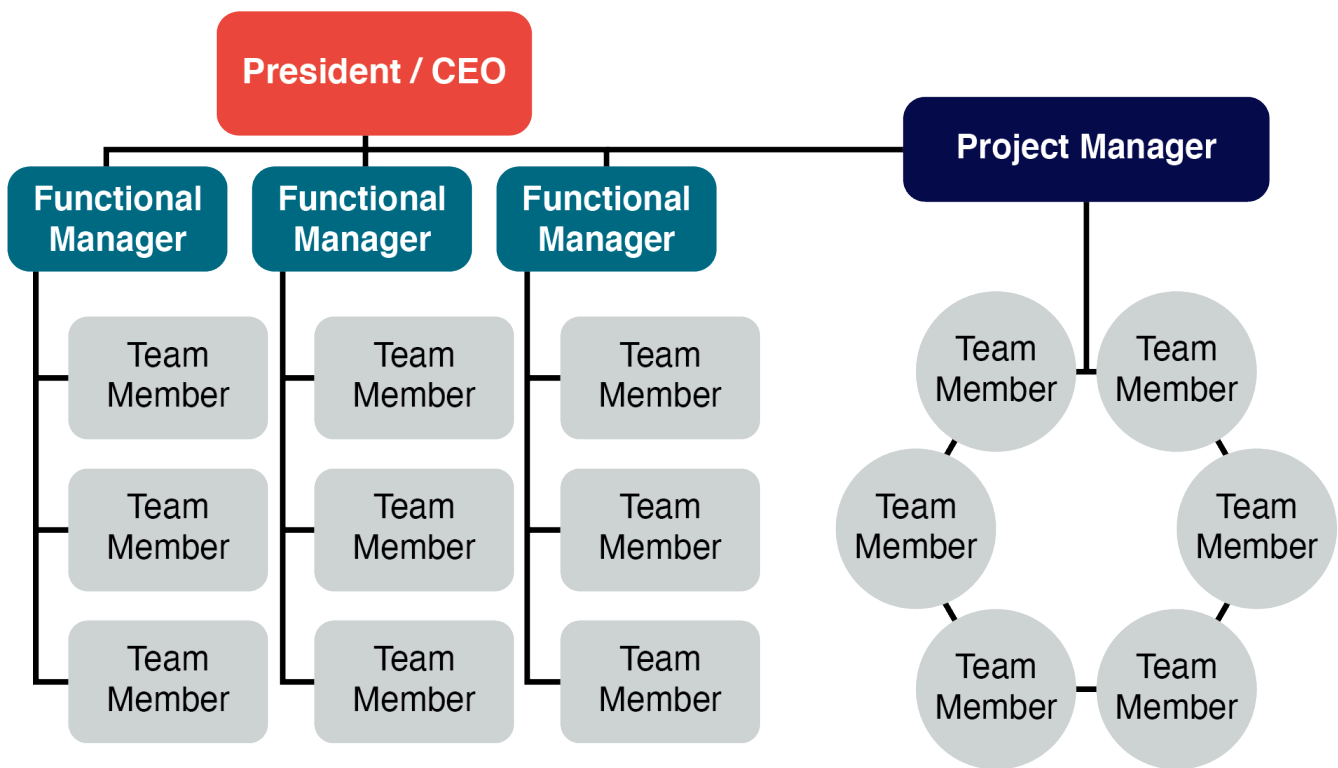


Figure 2-6: Dedicated Project Team

HR in Focus: Human Resources and Dedicated Project Teams

Human Resources departments can help reduce or eliminate difficulties experienced by dedicated teams.

1. They can help replace staff lost to the dedicated team within the functional unit.
2. They can assist both the functional employees and the dedicated team to integrate back into the functional organization after the project is completed by facilitating meetings, discussing and resolving concerns of individual team members, establishing new work goals for team members, and provide training for supervisors on how to integrate employees back into their unit.
3. They can provide facilitated meetings with all members of the unit to discuss any concerns and allow the unit members to come up with solutions to work in harmony to avoid “us versus them” mentality.

Think!

If you have worked in any job, you may be able to figure out what type of organization you work for by the different structures explained above. What type of organization was your past/current employer? When you are working as an Human Resources Specialist upon graduation, which structure of organization would you like to work for? Why?

2.3. CULTURE



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What Is Organizational Culture?

When working with internal and external customers on a project, it is essential to pay close attention to relationships, context, history, and the organizational culture. **Organizational culture** refers to the beliefs, attitudes, and values that the organization's members share and the behaviours consistent with them. Also, called corporate culture, it is what sets one organization apart from another, and dictates how members of the organization will see you, interact with you, and sometimes judge you. Often, projects have a specific culture, work norms, and social conventions.

Some aspects of corporate culture are easily observed; others are more difficult to discern. You can easily observe the office environment and how people dress and speak. In one company, individuals work separately in closed offices; in another, teams may work in a shared environment. The more subtle components of corporate culture, such as the values and overarching business philosophy, may not be readily apparent, but they are reflected in member behaviours, symbols, and conventions used.

Values are stable, evaluative beliefs that guide a person or an organization in our preferences for outcomes or a certain course of action to be taken. It is about what is believed to be good or bad, right or wrong in the

eye's of the person or organization. When organizational culture is being discussed, it is often referred to as **shared values** or the values that everyone within the organization work toward as common goals. Also, it refers to **shared assumptions** which is seen as the real essence of the organization. Shared assumptions are unconscious perceptions of people's behaviour that is considered the "right way to think, act and behave." They are ingrained within people and not easy to see.

This is where trained HR Specialists are able to observe employee's behaviours and actions, and then support them to "do" the right thing, to act and behave in correct ways. As well, HR Specialists provide training for Management in how to observe these behaviours. Or, even provide training for employees to self-identify with their own actions and behaviours.

Core values are often defined in a company's mission and/or vision statement. Some examples of core values could include responsibility meaning a "green" working environment; accountability to employees and our customers; we are an inclusive work environment; we are a leader through our innovation of products; and we are a work-life balance company.

Sometimes, the values statements do not align with what is actually practiced in the organization. The values are what organizations want employees to believe and aspire to in the organization. Some employees may have conflicting values with the organization. The way to influence employees to follow the values of the organization is for senior management to guide and practice the organization's values. In turn, it is hoped that employees will model the same behaviours and act in the same way.

Human Resources trainers can have a huge influence over aligning the employees with the organization's values; and result in an organizational culture that is supported by its employees.

HR in Focus: Human Resources and Culture

Human Resources departments are strongly connected to corporate culture and helping to develop and strong culture within the organization. According to Cabera and and Bonache (1999), "two key factors for success in today's competitive environment are continuously espoused to be an organization's culture and its HR practices, both of which influence the behaviour or organizational members" (p. 2). A continuous changing work environment contributes to a changing corporate culture. As the demographics, competition, work force norms and values change, the HR role continues to evolve. It is HR's responsibility to facilitate the changes. They provide training for all employees, create communication channels between and among all the internal stakeholders,

involve the employees in change, help employees to set clear goals and design fair and equitable compensation and benefits systems.

Another role HR plays is developing strategies that help coordinate the business strategy with the HR strategy that focuses on improved performance, knowledge sharing, building trust and creating learning opportunities. HR wants to align the employees with senior management's vision and mission through education and awareness. To understand the culture of an organization, several factors need to be taken into consideration.

Recruitment and selection of employees by HR Specialists is a way for an organization to increase corporate culture. When HR recruits and selects and retains people with values and beliefs that align with the organization's values and beliefs, this results in a harmonious organization and a strong culture. When interviewing, HR Specialists will look for artifacts, ask about a person's personal values and beliefs, and ask behavioural questions. They are looking for a "fit" with the organization's culture.

Culture and Environments

There are many factors that need to be understood within your project environment (*Figure 2-7*). At one level, you need to think in terms of the **cultural and social environments** (i.e., people, demographics, and education). The international and **political environment** is where you need to understand about different countries' cultural influences. Furthermore, the **physical environment** of the project requires you to consider the impact of time zones. Think about how your project will be executed differently whether it is just in your country or if it involves an international project team that is distributed throughout the world in five different countries.

Of all the factors, the physical ones are the easiest to understand, and it is the **cultural and international factors** that are often misunderstood or ignored. How we deal with clients, customers, or project members from other countries can be critical to the success of the project. For example, the culture of the United States values accomplishments and individualism. Americans tend to be informal and call each other by first names, even if having just met. Europeans tend to be more formal, using surnames instead of first names in a business setting, even if they know each other well. In addition, their communication style is more formal than in the United States, and while they tend to value individualism, they also value history, hierarchy, and loyalty. The Japanese, on the other hand, tend to communicate indirectly and consider themselves part of a group, not as individuals. The Japanese value hard work and success, as most of us do.

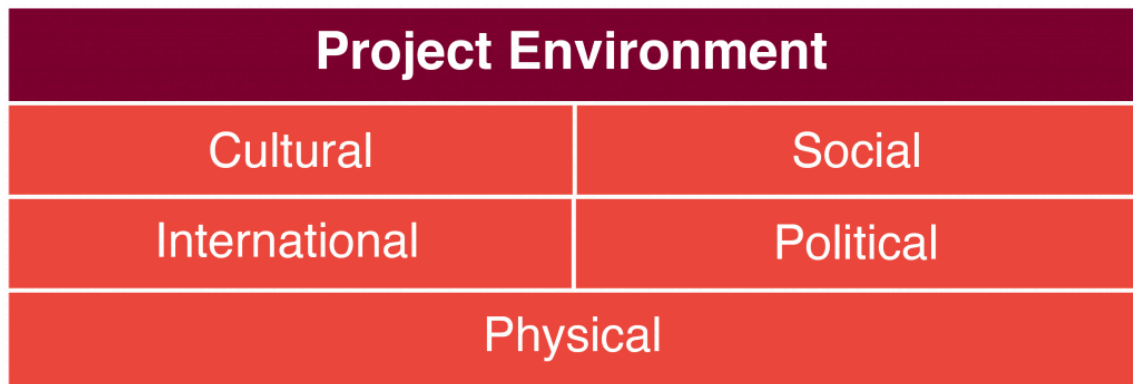


Figure 2-7: The important factors to consider within the project environment.

The importance of understanding the organizational culture and strategy is important to projects. HR Specialists can play a role in assisting project managers in identifying the relationship between organizational culture and selection of projects. If the project does not align with the corporate culture and strategy, it could fail. When independent decisions are made by different departments there is confusion and often conflict. This can lead to unhappy customers. Projects must be aligned with strategy that evolves from the corporate culture. A selection process of priorities to the organization, and that align with its strategy and the project are the success markers. Otherwise, companies waste people's time, energy and money. Products and services need to be of high quality for customers.

How a product or service is received can be very dependent on the international cultural differences. For example, in the 1990s, when many large American and European telecommunications companies were cultivating new markets in Asia, their customer's cultural differences often produced unexpected situations. Western companies planned their telephone systems to work the same way in Asia as they did in Europe and the United States. But the protocol of conversation was different. Call-waiting, a popular feature in the West, is considered impolite in some parts of Asia. This cultural blunder could have been avoided had the team captured the project environment requirements and involved the customer.

It is often the simplest things that can cause trouble since, unsurprisingly, in different countries, people do things differently. One of the most notorious examples of this is also one of the simplest: date formats. What day and month is 2/8/2021? Of course, it depends where you come from: in North America, it is February 8th while in Europe (and much of the rest of the world) it is 2nd August. Clearly, when schedules and deadlines are being defined it is important that everyone is clear on the format used.

The diversity of practices and cultures and its impact on products in general and on software in particular goes well beyond the date issue. You may be managing a project to create a new website for a company that sells products worldwide. There are language and presentation style issues to take into consideration; converting the site into different languages isn't enough. It is obvious that you need to ensure the translation is correct; however, the presentation layer will have its own set of requirements for different cultures. The left side of a website may be the first focus of attention for a Canadian; the right side would be the initial focus for anyone

from the Middle East, as both Arabic and Hebrew are written from right to left. Colors also have different meanings in different cultures. White, which is a sign of purity in North America (e.g., a bride's wedding dress), and thus would be a favored background color in North America, signifies death in Japan (e.g., a burial shroud).

Color	Canada	China	Japan	Egypt	France
Red	Danger, stop	Happiness	Anger, danger	Death	Aristocracy
Blue	Sadness, melancholy	Heavens, clouds	Villainy	Virtue, faith, truth	Freedom, peace
Green	Novice, apprentice	Ming dynasty, heavens	Future, youth, energy	Fertility, strength	Criminality
Yellow	Cowardice	Birth, wealth	Grace, nobility	Happiness, prosperity	Temporary
White	Purity	Death, purity	Death	Joy	Naturality

Table 2-1 The meaning of colors in various cultures (Russo & Boor, 1883).

Project managers in multicultural projects must appreciate the culture dimensions and try to learn relevant customs, courtesies, and business protocols before taking responsibility for managing an international project. A project manager must take into consideration these various cultural influences and how they may affect the project's completion, schedule, scope, completion and cost. How the team meets and when they meet must be factored into the project timeline and deliverables.

Creating a Project Culture

Human Resources and Project Managers have a unique opportunity during the start-up of a project. They create a **project culture**, something organizational managers seldom have a chance to do. In most organizations, the corporate or organizational culture has developed over the life of the organization, and people associated with the organization understand what is valued, what has status, and what behaviors are expected. Edgar Schein identified three distinct levels in organizational culture.

1. **Artifacts and behaviours:** something valued by a certain culture . They are symbols and signs of an organization's culture. They are observable. ie. country's flag, how people dress; how people conduct themselves around others, how people are greeted when entering a building.
2. **Espoused values:** values expressed by an organization, standards, what does the organization stand for (for example: mission statement, tag lines; honesty, trust, consistency, integrity).
3. **Assumptions:** unknown and generally not written down, employee's beliefs, perceptions, feelings.

Artifacts are the visible elements in a culture and they can be recognized by people not part of the culture. **Espoused values** are the organization's stated values and rules of behavior. Shared basic **assumptions** are the deeply embedded, taken-for-granted behaviors that are usually unconscious, but constitute the essence of culture.

Characteristics of Project Culture

A **project culture** represents the shared norms, beliefs, values, and assumptions of the project team. This is very similar to the corporate culture. Understanding the unique aspects of a project culture and developing an appropriate culture to match the complexity profile of the project are important project management abilities.

Culture is developed through the communication of:

- The priority
- The given status
- The alignment of official and operational rules

Official rules are the rules that are stated, and **operational rules** are the rules that are enforced. Project managers who align official and operational rules are more effective in developing a clear and strong project culture because the project rules are among the first aspects of the project culture to which team members are exposed when assigned to the project.

Think!

Can you think of artifacts that are in Canadian culture, or the culture of your home country?

Creating a Culture of Collaboration within and Instructional Design team in Human Resources

A Project Manager met with his team prior to the beginning of an instructional design project in Human Resources. The team was excited about the prestigious project and the potential for career advancement involved. With this increased competitive aspect came the danger of selfishness and backstabbing. The project leadership team told stories of previous projects where

people were fired for breaking down the team efforts and often shared inspirational examples of how teamwork created unprecedented successes—an example of storytelling. Every project meeting started with team-building exercises (a ritual) and any display of hostility or separatism was forbidden (taboo) and was quickly and strongly cut off by the project leadership if it occurred.

Culture guides behaviour and communicates what is important and is useful for establishing priorities. On projects that have a strong culture of trust, team members feel free to challenge anyone who breaks a confidence, even managers. The culture of integrity is stronger than the cultural aspects of the power of management.

2.4. STRATEGY AND EFFECTIVE PROJECT MANAGEMENT

Effective project management and execution start with choosing the right projects. While you might not have control over which projects your organization pursues, you do need to understand why your organization chooses to invest in particular projects so that you can effectively manage your projects and contribute to decisions about how to develop and, if necessary, terminate a project. Your study of technical project management will primarily focus on doing things the right way. In this chapter, we'll concentrate on doing the right thing from the very beginning.

It's helpful to start with some basic definitions:

- **Project:** The “temporary initiatives that companies put into place alongside their ongoing operations to achieve specific goals. They are clearly defined packages of work, bound by deadlines and endowed with resources including budgets, people, and facilities” (Morgan et al., 2007, p. 3). Note that this is a more expansive definition than the Cambridge English Dictionary definition piece of planned work or activity that is completed over a period of time and intended to achieve a “particular aim”. In this, lesson we focus on the trade-offs necessitated by deadlines and limited resources.
- **Program:** “A cluster of interconnected projects” (Morgan et al., 2007, p. 9).
- **Portfolio:** The “array of investments in projects and programs a company chooses to pursue” (Morgan et al., 2007, p. 3).
- **Strategy:** According to Merriam-Webster (n.d.) dictionary, it is “a careful plan or method for achieving a particular goal usually over a long period of time.”

As shown in *Figure 2-8*, a portfolio is made up of programs and projects. An organization's strategy is the game plan for ensuring that the organization's portfolios, programs, and projects are all directed toward a common goal.

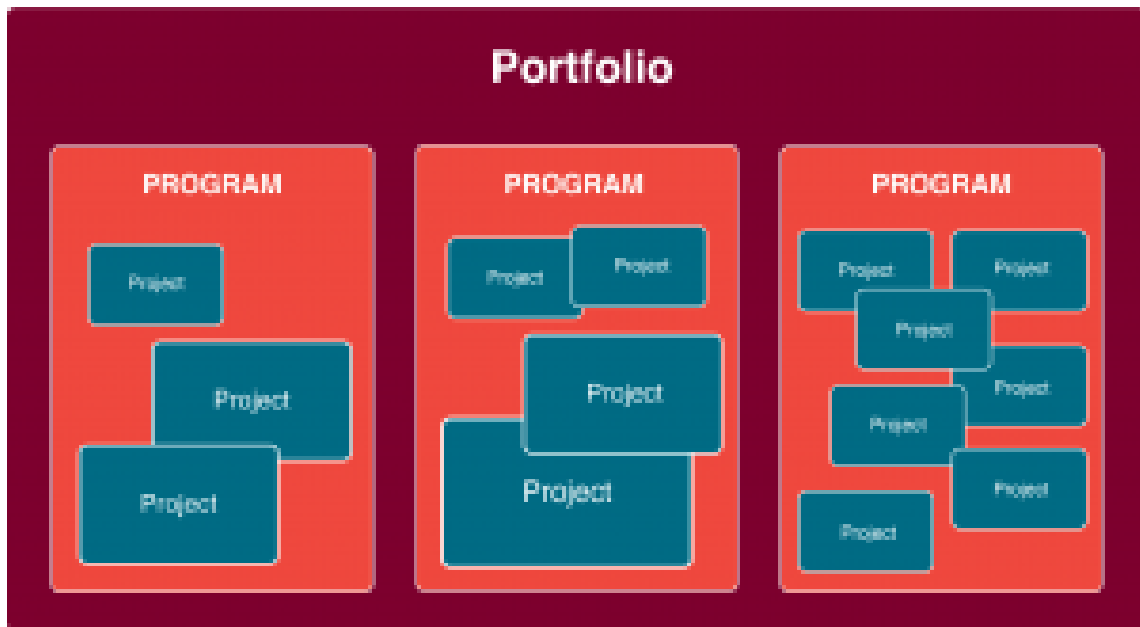


Figure 2-8: Relationship between a portfolio, programs, and projects.

The Essence of Strategy

An organization without a clearly defined strategy can never expect to navigate the permanent white-water of living order. This is especially true if the strategy is motivated by the organization attempting to push its vision onto customers, rather than pulling the customer's definition of value into its daily operations. An organization's strategy is an expression of its mission and overall culture. In a well-run company, every decision about a project, program, or portfolio supports the organization's strategy. The strategy, in turn, defines the company's portfolio and day-to-day operations. Projects and their budgets flow out of the organizational strategy. Morgan et al. (2007) emphasize the importance of aligning a company's portfolio with its strategy:

Without clear leadership that aligns each activity and every project investment to the espoused strategy, individuals will use other decision rules in choosing what to work on: first in, first out; last in, first out; loudest demand; squeakiest wheel; boss's whim; least risk; easiest; best guess as to what the organization needs; most likely to lead to raises and promotion; most politically correct; wild guess—or whatever they feel like at the time. Portfolio management still takes place, but it is not necessarily aligned with strategy, and it occurs at the wrong level of the organization (2007, p. 5).

HR in Focus: Human Resources' Impact on Organizational

Strategy

Human Resources must align with the organization's strategy. Beyond this, Human Resources creates a strategic human resources plan designed to develop complementary goals for the future of the company. These goals involve recruitment and selection, training and development, compensation and succession planning for employees. The HR strategies benefit the employees.

The benefits to employees include:

1. Hiring the right people, at the right time for the right position/job
2. Providing fair and equitable pay and benefits
3. Training that best suits the organization, department and employee's skills
4. Creating high-performing teams
5. Furnish security for all employees
6. Make company information accessible for all

The Human Resources role is to create a strategic HR Plan that is results-oriented and that creates a culture that supports the organizational goals. Results-oriented goals ensure the skills of all the employees have been analyzed. One of the best ways to gather this information is through a job analysis. They must develop competitive wages and benefits, manage employee performance, recruit the best talent, and provide training for employees. HR Managers could develop projects to design the strategic HR plan.

As a project manager, you should be able to refer to your organization's strategy for guidance on how to proceed. You should also be able to use your organization's strategy as a means of crossing possibilities off your list. Michael E. Porter, author of the hugely influential book *Competitive Strategy*, explains that strategy is largely a matter of deciding what your organization won't do. In an interview with *Fast Company* magazine, he puts it like this:

The essence of strategy is that you must set limits on what you're trying to accomplish. The company without a strategy is willing to try anything. If all you're trying to do is essentially the same thing as your rivals, then it's unlikely that you'll be very successful. It's incredibly arrogant for a company to believe that it can deliver the same sort of product that its rivals do and actually do better for very long. That's especially true today, when the flow of information and capital is incredibly fast (Hammonds, 2001).

Ultimately, strategy comes down to making trade-offs. It's about "aligning every activity to create an offering that cannot easily be emulated by competitors" (Porter, 2001). Southwest Airlines, which has thrived while most airlines struggle, is often hailed as an example of a company with a laser-like focus on a well-defined strategy. Excluding options from the long list of possibilities available to an airline allows Southwest to focus on doing a few things extremely well—specifically providing reliable, low-cost flights between mid-sized cities. As a writer for Bloomberg View puts it:

By keeping the important things simple and implementing them consistently, Southwest manages to succeed in an industry better known for losses and bankruptcies than sustained profitability. Yet none of this seems to have gone to the company's head, even after 40 years. As such, the airline serves as a vivid—and rare—reminder that size and success need not contaminate a company's mission and mind-set, nor erode the addictive enthusiasm of management and staff (El-Erian, 2014).

As well, as developing their own HR strategic plan and projects, Human Resources could be assisting other departments to create projects that align with the organizational strategy. They may be part of the team, leader of the team, or be facilitators in the other department's project planning. They may assist in project selection and help to prioritize the organization's projects for future development.

Aligning Projects with Strategy Through Portfolio Management

Projects are the way organizations operationalize strategy. In the end, executing a strategy effectively means pursuing the right projects. In other words, it's a matter of aligning projects and initiatives with the company's overall goals. And keep in mind that taking a big-picture, long-term approach to executing a new organizational strategy requires a living order commitment to a certain amount of uncertainty in the short term. It can take a while for everyone to get on board with the new plan, and in the meantime, operations may not proceed as expected. But by keeping your eye on the North Star of your organization's strategy, you can help your team navigate the choppy waters of change. This is where Human Resources can assist in facilitating employee's ideas and goals, and helping them come to consensus with a new plan.

Project selection proceeds on two levels: the portfolio level and the project level. On the **portfolio level**, management works to ensure that all the projects in a portfolio support the organization's larger strategy. In other words, management focuses on optimizing its portfolio of projects. According to Morgan et al. (2007, p. 167), portfolio optimization is "the difficult and iterative process of choosing and constantly monitoring what the organization commits to do".

Morgan et al (2007, p. 167) see portfolio management as the heart and soul of pursuing a strategy effectively:

Strategic execution results from executing the right set of strategic projects in the right way. It lies at the crossroads of corporate leadership and project portfolio management—the place where an organization's

purpose, vision, and culture translate into performance and results. There is simply no path to executing strategy other than the one that runs through project portfolio management (2007, p. 4-5).

HR in Focus: Portfolio Management

To manage portfolios effectively, large organizations often utilize Human Resources in scenario-planning techniques that involve sophisticated quantitative analysis. One such technique is based on the knapsack problem, a classic optimization problem. Various items, each with a weight and a value are available to be placed in a knapsack. The challenge of planning is an analogue to choose the types and numbers of items that can be fit into the knapsack without exceeding the weight limit of the knapsack. Portfolio managers are faced with a similar challenge: choosing the number and types of projects, each with a given cost and value, to optimize the collective value without exceeding resource availability. HR employees can provide training in the scenario-planning technique; and support the team making decisions with weighting the projects, and coming to decisions.

2.5. PROJECT SELECTION

Factors that Affect Project Selection

In any organization, project selection is influenced by the available resources. When money is short, organizations often terminate existing projects and postpone investing in new ones.

An organization's project selection process is also influenced by the nature of the organization. At a huge aerospace technology corporation, for example, the impetus for a project nearly always comes from the market and is loaded with government regulations. Such projects are decades-long undertakings, which necessarily require significant financial analysis. On the other hand, at a consumer products company, the idea for a project often originates inside the company as a way to respond to a perceived consumer demand. In that case, with less time and fewer resources at stake, the project selection process typically proceeds more quickly.

Size is a major influence on an organization's project selection process. At a large, well-established corporation, the entrenched bureaucracy can impede quick decision-making. By contrast, a twenty-person start-up can make decisions quickly and with great agility.

Human Resources plays a vital role in making sure organizations articulate their purpose and values for the organization and projects.. It is HR that forms the employee experience. HR can support the project selection by offering talents and skills required on projects, compensation requirements for team members, assist with recruitment for team members, and participate on the designated project teams as advisors. Getting the right people on the project creates value to the project. HR can provide data to hire, develop and motivate project teams. In turn, HR plays the role of a service provider to the project to ensure high returns or highly successful projects.

Value and Risk

Keep in mind that along with the customer's definition of value comes the customer's definition of the amount of risk he or she is willing to accept. As a project manager, it's your job to help the customer understand the nature of possible risks inherent in a project, as well as the options for and costs of reducing that risk. It's the rare customer who is actually willing or able to pay for zero risk in any undertaking. In some situations, the difference between a little risk and zero risk can be enormous.

This is true, for instance, in the world of computer networking, where a network that is available 99.99% of the time (with 53 minutes and 35 seconds of down time a year) costs much less than a network that is 99.999% available (with only 5 minutes and 15 seconds of down time a year) (Dean, 2013, p. 645). If you're installing

a network for a small chain of restaurants, shooting for 99.99% availability is a waste of time and money. By contrast, on a military or healthcare network, 99.999% availability might not be good enough.

Identifying the magnitude and impact of risks, as well as potential mitigation strategies, are key elements of the initial feasibility analysis of a project. Decision-makers will need that information to assess whether the potential value of the project outweighs the costs and risks. Risk analysis will be addressed further in [chapter six](#). For some easy-to-digest summaries of the basics of risk management, check out the many [YouTube videos by David Hillson](#), who is known in the project management world as the Risk Doctor. Start with his video named “[Risk Management Basics: What Exactly Is It?](#)”

The Project Selection Process

No matter the speed at which its project selection process plays out, successful organizations typically build in a period of what Scott Anthony calls “staged learning,” in which the project stakeholders expand their knowledge of potential projects. In an interesting article in the Harvard Business Review, Anthony compares this process to the way major leagues use the minor leagues to learn more about the players they want to invest in. In the same way, consumer product companies use staged learning to expose their products to progressively higher levels of scrutiny, before making the final, big investment required to release the product to market (Anthony, 2009).

You can think of the project selection process as a series of screens that reduce a plethora of ideas, opportunities, and needs to a few approved projects. From all available ideas, opportunities, and needs, the organization selects a subset that warrant consideration given their alignment with the organization’s strategy. As projects progress, they are subjected to a series of filters based on a variety of business and technical feasibility considerations. As shown in Figure 2-9, projects that pass all screens are refined, focused, and proceed to execution.

This same concept is applied in **Stage-Gate™** or phase-gate models, in which a project is screened and developed as it passes through a series of stages/phases and corresponding gates. During each stage/phase, the project is refined, and at each gate a decision is required as to whether the project warrants the additional investment needed to advance to the next stage/phase of development. “The typical Stage-Gate new product process has five stages, each stage preceded by a gate. Stages define best-practice activities and deliverables, while gates rely on visible criteria for Go/Kill decisions” (Cooper, et al., 2000).

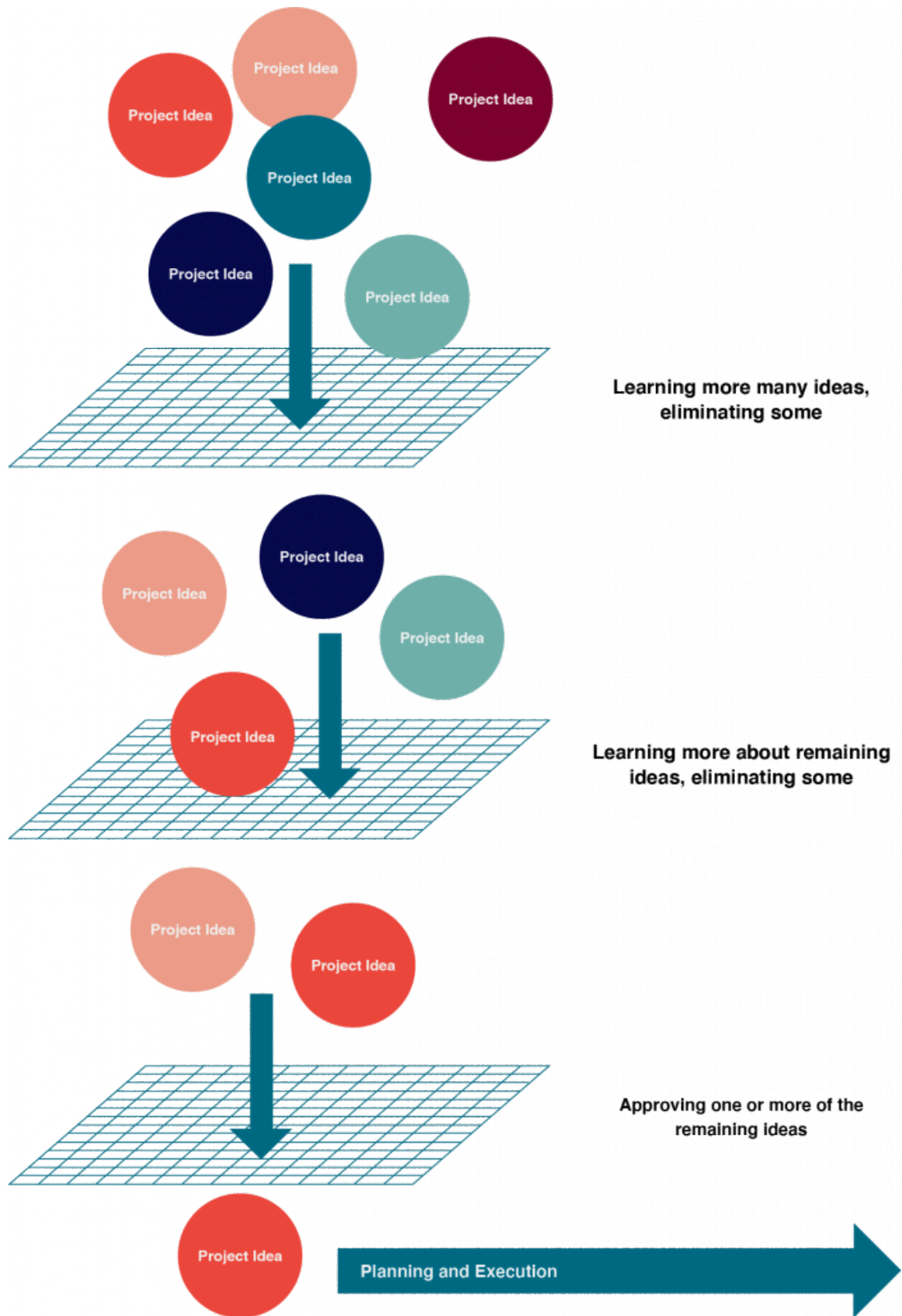


Figure 2-9: A project selection process can be seen as a series of screens

This approach is designed to help an organization make decisions about projects where very limited knowledge is available at the outset. The initial commitment of resources is devoted to figuring out if the project is viable. After that, you can decide if you are ready to proceed with detailed planning, and then, whether to implement the project. This process creates a discipline of vetting each successive investment of resources and allows safe places to kill the project if necessary.

Another approach to project selection, **set-based concurrent engineering**, avoids filtering projects too quickly, instead focusing on developing multiple solutions through to final selection just before launch. This approach is expensive and resource-hungry, but its proponents argue that the costs associated with narrowing to a single solution too soon—a solution that subsequently turns out to be sub-optimal—are greater than the resources expended on developing multiple projects in parallel. Narrowing down rapidly to a single solution is typical of many companies in the United States and in other western countries. Japanese manufacturers, by contrast, emphasize developing multiple options (even to the point of production tooling).

In an article for the International Project Management Association, Joni Seeber discusses some general project selection criteria. She argues that first and foremost, you should choose projects that align with your organization’s overall strategy. She suggests a helpful test for determining whether a project meaningfully contributes to your organization’s strategy:

A quick and dirty trick to determining the meaningfulness of a project is answering the question “So what?” about intended project outcomes. The more the project aligns with the strategic direction of the organization, the more meaningful. The higher the likelihood of success, the more meaningful. To illustrate, developing a vaccine for HIV is meaningful; however, developing a vaccine for HIV that HIV populations cannot afford is not. Size matters as well since the size of a project and the amount of resources required are usually positively correlated. Building the pyramids of Egypt may be meaningful, but the size of the project makes it a high-stake endeavor only suitable to pharaohs and Vegas king pins (Seeber, 2011).

Project Selection Methods

Projects are selected by comparing the costs and benefits of potential projects. Some of the selection methods are more subjective than others, but all try to use a standard set of criteria

To determine which project is the best for an organization to pursue. Methods can include:

- **Murder Boards.** A group of experts (internal and external) attempt to “murder” a project proposal by pointing out its flaws and weaknesses. This can be very useful in high-risk projects where there is little data from previous projects from which we can learn, or in situations where the environment has changed significantly since the development of the original scope of the project. Participants in a murder board session are encouraged to be aggressive and not hold back in their attempt to murder the project.
- **Qualitative Scoring Methods.** Scoring methods can take a variety of factors into account. These can range from simple checklists to complex weighted scoring systems. Scoring systems can assist staff with

evaluating the relative merit of different projects while limiting political influence. Scoring models might survey a wide variety of experts and have them rate the project in terms of importance to the company or relative chance of success.

- **Economic Scoring Methods.** These methods assess the ability of the project to help the bottom line, either by increasing profits or reducing costs. These models often look at the cash flow that a project will generate after it is completed.
- **Constrained Optimization Methods.** Constrained Optimization Methods of project selection are mathematically intensive means of analyzing a series of projects and are not easily generalized.

In project management, these methods can include:

- Linear Programming
- Dynamic Programming
- Branch and Bound Algorithms
- Integer Programming

We might also refer to Constrained Optimization Methods as mathematical approaches to project selection. These methods are beyond the scope of this text, but students preparing to take PMI exams should know that if they see any type of programming or algorithms used for project selection, a Constrained Optimization Method is being used.

All the above approaches and methods may require training which HR would provide to ensure the success of the project. Also, they may be involved in the actual method used to help make decisions about projects.

Think!

Have you ever had too many projects on the go at one time? Many students find it difficult juggling academic work with a job, family, and social life. Prioritizing projects is a great way to eliminate stress for us personally, as well, as in project management. If you were to prioritize your projects, which method would you choose? Why?

2.6. KNOWLEDGE CHECK

Question 1



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<https://ecampusontario.pressbooks.pub/hrstrategicprojectmanagement/?p=1020#h5p-37>

Question 2



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<https://ecampusontario.pressbooks.pub/hrstrategicprojectmanagement/?p=1020#h5p-45>

Question 3



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<https://ecampusontario.pressbooks.pub/hrstrategicprojectmanagement/?p=1020#h5p-46>

2.7. KEY TERMS

Artifacts and Behaviours: Something valued by a certain culture. They are symbols and signs of an organization's culture. They are observable. ie. country's flag, how people dress; how people conduct themselves around others, how people are greeted when entering a building. [2.3](#)

Assumptions: Unknown and generally not written down, employee's beliefs, perceptions, feelings. [2.3](#)

Balanced Matrix: In a balanced matrix, the project manager and functional managers equally share authority over resources and staff. This allows the organization to experience the "best of both worlds" by receiving the benefits of a projectized organization and functional organization at the same time. [2.2](#)

Constrained Optimization Methods: Constrained Optimization Methods of project selection are mathematically intensive means of analyzing a series of projects and are not easily generalized. [2.5](#)

Cultural and Social Environments: people, demographics, and education [2.3](#)

Dedicated Project: Teams where a project manager can have authority over the staff assigned to that particular project. [2.2](#)

Economic Scoring Methods: These methods assess the ability of the project to help the bottom line, either by increasing profits or reducing costs. These models often look at the cash flow that a project will generate after it is completed. [2.5](#)

Espoused Values: Values expressed by an organization, standards, what does the organization stand for; ie. mission statement, tag lines; honesty, trust, consistency, integrity. [2.3](#)

Functional Managers (Regular Managers): Serve as conduits for communications and collaboration (see Figure 2-2). This type of structure is very efficient for operations management where continuous process improvement can be conducted on all regular departmental operations. [2.2](#)

Functional Matrix and Projectized: These structures represent a continuum, from structures where the project manager has very little authority (functional) to those where project managers have very broad power (projectized) [2.2](#)

Functional Organizations: Large organizations are traditionally organized by function into various departments, with staff in each department reporting to a departmental manager or head of a department. [2.2](#)

Matrix Structure: Tries to combine the strengths a functional organization provides for operations management with the strengths a projectized organization provides for project management. [2.2](#)

Murder Boards: A group of experts (internal and external) attempt to "murder" a project proposal by pointing out its flaws and weaknesses. This can be very useful in high-risk projects where there is little data from previous projects from which we can learn, or in situations where the environment has changed significantly since the development of the project's original scope. [2.5](#)

Official Rules: These are the rules that are stated. [2.3](#)

Operational Rules: These are the rules that are enforced. [2.3](#)

Organizational Culture: Refers to the beliefs, attitudes, and values that the organization's members share and the behaviours consistent with them. [2.3](#)

Physical Environment of The Project: Requires you to consider the impact of time zones. [2.3](#)

Political Environment: Where you need to understand different countries' cultural influences. [2.3](#)

Portfolio: The “array of investments in projects and programs a company chooses to pursue” (Morgan et al., 2007, p. 3). [2.4](#)

Portfolio Level: Management works to ensure that all the projects in a portfolio support the organization's larger strategy. In other words, management focuses on optimizing its portfolio of projects. According to Morgan et al. (2007, p. 167), portfolio optimization is “the difficult and iterative process of choosing and constantly monitoring what the organization commits to doing”. [2.4](#)

Project Culture: Represents the shared norms, beliefs, values, and assumptions of the project team. This is very similar to the corporate culture. [2.3](#)

Projectized Organization: Operations are minimal and the project manager has great authority over resources and personnel decisions. Projectized organizations may have organizational units called departments and these groups either report directly to the project manager or provide support services to projects [2.2](#)

Qualitative Scoring Methods: Scoring methods can take a variety of factors into account. These can range from simple checklists to complex weighted scoring systems. [2.5](#)

et-Based Concurrent Engineering: Avoids filtering projects too quickly instead of focusing on developing multiple solutions through to final selection just before launch. [2.5](#)

Shared Values: The values that everyone within the organization work toward as common goals. Also, it refers to shared assumptions which are seen as the real essence of the organization [2.3](#)

Stage-Gate™ or Phase-Gate Models: In which a project is screened and developed as it passes through a series of stages/phases and corresponding gates. [2.5](#)

Strategy: According to the Merriam-Webster dictionary, it is “a careful plan or method for achieving a particular goal usually over a long period of time.” [2.4](#)

Strong Matrix: In a strong matrix, the project manager has more direct control over resources and staffing, while the functional manager will provide support to the project staff in terms of hiring, technical expertise, and professional development. [2.2](#)

Values are stable: Evaluative beliefs that guide a person or an organization in our preferences for outcomes or a certain course of action to be taken. [2.3](#)

Weak Matrix: The project manager has less authority over resources and people than the functional managers. Project managers in a weak matrix may go by other titles such as a project coordinator or project scheduler. [2.2](#)

CHAPTER 3 – PROJECT MANAGER AS A LEADER

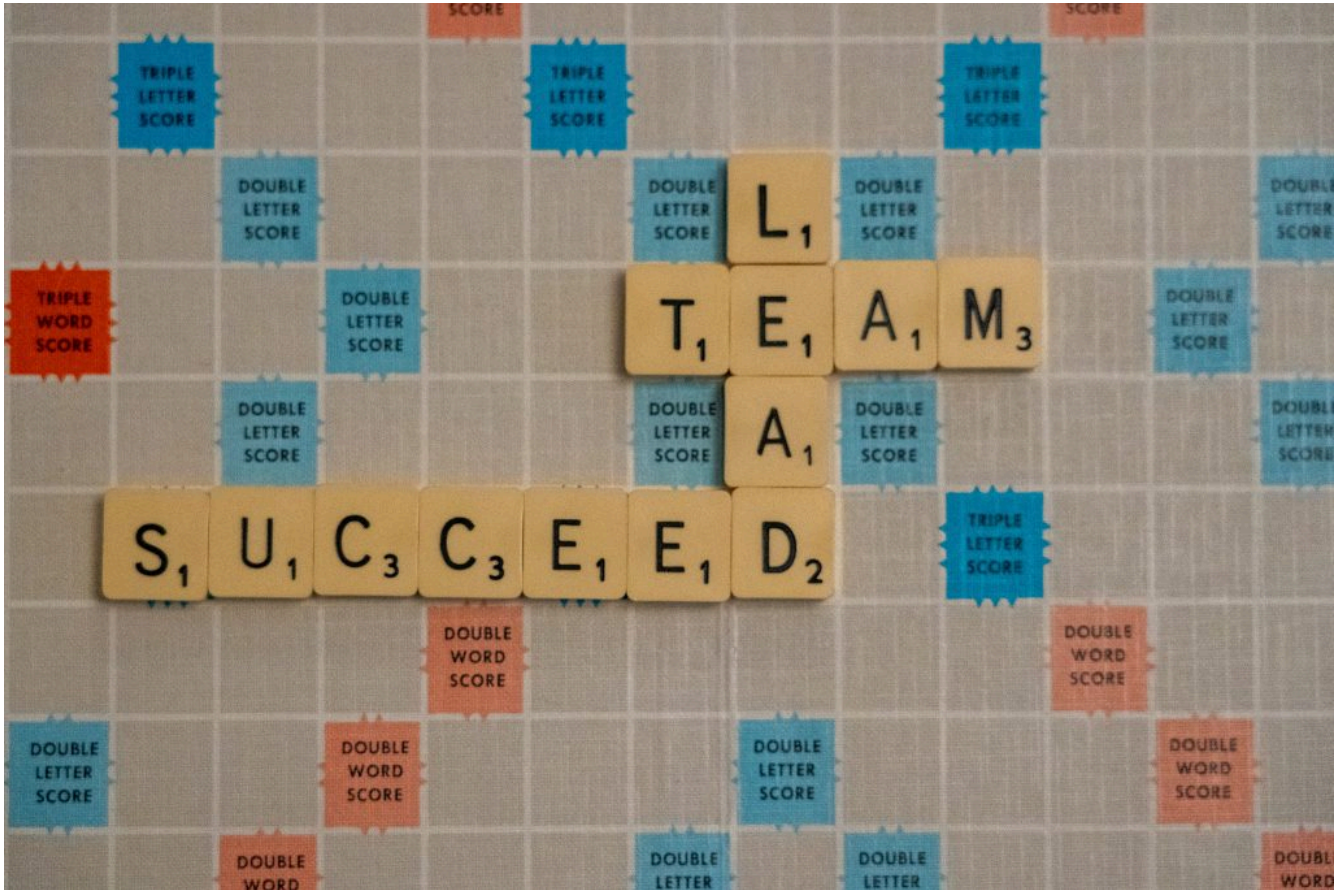


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3.1. LEARNING OUTCOMES

Learning Outcomes

By the end of this chapter, you should be able to:

1. Identify four roles of a project manager.
2. Discuss the essential skills of good project managers.
3. Discuss the important factors needed in managing a team.
4. Describe the five responses to conflict.
5. Explain Human Resources' role as a project manager

3.2. ROLES OF PROJECT MANAGER

In this section we will talk about some general principles for successful project management.

In an article for MIT Sloan Management Review, Alexander Laufer, Edward Hoffman, Jeffrey Russell, and Scott Cameron show how successful project managers combine traditional management methods with newer, more flexible approaches to achieve better outcomes (Laufer et al., 2015). Their research shows that successful project managers adopt these four vital roles:

1. **Develop Collaboration Among Project Participants:** “Most projects are characterized by an inherent incompatibility: the various parties to the project are loosely coupled, whereas the tasks themselves are tightly coupled. When unexpected events affect one task, many other interdependent tasks are quickly affected. Yet the direct responsibility for these tasks is distributed among various loosely coupled parties, who are unable to coordinate their actions and provide a timely response. Project success, therefore, requires both interdependence and trust among the various parties” (Laufer et al., 2015, p. 46).
2. **Integrate Planning with Learning:** “Project managers faced with unexpected events employ a ‘rolling wave’ approach to planning. Recognizing that firm commitments cannot be made on the basis of volatile information, they develop plans in waves as the project unfolds and information becomes more reliable. With their teams, they develop detailed short-term plans with firm commitments while also preparing tentative long-term plans with fewer details” (Laufer et al., 2015, p. 46).
3. **Prevent Major Disruptions:** Successful project managers “never stop expecting surprises, even though they may effect major remedial changes only a few times during a project. They’re constantly anticipating disruptions and maintaining the flexibility to respond proactively.... When change is unavoidable, a successful project manager acts as early as possible, since it is easier to tackle a threat before it reaches a full-blown state” (Laufer et al., 2015, p. 47).
4. **Maintain Forward Momentum:** “When unexpected events affect one task, many other interdependent tasks may also be quickly impacted. Thus, solving problems as soon as they emerge is vital for maintaining work progress” (Laufer et al., 2015, p. 48).

Adopting these four roles will set you on the road toward delivering more value in your projects, with less waste, which is also the goal of both Lean project management and Agile project management.

Human Resources as a Job Recruitment & Selection Resource

Human Resources would be vital to the role of designing the job descriptions and specifications for Project Managers. HR Specialists would research project manager's roles, build in the knowledge, skills, abilities (KSAs), write a job summary that includes the four above roles, outline the list of responsibilities, emphasis the duties in relation to the project goals, include qualifications, salary and benefits, and any specifications for the role.

The project manager may be an internal or external hire. For an internal hire, the position would be advertised internally. HR, along with other's involved in the project, would select the best suited candidates for interviews, complete the interview process, check references, and hire the person. Also, they would be involved in replacement of the person hired as the project manager. Since projects are temporary (with a beginning and an end), HR would be responsible to outline the contract's specifications. For an external hire, HR would design a suitable strategy for recruitment of candidates including scope of search, recruitment methods and the sequence of activities for the recruitment. Screening candidates would begin. Applicants would be screened against the job description. Interviews would be set up for the best candidates. A decision would be made who to hire. The same would apply as an internal hire. The successful candidate would be made aware the project is temporary (with a beginning and an end). A contract would be set up by the HR department.

Human Resources as a Trainer

Training may be required for an external hire with an onboarding program. The candidate would be briefed and trained on the job responsibilities of the position regardless if it is an internal or external hire. The onboarding program would include: a welcome package, new employee greeting, a mentor/coach, a schedule of critical meetings/events, technical requirements, and a work station set-up for the employee.

Human Resources as a Team Builder

The Project Manager would be briefed on the project and the need for team members. The HR team will develop the team job descriptions and specifications. The Project Manager would be involved in selecting the team, along with the HR representative, and others who may have a vested interest in the project. Depending on the importance of the project to the organization, the project manager may be given carte blanche to hire who they wish for the team. If the project is small and less significant, HR may recommend employees who would be assigned to the project. In other situations, the project manager may need to report to a functional manager who will control the project, and the project manager reports to the functional manager.

Think!

Think about a meeting you have attended in the past. Did the leader/facilitator guide the meeting well? If not, as an HR Specialist, how would you plan a meeting that members would enjoy?

Human Resources could be involved in the team coming together for a “kick off” meeting. This first meeting is critical to the early bonding of the team and to the project. It sets the tone for how the team will work together, and with the project manager. The HR Specialist may be a participant, or facilitate the meeting.

Should the HR Specialist facilitate the meeting, important objectives are to provide an overview of the project with the support of the project manager, the schedule of the project, and the procedures. Next, the HR Specialist would want to discuss the interpersonal dimensions of the team by asking: Who are you? What skills and talents do you bring to the team? What are your personal goals in the project, if any? Next, the HR Specialist wants to instill or teach good communication skills, problem solving skills, decision making

skills, and team building skills. Finally, along with the Project Manager, the HR Specialist wants to establish good ground rules, how decisions will be made, and the reporting mechanisms.

The balance of the meeting, or a follow up meeting ought to be left to the Project Manager to help the team to define an identify, and developed a shared vision for the project. The project sponsor may want to be involved in this process as the responsibility of the vision lies with the sponsor/stakeholders.

3.3. PROJECT MANAGER CHARACTERISTICS



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The project manager must be perceived to be credible by the project team and key stakeholders. A successful project manager can solve problems and has a high degree of tolerance for ambiguity. On projects, the environment changes frequently, and the project manager must apply the appropriate leadership approach for each situation.

The successful project manager must have good communication skills. All project problems are connected to skills needed by the project manager:

- Breakdown in communication represents the lack of communication skills
- Uncommitted team members represent the lack of team-building skills
- Role confusion represents the lack of organizational skill

Project managers need a large number of skills. These skills include administrative skills, organizational skills, and technical skills associated with the technology of the project. The types of skills and the depth of the skills needed are closely connected to the complexity profile of the project. Typically, on smaller, less complex projects, project managers need a greater degree of technical skill. On larger, more complex projects, project managers need more organizational skills to deal with the complexity. On smaller projects, the project manager

is intimately involved in developing the project schedule, cost estimates, and quality standards. On larger projects, functional managers are typically responsible for managing these aspects of the project, and the project manager provides the organizational framework for the work to be successful.

Listening

One of the most important communication skills of the project manager is the ability to actively listen. Active listening is placing oneself in the speaker's position as much as possible, understanding the communication from the point of view of the speaker, listening to the body language and other environmental cues, and striving not just to hear, but to understand. Active listening takes focus and practice to become effective. It enables a project manager to go beyond the basic information that is being shared and to develop a more complete understanding of the information.

Negotiation

When multiple people are involved in an endeavor, differences in opinions and desired outcomes naturally occur. Negotiation is a process for developing a mutually acceptable outcome when the desired outcome for each party conflicts. A project manager will often negotiate with a client, team members, vendors, and other project stakeholders. Negotiation is an important skill in developing support for the project and preventing frustration among all parties involved, which could delay or cause project failure.

Negotiations Involve Four Principles

1. **Separate people from the problem.** Framing the discussions in terms of desired outcomes enables the negotiations to focus on finding new outcomes.
2. **Focus on common interests.** By avoiding the focus on differences, both parties are more open to finding solutions that are acceptable.
3. **Generate options that advance shared interests.** Once the common interests are understood, solutions that do not match with either party's interests can be discarded, and solutions that may serve both parties' interests can be more deeply explored.
4. **Develop results based on standard criteria.** The standard criterion is the success of the project. This implies that the parties develop a common definition of project success.

For the project manager to successfully negotiate issues on the project, they should first seek to understand the position of the other party. If negotiating with a client, what is the concern or desired outcome of the client? What are the business drivers and personal drivers that are important to the client? Without this

understanding, it is difficult to find a solution that will satisfy the client. The project manager should also seek to understand what outcomes are desirable to the project. Typically, more than one outcome is acceptable. Without knowing what outcomes are acceptable, it is difficult to find a solution that will produce that outcome.

One of the most common issues in formal negotiations is finding a mutually acceptable price for a service or product. Understanding the market value for a product or service will provide a range for developing a negotiating strategy. The price paid on the last project or similar projects provides information on the market value. Seeking expert opinions from sources who would know the market is another source of information. Based on this information, the project manager can then develop an expected range within the current market from the lowest price to the highest price.

Additional factors will also affect the negotiated price. The project manager may be willing to pay a higher price to assure an expedited delivery or a lower price if delivery can be made at the convenience of the supplier or if payment is made before the product is delivered. Developing as many options as possible provides a broader range of choices and increases the possibility of developing a mutually beneficial outcome.

The goal of negotiations is not to achieve the lowest costs, although that is a major consideration, but to achieve the greatest value for the project. If the supplier believes that the negotiations process is fair and the price is fair, the project is more likely to receive higher value from the supplier. The relationship with the supplier can be greatly influenced by the negotiation process and a project manager who attempts to drive the price unreasonably low or below the market value will create an element of distrust in the relationship that may have negative consequences for the project. A positive negotiation experience may create a positive relationship that may be beneficial, especially if the project begins to fall behind schedule and the supplier is in a position to help keep the project on schedule.

Conflict Resolution

Conflict on a project is to be expected because of the level of stress, lack of information during early phases of the project, personal differences, role conflicts, and limited resources. Although good planning, communication, and team building can reduce the amount of conflict, conflict can still emerge. How the project manager deals with conflict results in the conflict being destructive or an opportunity to build energy, creativity, and innovation.

Conflict is the common side-effect of working in a team or group, and will inevitably happen at any time of the project life cycle. The sources of conflict in a team are generally related to:

- Differences in personalities;
- Undefined expectations;
- Lack of communication;
- Distrust between members of the team; and

- Competing priorities.

Sources of conflict can be turned into opportunities if handled appropriately. Some approaches to address conflict are:

- Withdrawing from the conflict or avoiding the conflict altogether;
- Forcing or competing;
- Smoothing or accommodating;
- Compromising (share the differences); and
- Collaborating and confronting.

Each of these approaches can be effective and useful depending on the situation. Project managers will use each of these conflict resolution approaches depending on the project manager's personal approach and an assessment of the situation. Most project managers have a default approach that has emerged over time and is comfortable. For example, some project managers find the use of the project manager's power the easiest and quickest way to resolve problems. "Do it because I said to" is the mantra for project managers who use forcing as the default approach to resolve conflict. Some project managers find accommodating with the client the most effective approach to dealing with client conflict. The effectiveness of a conflict resolution approach will depend on the situation. The forcing approach often succeeds in a situation where a quick resolution is needed, and the investment in the decision by the parties involved is low.

Adjusting Leadership Styles

Remember that personality traits reflect an individual's preferences, not their limitations. It is important to understand that individuals can still function in situations for which they are not best suited. It is also important to realize that you can change your leadership style according to the needs of your team and the particular project's attributes and scope.

For example, a project leader who is more thinking (T) than feeling (F) (*according to the Myers-Briggs model*) would need to work harder to be considerate of how team members who are more feeling (F) might react if they were singled out in a meeting because they were behind schedule (Myers, 1962). If individuals know their own preferences and which personality types are most successful in each type of project or project phase, they can set goals for improvement in their ability to perform in those areas that are not their natural preference. Another individual goal is to examine which conflict resolution styles you are least comfortable and work to improve those styles so that they can be used when they are more appropriate than your default style.

HR in Focus: Human Resources as a Trainer and Mentor

HR may provide training for the Project Manager in conflict resolution, negotiation skills and leadership development. They may set up a mentorship for the Project Manager, especially if they are hired from outside the organization. This would be a formal agreement between the Project Manager and an experience person within the organization. HR would establish a match, set up meetings between the parties, discuss goals of the protégé and how the mentor can help. HR would monitor the progress of the mentor relationship. Another example may be a relationship that is a peer mentor. Another Project Manager who is experienced mentors the new Project Manager and they create a support system to ensure growth and development of the new Project Manager and ensure success of the project.

Think!

Imagine yourself as a Project Manager of an HR Project that is going to impact the entire organization. You have a diverse team from several different departments. What do you think the top two characteristics are that you possess that you can bring to the team? Why?

3.4. MANAGING THE TEAM

In order to successfully meet the needs of a project, it is important to have a high-performing project team made up of individuals who are both technically skilled and motivated to contribute to the project's outcome. One of the many responsibilities of a project manager is to enhance the ability of each project team member to contribute to the project, while also fostering individual growth and accomplishment. At the same time, each individual must be encouraged to share ideas and work with others toward a common goal.

HR in Focus: Human Resources and Performance Evaluation

Through performance evaluation, the manager will get the information needed to ensure that the team has adequate knowledge, to establish a positive team environment and a healthy communication climate, to work properly, and to ensure accountability. HR Specialists would be involved in creating performance evaluation programs and tools for evaluation of the team and the Project Manager. They would establish evaluation forms, guidelines for evaluation specific to the project, standard performance measures, and feedback. Managing the project team includes appraisal of employee performance and project performance involving HR Specialists as advisors. The performance reports provide the basis for managerial decisions on how to manage the project team and Human Resources. HR would be involved in helping to motivate the team to do their best, ensure the evaluation was completed fairly, objectively and consistently.

During or after the completion of the project, HR would be in a position to reward performance based on merit, provide opportunities for advancement to team members when available, and provide evaluations to other functional managers within the organization.

Employee performance includes the employee's work results such as:

- Quality and quantity of outputs
- Work behaviour (such as punctuality)
- Job-related attributes (such as cooperation and initiative)

After conducting employee performance reviews, project managers should:

- Provide feedback to employees about how well they have performed on established goals
- Provide feedback to employees about areas in which they are weak or could do better
- Take corrective action to address problems with employees performing at or below minimum expectations
- Reward superior performers to encourage their continued excellence

Emotional Intelligence

Emotions are both a mental and physiological response to environmental and internal stimuli. Leaders need to understand and value their emotions to appropriately respond to the client, project team, and project environment.

Emotional intelligence includes the following:

- Self-awareness
- Self-regulation
- Empathy
- Relationship management

Emotions are important to generating energy around a concept, building commitment to goals, and developing high-performing teams. **Emotional intelligence** is an important part of the project manager's ability to build trust among the team members and with the client. It is an important factor in establishing credibility and an open dialogue with project stakeholders. Emotional intelligence is critical for project managers, and the more complex the project profile, the more important the project manager's emotional intelligence becomes to project success.

Human Resources could provide Emotional Intelligence training for the Project Manager and the team members. This training could be offered at the beginning of the project or during the project. It would support the team in reducing stress, how to react to critics, overcome their fears, assist with communication development, increase social skills and create a positive work setting during the project.

Working with Groups and Teams

A team is a collaboration of people with different personalities that is led by a person with a favored leadership

style. Managing the interactions of these personalities and styles as a group is an important aspect of project management.

Teams can outperform individual team members in several situations. The effort and time invested in developing a team and the work of the team are large investments of project resources, and the payback is critical to project success. Determining when a team is needed, and then supporting the development and work of the team are critical project management abilities.

Teams are effective in several project situations:

- When no individual with the knowledge, skills, and abilities to understand or solve the problem exists.
- When a commitment to the solution is needed by large portions of the project team.
- When the problem and solution span project functions.
- When innovation is required.
- When speed is important.
- When the activities involved in solving the problem are very detailed.

In addition to knowing when a team is appropriate, the project manager must also understand what type of team will function best. Sometimes, individuals can outperform teams. An individual tackling a problem consumes fewer resources than a team and can operate more efficiently—as long as the solution meets the project's needs.

An individual is most appropriate in the following situations:

- When one person has the knowledge, skills, and resources to solve the problem.
- When the actual document needs to be written (Teams can provide input, but writing is a solitary task.)

Personality Types

Personality types refer to the differences among people, including in such matters as what motivates them,

how they process information, and how they handle conflict. Understanding people's personality types is acknowledged as an asset in interacting and communicating with them more effectively. Understanding your personality type as a project manager will assist you in evaluating your tendencies and strengths in different situations. Understanding others' personality types can also help you coordinate the skills of your individual team members and address the various needs of your client.

Myers-Briggs Type Indicator (MBTI)

The **Myers-Briggs Type Indicator (MBTI)**, often simply referred to as Myers-Briggs, is one of most widely used tools for exploring personal preference, with more than two million people taking the MBTI each year. It can be used in project management training to develop awareness of preferences for processing information and relationships with other people. Based on the theories of psychologist Carl Jung, the Myers-Briggs uses a questionnaire to gather information on the ways individuals prefer to use their perception and judgment. Perception represents the way people become aware of people and their environment. Judgment represents the evaluation of what is perceived. People perceive things differently and reach different conclusions based on the same environmental input. Understanding and accounting for these differences is critical to successful project leadership.

The Myers-Briggs identifies 16 personality types based on four preferences derived from the questionnaire. The preferences are between pairs of opposite characteristics and include the following:

- Extroversion (E)-Introversion (I)
- Sensing (S)-Intuition (N)
- Thinking (T)-Feeling (F)
- Judging (J)-Perceiving (P)

Sixteen Myers-Briggs types can be derived from the four dichotomies. Each of the 16 types describes a preference: for focusing on the inner or outer world (E-I), for approaching and internalizing information (S-I), for making decisions (T-F), and for planning (J-P). For example, an ISTJ is a Myers-Briggs type who prefers to focus on the inner world and basic information, prefers logic, and likes to decide quickly. It is important to note that there is no best type and that effective interpretation of the Myers-Briggs requires training. The purpose of Myers-Briggs is to understand and appreciate the differences among people. This understanding can be helpful in building the project team, developing common goals, and communicating with project stakeholders. For example, different people process information differently. Extroverts prefer face-to-face meetings as the primary means of communicating, while introverts prefer written communication. Sensing types focus on facts, and intuitive types want the big picture. (Myers, 1962).

On larger, more complex projects, Human Resources would be involved with the project managers using the Myers-Briggs as a team-building tool during project start-up. This is typically a facilitated work session where team members work with HR to take the Myers-Briggs test and share with the team how they process

information, what communication approaches they prefer, and what decision-making preferences they have. This allows the team to identify potential areas of conflict, develop communication strategies, and build an appreciation for the diversity of the team.

The DiSC Method

Another theory of personality typing is the **DiSC method**, which rates people's personalities by testing a person's preferences in word associations in the following four areas:

1. Dominance/Drive—relates to control, power, and assertiveness
2. Inducement/Influence—relates to social situations and communication
3. Submission/Steadiness—relates to patience, persistence, and thoughtfulness
4. Compliance/Conscientiousness—relates to structure and organization

(DiSC Profile, n.d.)

Understanding the differences among people is a critical leadership skill. This includes understanding how people process information, how different experiences influence the way people perceive the environment, and how people develop filters that allow certain information to be incorporated while other information is excluded. The more complex the project, the more important the understanding of how people process information, make decisions, and deal with conflict. There are many personality-type tests that have been developed and explore different aspects of people's personalities. It might be prudent to explore the different tests available and utilize those that are most beneficial for your team.

Think!

In relation to the DISC method, which of the personal preferences do you think related to you best? Why?

3.5. KNOWLEDGE CHECK

Question 1



An interactive H5P element has been excluded from this version of the text. You can view it online here:

<https://ecampusontario.pressbooks.pub/hrstrategicprojectmanagement/?p=250#h5p-47>

Question 2



An interactive H5P element has been excluded from this version of the text. You can view it online here:

<https://ecampusontario.pressbooks.pub/hrstrategicprojectmanagement/?p=250#h5p-48>

Question 3



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Question 4



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<https://ecampusontario.pressbooks.pub/hrstrategicprojectmanagement/?p=250#h5p-50>

3.6. KEY TERMS

Develop Collaboration: The various parties to the project are loosely coupled, whereas the tasks themselves are tightly coupled. When unexpected events affect one task, many other interdependent tasks are quickly affected. Yet the direct responsibility for these tasks is distributed among various loosely coupled parties, who are unable to coordinate their actions and provide a timely response. [3.2](#)

Develop Results Based on Standard Criteria: The standard criterion is the success of the project. This implies that the parties develop a common definition of project success. [3.3](#)

DISC Method: Which rates people's personalities by testing a person's preferences in word associations in the following four areas: Dominance/drive, Inducement/ influence, submission/steadiness and, compliance/conscientiousness. [3.4](#)

Emotional Intelligence: This is an important part of the project manager's ability to build trust among the team members and with the client. It is an important factor in establishing credibility and open dialogue with project stakeholders. [3.4](#)

Focus on Common Interests: By avoiding the focus on differences, both parties are more open to finding solutions that are acceptable. [3.3](#)

Generate Options That Advance Shared Interests: Once the common interests are understood, solutions that do not match with either party's interests can be discarded, and solutions that may serve both parties' interests can be more deeply explored. [3.3](#)

Integrate Planning with Learning: "Project managers faced with unexpected events employ a 'rolling wave' approach to planning. Recognizing that firm commitment cannot be made on the basis of volatile information, they develop plans in waves as the project unfolds and information becomes more reliable. With their teams, they develop detailed short-term plans with firm commitments while also preparing tentative long-term plans with fewer details. [3.2](#)

Maintain Forward Momentum: "When unexpected events affect one task, many other interdependent tasks may also be quickly impacted. Thus, solving problems as soon as they emerge is vital for maintaining work progress." [3.2](#)

Myers-Briggs Type Indicator (MBTI): It is a tool that can be used in project management training to develop an awareness of preferences for processing information and relationships with other people. Myers-Briggs identifies 16 personality types based on four preferences derived from the questionnaire. [3.4](#)

Prevent Major Disruptions: Successful project managers "never stop expecting surprises, even though they may affect major remedial changes only a few times during a project. They're constantly anticipating disruptions and maintaining the flexibility to respond proactively. [3.2](#)

Separate People From The Problem: Framing the discussions in terms of desired outcomes enables the negotiations to focus on finding new outcomes. [3.3](#)

CHAPTER 4 – PROJECT TEAM



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4.1. LEARNING OUTCOMES

Learning Outcomes

By the end of this chapter, you should be able to:

1. Identify the basic needs of our team members.
2. Explain the stages that a project team goes through and be able to identify the role that a project manager should try to play during each stage.
3. List advantages of teams and strong leadership.
4. Discuss the role of trust in building a team, and describe behaviors that help build trust.
5. List motivators and demotivators that can affect a team's effectiveness.
6. Explain issues related to managing transitions on a team.
7. Describe the advantages of diverse teams and provide some suggestions for managing them.

4.2. SUCCESSFUL TEAM

As Laufer et al. (2018) explain in their book, *Becoming a Project Leader*, “When it comes to projects, one thing is very clear: ‘right’ does not mean ‘stars.’ Indeed, one of the primary reasons for project ‘dream teams’ to fail is ‘signing too many all-stars.’” More important than an all-star is a project team member fully committed to the project goals.

Project All stars

Chuck Athas was one such team member. He worked for Frank Snow, the Ground System and Flight Operations Manager at NASA’s Goddard Space Flight Center. Officially listed as the project scheduler and planner, Chuck was eager to help Frank once the schedule was completed and needed less attention. “Anything that needed to be done, and he didn’t care what it was, he would attack with the same gusto and unflappable drive to succeed,” Frank said. “Whatever it took to get the job done, Chuck would do. Was there anything he couldn’t make happen? Probably something. But with Chuck on the team I felt like I could ask for Cleveland, and the next day he would show up with the deed.” (Snow, 2003)

Chuck demonstrated a lack of ego that most all-stars don’t have. His can-do attitude is the antidote to the not-my-job thinking that can sometimes cause team cohesiveness and project completion to falter. His adherence to the project goals over his own goals made him an ideal team member. (Laufer et al., 2018)



[“Building 29 at Goddard Space Flight Center”](#) by [NASA Goddard Space Flight Centre](#) is licensed under [CC BY 2.0](#)

4.3. DEVELOPING TEAM

The project team works with the project manager to develop the project management plans, schedule the work of the project, acquire the needed resources, monitor project progress and see the project through to its successful completion. Team members may be devoted solely to working on the management aspects of a project, or may also be performing the work of the project. How well the project team works together will determine the success or failure of a project.

HR in Focus: Team Development

Human Resources Specialists may work with the Project Manager to help recruit, develop, and monitor the team. In managing projects, HR will want to review the strategic plan first with the team. HR can support the team to get organized in the following ways:

- **Define the purpose of the team and project.** The team needs to know the overall purpose and goals. The HR Specialist can help them set goals within the project.
- **Measure the team's performance.** The project manager and the HR Specialist can discuss and establish metrics and reporting of metrics related to performance. These measurements would be discussed with the team to ensure success. The HR Specialist can help to monitor performance throughout the project.
- **Reward the team.** HR Specialists can set up reward systems that are linked to the goals of the project which helps to motivate the team for success.

Team Building Exercises

HR Specialists can help project managers and teams to develop team skills through various activities and exercises. This assists with development of interpersonal relationships, collaboration and cooperation between the team members, and the team and the project manager.

There are many different types of team building exercises. Some to consider may be:

- **Goal setting:** The team along with the project manager plan a simple project, with goals and outcomes, measures of success.
- **Role definition:** Each team member is given a defined role within a team challenge and play out the role.
- **Communication exercises:** The team designs a presentation and delivers the presentation.
- **Problem solving exercises:** The team is given a challenge ie. plan a trip into space. They must work together to plan the trip and include all the resources needed to survive the trip.

HR plays a significant role in building team collaboration to positively influence the success of projects.

Team Member Motivation

In regard to how project managers may view the motivation of team members, let's take a look at what motivates individuals, teams, and organizations.

Maslow's Hierarchy of Needs

Abraham Maslow provided a model to understand basic human needs which is usually represented as a pyramid (*see Figure 13-1*). Each need builds on the others: A person's esteem needs are not that important if they are struggling with meeting the biological need to eat. Here are each of the levels in Maslow's hierarchy:

1. **Biological and Physiological:** What a person needs to survive, such as food, water, and shelter.
2. **Safety:** The need to be safe in your person, have financial security, and protection against accidents and illness.
3. **Love and Belongingness:** The need to be loved by one's family and community.
4. **Esteem:** The need to be respected and valued by others.
5. **Self-Actualization:** At the top of the pyramid is the desire to become the best version of yourself that you can. For example, working hard to become the best artist, parent, or project manager you can become.

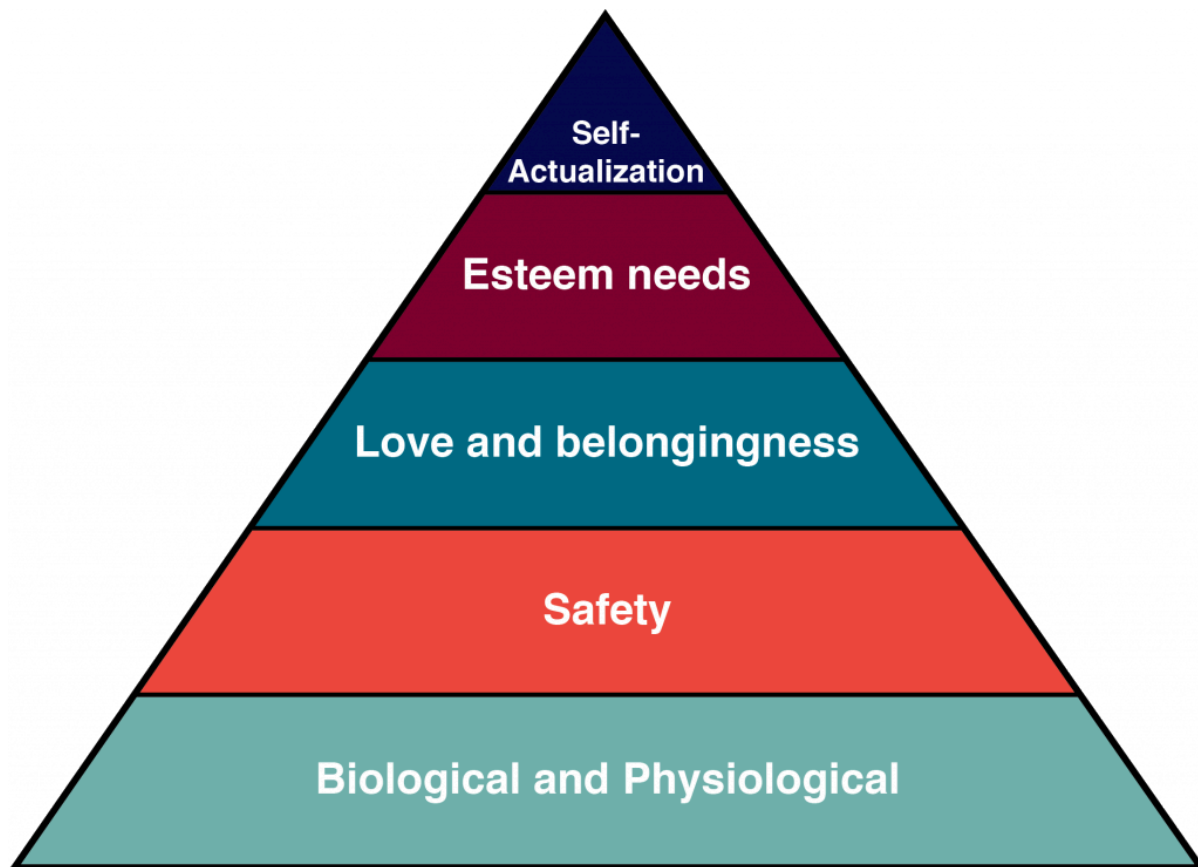


Figure 4-1: Maslow's Hierarchy of Needs

For project managers, this model is useful in several ways. It explains why team members who have problems with their health, family relations or other “lower” needs, will have a problem performing their best on the job. Project managers will also try to meet the esteem needs of their team members by acknowledging their contributions and celebrating successes. This can be an award formally presented at a celebration dinner, or a simple email expressing thanks. Anecdotally, it doesn't seem that the size or formality of the acknowledgement matters much, what is important is that it is given sincerely.

Understanding Team Development

A number of management professionals and academics have studied project team development. Let's review the model that PMI considers the most valuable in understanding team development: *Tuckman's Stages of Team Development*. Dr. Bruce Tuckman (1965) observed that teams go through a series of developmental stages: Forming, Storming, Norming, Performing, and Adjourning. Each stage has predictable characteristics.

- **Forming:** The group is brought together for the first time. The team is orienting themselves to the task at hand. At this stage, there may be little agreement on how to approach the project and team members

may struggle with understanding the purpose of the project. The project manager needs to provide guidance and direction during this stage.

- **Storming:** Team members are trying to figure out their roles in the group. Conflict and power struggles are common, but so is a clearer vision for the group. During this time of intergroup conflict, the project manager needs to provide support and coaching.
- **Norming:** At this stage, the team will have developed a consensus regarding roles, processes and approach to the work ahead. The project manager should participate by working as a facilitator for the group.
- **Performing:** At this point the group has a clear vision and purpose and is focused on meeting performance goals, project milestones and other benchmarks. The project manager should be able to delegate more and more responsibility to the team, with less supervision.
- **Adjourning:** Once the project is completed, the team should collect lessons learned and transition to other projects or roles. The project manager should provide recognition of the work done by the team and help them transition to their next project (provide recommendations, etc.)



Fast-Tracking Team Development

Project managers who can quickly move the team from the Forming stage to the Performing stage will have huge advantages in terms of performance. To do this, project managers incorporate team building activities into the project. Starting the project with some team building activities will let the team start to form, resolve interpersonal conflicts and develop norms of behaviour in a low-risk environment.

Unfortunately, some project managers perceive taking time for team building as a waste of time. However, time invested here pays off with a much more motivated and better performing team. There are lots of opportunities to incorporate team building activities into the planning process. Perhaps the most important process a project manager can facilitate is helping team members learn to trust each other.

Human Resources and Team Project Development

The characteristics and behaviours of teams are important to project success. It is important to choose effective teams that reflect good team compatibility.



Figure 4-3: Project Team Compatibility

self-esteem and self-confidence in the project duties.

Conflict resolution: They need to have the skills to motivate and resolve conflict when it arises. Disagreements are part of any project as each member has different ideas on how to perform tasks in the project. Effective team members can discuss issues, brainstorm ideas for resolve, and continue work in harmony.

Human Resource Specialists are skilled in identifying these compatibility skills and talents. They can

Cooperation: Willing and able to work together for the good of the project. They are willing to share resources, be flexible, accommodate each other's needs and meet deadlines.

Communication: They are able to relay information clearly and concisely, and be good listeners when discussing project goals, outcomes and tasks to be performed.

Coordination: They need to work together on the project to “keep things on track” and integrate each other's work into the daily outcomes.

Console: They need to maintain positive attitudes and be mentally and psychologically stable; and support each other to be and do the same. They must be able to be empathic, soothe each other, and help each other build

support the hiring, along with the Project Manager, to ensure the team members are mutually accountable to each other.

4.4. TEAM COMMUNICATION

Reliable promises, emotional intelligence (EI), and communication as realistic outlooks are all meaningless as trust-building tools if you don't have the skills to communicate with your team members. In his book *Mastering the Leadership Role in Project Management*, Alexander Laufer (2012) explains the vital importance of team communication:

because a project functions as an ad hoc temporary and evolving organization, composed of people affiliated with different organizations, communication serves as the glue that binds together all parts of the organization. When the project suffers from high uncertainty, the role played by project communication is even more crucial (Laufer, 2012, p. 230).

Human Resources and Emotional Intelligence (EI)

Emotional Intelligence was discussed earlier. We now will discuss how Human Resources can use Emotional Intelligence to build teams. Emotional Intelligence has four domains: perceiving emotions, facilitating thought, understanding emotions and managing emotions.

Emotions refer to the feelings a person has in a relationship. For example if a person has a good relationship with someone else, that individual is happy; if the person is threatened, he or she is afraid. Intelligence, on the other hand, refers to the ability to reason with or about something. For example, one reasons with language in the case of verbal intelligence, or reasons about how objects fit together in the case of spatial intelligence. In the case of emotional intelligence, one reasons with emotions, or emotions assist one's thinking. That is, emotional intelligence, as measured by the MSCEIT (trademark), refers to the capacity to reason with emotions and emotional signals, and to the capacity of emotion to enhance thought (Mayer, Salovey, & Caruso, 2001, p.2).

HR Specialists can deliver training in EI. They can complete the training themselves; and then train others in the inventories, or they may hire outside consultants trained in EI. The training needs to be reliable, valid and market accepted. Four such skill development approaches are:

- Bar-On's EQi (registered) and EQ-360 (trademark)
- Goleman and Boyatzis' ECI 360
- Mayer, Salovey, and Caruso's MSCEIT (trademark)
- Orioli and Cooper's EQ Map (registered)

Human Resources Specialists may first provide EI training to Project Managers, and then with the team. They

may also provide the training to the group as a whole. It is important that Project Managers understand the talents, skills and potential they bring to the project; as well, as the team members. When Project Managers understand their own emotions and the emotions of others, they have the opportunity to have a high performing team and achieve project success. The results are a vision of the project, and agreed upon outcomes. All members act intentionally and intelligently, and are motivated and enthusiastic. They have the ability to network, and feel a sense of achievement. People will believe the work they are doing is important. The hearts of the team are invested as well as their minds.

HR can also help raise EI within projects by modelling, building new frameworks of the mind, helping them refocus on the vision, and listening. HR can use proven Project Management tools to: provide structure, set clear objectives, norms, boundaries, and roles. By supporting the team to use EI tools engages the members to be professionals.

Human Resources and Supporting Teams to Building Trust

All teams, including project teams, need a certain level of trust. People trust others based on their beliefs related to their own ability, integrity and disposition to be good. Is is also an emotional response. People tend to experience positivity when they trust another person. Project team members generally come together with a medium to high level of trust in their team mates. It is a knowledge-based trust that people are generally good. They also believe that Project Managers and HR Specialists have made good choices in bringing the team together that share common purpose, characteristics, skills and experiences.

Trust is quite fragile, especially in new relationships because people base it on assumptions. To ensure trust builds and does not decrease, HR Trainers could provide initial training to build trust with Trust Building Activities. Some examples are ice breakers, the trust fall, being led around blind folded, and creating pairs obstacle courses. During the project, trust may drop-off. HR Trainers can help re-build trust within the group by providing similar training that was offered at the beginning of the project. One of the easiest ways to build and maintain trust with project team members is to schedule team and trust building activities on a regular basis.

Think!

Trust within a team is important to the success of a project. There are many trust building exercises that Human Resources Specialists can use in workshops. However, as an HR Specialist who would go about building individual trust? How would you go about establishing trust for yourself within the team?

Human Resources Helping Teams to Develop Communication Skills

Unfortunately, many people think they are better communicators than they actually are. Sometimes a person will excel at one form of communication but fail at others. For instance, someone might be great at small talk before a meeting but continually confuse co-workers with poorly written emails. This is one area where getting feedback from your co-workers can be especially helpful. Another option is taking a class, or at the very least, consulting the numerous online guides to developing effective communication skills. Human Resources Specialists can provide training in various communication skill building. Some examples are included.

Making Small Talk—People often say they dislike small talk, but polite conversation on unimportant matters is the lubricant that keeps the social gears moving, minimizing friction, and making it possible for people to join forces on important matters. If you're bad at small talk, then put some time into learning how to improve; you'll get better with practice. There's no better way to put people at ease.

Writing good Emails—An ideal email is clear, brief, calm, and professional. Avoid jokes, because you can never be certain how team members (especially team members in other countries) will interpret them. A good emailer also understands the social rules that apply to email exchanges.

Talking One-on-One—Nothing beats a face-to-face conversation for building trust and encouraging an efficient exchange of ideas, as long as both participants feel comfortable. In fact, Alexander Laufer suggests using face-to-face conversation as the primary communication mode for your team (2012, 230). As a team leader, it's your job to be aware of the many ways conversations can go awry, particularly when subordinates fear speaking their mind.

Telling stories is an especially helpful way to share experiences with your team. Indeed, stories are “a form of communication that has been used to entertain, persuade, inspire, impart wisdom, and teach for thousands

of years. This wide range of uses is due to a story’s remarkable effect on human emotion, experience, and cognition” (Kerby, DeKorver, and Cantor, 2018).

Storytelling

You’ve probably experienced the way people lower their defenses when they realize they are hearing a tale about specific characters, with an uncertain outcome, rather than a simple recitation of events, or worse, a lecture. Master storytellers seem to do it effortlessly, but in fact they usually shape their stories around the same basic template. Holly Walter Kerby, executive director of Fusion Science Theater, and a long-time science educator, describes the essential story elements as follows:

A Main Character your Audience can Identify with—Include enough details to allow your audience to feel a connection with the main character, and don’t be afraid to make yourself the protagonist of your own stories.

A Specific Challenge—Set up the ending of the story by describing a problem encountered by the main character. This will raise a question in the minds of the audience members and make them want to listen to the rest of the story to find out what happens.

- Can Sam and Danielle recover from a supplier’s bankruptcy and figure out how to get three hundred light fixtures delivered to a new office building in time for the grand opening?
- Can Hala, a mere intern, prevent seasoned contractors from using an inferior grade of concrete?

Three to Five Events Related by Cause and Effect—The events should build on each other, and show the characters learning something along the way. Describe the events in a way that helps build a sense of tension.

One or two physical details—People tend to remember specific physical details. Including one or two is a surprisingly effective way to make an entire story more memorable.

- The first new vendor Sam and Danielle contacted agreed to sell them all the light fixtures they needed, but ended up sending only one fixture in a beaten-up box with the corners bashed in.
- Hala, a small person, had to wear an oversized helmet and vest on the job site, which emphasized that she was younger and less experienced than the contractors.

An Outcome that Answers the Question—The outcome should be simple and easy to understand. Most importantly, it should answer the question posed at the beginning of the story.

- Yes—by collaborating with a new supplier, Sam and Danielle were able to acquire the light fixtures in time for the grand opening.
- No—Hala could not stop the contractors from using inferior concrete, but she did report the problem to her boss, who immediately halted construction until the concrete could be tested, and, in the end, replaced.

Satisfying Ending—Explain how the events in the story led to some kind of change in the characters' world.

- Sam and Danielle learned to focus on building relationships with reliable, financially stable vendors.
- Hala learned that even an intern can safeguard a project by speaking up when she sees something wrong.

Keep in mind that in some high-stakes situations, the last thing you want is more tension. In that case, you want the opposite of a story—a straightforward recitation of the facts. For example, when confronting a team member about poor work habits, or negotiating with an unhappy client, it's best to keep everything simple. Draining the drama from a situation helps everyone stay focused on the facts, keeping resentment and other negative emotions to a minimum (Manning, 2018, p. 64). For more on good techniques for difficult conversations, see Trevor Manning's book *Help! I need to Master Critical Conversations*.

[1] Thanks to Hala Nassereddine for sharing her story of her experience as an intern on a construction site in Beirut, Lebanon.

Human Resources plays a role in the human experience, first through the strategic plan, and then through communication to all employees. The critical point with projects is to support the project manager and the team with developing formal and informal communication techniques. HR has a unique role to play in uncovering what works with different projects. Teaching two-way communication tools to project teams helps increase positive communication.

Formal Communication can include questionnaires/survey, mentoring, suggestion box, bulletin boards, memos, electronic mail, project handbook, meetings

Informal Communication: informal chat, the grapevine (ie. being involved in information sharing

between team and other departments, chat in the lunch room, small talk at the beginning of meetings, unofficial discussions, advice and suggestion offered or given).

Whether formal or informal communication, HR is in a good position to create opportunities to share and gather important information with project teams and build trust between the members and the HR department.

Face-to-Face Communication

As Laufer et al. point out in their book *Becoming a Project Leader*,

In contrast to interactions through other media that are largely sequential, face-to-face interaction makes it possible for two people to send and receive messages almost simultaneously. Furthermore, the structure of face-to-face interaction offers a valuable opportunity for interruption, repair, feedback, and learning that is virtually instantaneous. By seeing how others are responding to a verbal message even before it is complete, the speaker can alter it midstream in order to clarify it. The immediate feedback in face-to-face communication allows understanding to be checked, and interpretation to be corrected. Additionally, face-to-face communication captures the full spectrum of human interaction, allowing multiple cues to be observed simultaneously. It covers all the senses—sight, hearing, smell, taste, and touch—that provide the channels through which individuals receive information (Laufer et al., 2018).

Certainly, in today's world of project management, in which distributed digital teams are becoming common practice, it may be impossible to sit down in the same room with all team members. But as much as possible, project managers should push for using technology that allows a fuller communication environment—one in which interactions are not just isolated to text.

Virtual Communication

Technology advancements have improved communication in organizations. People are geographically dispersed and interact sending messages without meeting physically. Project teams meet through voice calls, video calls, video conferencing and social media. More organizations are depending on technology to communicate.

Virtual project teams have the advantage of saving time driving or flying to meetings. Travel and accommodation costs are reduced. Teams can interact conveniently and it takes no time to logon. It is fast. Everyone is just one “click” away. It enables team members to be flexible with their schedules and submit project information on time. Team members can easily contact each other which saves times. It reduces the need for physical space and paying for office space. When all of these are in place, team members become more effective and efficient at their work.

Human Resources Contribution to Face-to-Face and Virtual Communication

Whether face-to-face or virtual communication, HR plays a role with the project team in establishing good communication. They can help set up meeting spaces, guide formal and informal communication, and facilitate meetings. Also, they can provide social media tools, share posts, and provide content that team members want to share. Overall, HR can spark conversations, educate employees and boost morale for the team.

Think!

As a student and future HR Specialist, do you prefer face-to-face communication? Virtual communication? Why?

4.5. TEAM MOTIVATION

To build believable performances, actors start by figuring out their characters' motivations—their reasons for doing what they do. As a team leader, you can use the same line of thinking to better understand your team members. Start by asking this question: Why do your team members do what they do? Most people work because they have to, of course. But their contributions to a team are motivated by issues that go way beyond the economic pressures of holding onto a job.

In their book *The Progress Principle: Using Small Wins to Ignite Joy, Engagement, and Creativity at Work*, Teresa Amabile and Steven Kramer (2011) argue that the most important motivator for any team is making meaningful daily progress toward an important goal. In their study of 12,000 daily journal entries from team members in a variety of organizations and industries, they found that a sense of accomplishment does more to encourage teamwork, on-the-job happiness, and creativity than anything else. “Even when progress happens in small steps,” Amabile et al. (2011) explain, “a person’s sense of steady forward movement toward an important goal can make all the difference between a great day and a terrible one” (Amabile et al., 2011, p. 77).

According to Amabile and Kramer 2011, the best managers focus on facilitating progress by removing roadblocks and freeing people up to focus on work that matters:

When you do what it takes to facilitate progress in work people care about, managing them—and managing the organization—becomes much more straightforward. You don’t need to parse people’s psyches or tinker with their incentives, because helping them succeed at making a difference virtually guarantees good inner work life and strong performance. It’s more cost-effective than relying on massive incentives, too. When you don’t manage for progress, no amount of emotional intelligence or incentive planning will save the day (Amabile et al., 2011, p. 10).

As you might expect, setbacks on a project can have the opposite effect, draining ambition and creativity from a team that, only days before, was charging full steam ahead toward its goal. But setbacks can be counterbalanced by even small wins— “seemingly minor progress events”—which have a surprising power to lift a team’s spirits, making them eager to get back to work the next day (Amabile et al., 2011, p. 80). You’ve probably experienced the pleasure that comes from checking at least one task off your to-do list. Even completing a small task can generate a sense of forward momentum that can propel a team toward larger achievements.

HR in Focus: HR Helping Teams to Gain and Sustain

Motivation

Human Resource Specialists can support teams who have setback by helping them reflect on the original goal and purpose, review individual and group performance, and recognize the achievements to date. A performance-driven project demands performance. HR can help the team re-commit to their individual and team goals through conversations or workshops. Helping to unify the team leads to success. Team members, through HR support and tools, will see the tangible evidence that their work matters.

For project managers and team members, the value of an outside HR Specialist asking:

1. What do you need more of?
2. What do you need less of?
3. How can I help?

This allows for corrective action and aids in getting the project back on track. As well, these tools and techniques support the project manager to best manage the team.

Through years of practical experience as an executive, consultant, project engineer, and project manager, John Nelson has gained a finely-honed understanding of how to manage teams. According to Nelson's lecture on reliable promising for EPD612: Technical Project Management, University of Wisconsin-Madison (2017), the following are essential for motivators for any team:

A Sense of Purpose—Individually, and as a whole, a team needs an overarching sense of purpose and meaning. This sense of purpose should go beyond each individual's project duties. On the macro level, the sense of purpose should align with the organization's strategy. But it should also align, at least sometimes, with each individual's career and personal goals.

Clear performance metrics—How will the team and its individual members be evaluated? What does success look like? You need to be clear about this, but you don't have to be formulaic. Evaluations can be as subjective as rating a dozen characteristics as good/not-good, or on a score of 1-5.

Assigning the Right Tasks to the Right People—People aren't commodities. They aren't interchangeable, like a router or a hand saw. They are good at specific things. HR Specialists are trained to find the right people for teams and align them with the right team tasks. Whenever possible, avoid assigning people

to project tasks based on capacity—that is, how much free time they have—and instead try to assign tasks that align with each individual’s goals and interests.

Encouraging Individual Achievement—Most people have long-term aspirations, and sometimes even formalized professional development plans. As team leader, you should be on the lookout for ways to nudge team members toward these goals. It’s not your job to ensure that they fully achieve their personal goals, but you should try to allow for at least a little forward movement. HR are excellent partners when assisting team members to achieve individual and team goals through training, motivation and rewards to achieve success.

Sailboat Rules Communication, in which no one takes offence for clear direction—On a sailboat, once the sail goes up, you need to be ready to take direction from the captain, who is responsible for the welfare of all on board, and not take offence if he seems critical or unfriendly. In other words, you can’t take things personally. Likewise, team members need to set their egos aside and let perceived slights go for the sake of the team. When you start a big project, explain that you are assuming *sailboat rules communication*. That means that, in a meeting, no one has the privilege of taking anything personally.

Mentorship—Team members need to be able to talk things over with more experienced people. Encourage your team to seek out mentors. They don’t necessarily have to be part of the project. HR is in a good position to set up mentorships with more experienced employees who understand the project goals. They can outline the mentorship process, select the participants, match mentor and mentee, and provide training and follow through throughout the project.

Consistency and Follow-Through—Team morale falls off when inconsistency is tolerated or when numerous initiatives are started and then abandoned. Encourage a team environment in which everyone does what they commit to do, without leaving loose ends hanging. Be on the lookout for gaps in a project, where things are simply not getting done. (Nelson, 2017). HR can play an active role in team encouragement through setting up “pep talks” with the executive team, providing motivational training, and teaching time management and goal setting and follow through.

Think!

What motivates you to learn in school? What are the motivators teachers use to motivate you?
What types of motivators will you use as an HR Specialist to assist employees?

4.6. DIVERSITY, INCLUSION AND LEADERSHIP



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The Power of Diversity

The rationale for putting together a team is to combine different people, personalities, and perspectives to solve a problem. HR Specialists know that inclusive and diverse teams make the best business and project decisions, make faster decisions and execute decisions with better results. The difference is the whole point.

Diverse teams are more effective than homogenous teams because they are better at processing information and using it to come up with new ideas. According to David Rock and Heidi Grant, diverse teams tend to focus more on facts, process those facts more carefully, and are more innovative (Rock, 2016). What's more, researchers investigating creativity and innovation have consistently demonstrated "the value of exposing individuals to experiences with multiple perspectives and worldviews. It is the combination of these various perspectives in novel ways that results in new ideas 'popping up.' Creative 'aha' moments do not happen by

themselves” (Viki, 2016). In his book: *The Difference: How the Power of Diversity Creates Better Groups, Firms, Schools, and Societies*, Scott Page (2007) puts it like this:

As individuals we can accomplish only so much. We’re limited in our abilities. Our heads contain only so many neurons and axons. Collectively, we face no such constraint. We possess incredible capacity to think differently. These differences can provide the seeds of innovation, progress, and understanding.

HR in Focus: HR and Diversity

HR Specialists understand the need for diversity. Diversity with teams starts at recruitment and selection. Hiring diverse employees increases creativity and innovation. People with different backgrounds and viewpoints, and experiences makes for a highly competitive organizations. When hiring employees or project teams, HR looks for diverse teams that result in better problem solving and decisions making and highly engaged employees.

Think!

If you were selecting a team for a project, what types of diversity would you be looking for to balance the teams creativity and innovation?

Considerations of Leadership

Good teamwork depends, ultimately, on a leader with a clear understanding of what it means to lead. HR could be involved in the hiring of the project leader to ensure the unique qualities, talents, experience and education are taken into consideration at the hiring level. To judge by the countless books on the topic, you’d think the essential nature of leadership was widely understood. However, few people really understand the

meaning of “leadership.” HR understands the importance of good leadership. They facilitate the culture of the organization that builds trust among employees. In turn, project teams would build trust on the same premise. Also, HR needs to set an example for project teams as leaders, and support and encourage the team by treating them with respect and recognition for their achievements in the project.

In his book, *Leadership Theory: Cultivating Critical Perspectives*, John P. Dugan (2017) examines “core considerations of leadership,” zeroing in on misunderstood terms and also false dichotomies that are nevertheless widely accepted as accurate explanations of the nature of leadership. Dugan argues that a confused understanding of these essential ideas makes becoming a leader seem like a far-off dream, which only a select few can attain. But in fact, he argues, anyone can learn how to be a better leader.

Here’s what Dugan has to say about core considerations of leadership:

- **Born Versus Made:** This is one of the most pernicious false dichotomies regarding leadership. Dugan explains, “that there is even a need to address a consideration about whether leaders are born or made in this day and age is mind-numbingly frustrating. Ample empirical research illustrates that leadership is unequivocally learnable when defined according to most contemporary theoretical parameters.”
- **Leader Versus Leadership:** People tend to conflate the terms leader and leadership, but, according to Dugan (2017), “Leader refers to an individual and is often, but not always, tied to the enactment of a particular role. This role typically flows from some form of formal or informal authority (e.g., a supervisor, teacher, coach). When not tied to a particular role, the term leader reflects individual actions within a larger group, the process of individual leader development, or individual enactments attempting to leverage movement on an issue or goal. Leadership, on the other hand, reflects a focus on collective processes of people working together toward common goals or collective leadership development efforts.”
- **Leader Versus Follower:** “The conflation of leader and leadership makes it easier to create an additional false dichotomy around the terms leader and follower,” with follower considered a lesser role. “The label of leader/follower, then, is tied solely to positional authority rather than the contributions of individuals within the organization. If we flip the example to one from social movements, I often see an interesting shift in labelling. In the Civil Rights Movement in the United States, there are multiple identified leaders (e.g., Martin Luther King, Jr., Malcom X, Rosa Parks, James Baldwin) along with many followers. However, the followers are often concurrently characterized as being leaders in their own right in the process. In social movements, it seems we are more willing to simultaneously extend labels of leader and follower to a person.”
- **Leadership Versus Management:** “Also tied up in leader/leadership and leader/follower dichotomies are arguments about whether leadership and management represent the same or unique phenomena. Once again, the role of authority gets tied up in the understanding of this. Many scholars define management as bound to authority and focused on efficiency, maintenance of the status quo, and tactics for goal accomplishment. An exceptional manager keeps systems functioning through the social

coordination of people and tasks. Leadership, on the other hand, is less concerned with the status quo and more attentive to issues of growth, change, and adaptation.”

Whether hiring from within or an external hire, HR Specialists are trained to recruit Leaders. When searching for Project Managers they are looking for people who are professional, focus on results, inspire others, take responsibility for their actions, are able to influence others including stakeholders, align the team to work toward a common goal, and have a strong emotional intelligence.

Think!

What skills do you possess to be a good leader? What skills do you think you need to develop to be a good leader? How would you go about developing these skills?

4.7. KNOWLEDGE CHECK

Question 1



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Question 2



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Question 4



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Question 5



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Question 6



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Question 7



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Critical Thinking Exercise

John P. Dugan has written about leadership. There has always been a debate about whether leaders are born, or whether they are made. Do you think that leaders are innately born? Do you think that leadership can be learned? Take a position of one of the beliefs. Research your position. Argue your position.

4.8. KEY TERMS

Adjourning: Once the project is completed, the team should collect lessons learned and transition to other projects or roles. The project manager should provide recognition of the work done by the team and help them transition to their next project (provide recommendations, etc.) [4.3](#)

A Sense of Purpose: Individually, and as a whole, a team needs an overarching sense of purpose and meaning. This sense of purpose should go beyond each individual's project duties. [4.5](#)

Assigning the Right Tasks to the Right People: People aren't commodities. They aren't interchangeable, like a router or a hand saw. They are good at specific things. HR Specialists are trained to find the right people for teams and align them with the right team tasks [4.5](#)

Born Versus Made: This is one of the most pernicious false dichotomies regarding leadership. Dugan explains, "that there is even a need to address a consideration about whether leaders are born or made in this day and age is mind-numbingly frustrating." [4.6](#)

Communication: They are able to relay information clearly and concisely, and be good listeners when discussing project goals, outcomes and tasks to be performed. [4.3](#)

Communication Exercises: The team designs a presentation and delivers the presentation. [4.3](#)

Consistency and Follow: Through the team, morale falls off when inconsistency is tolerated or when numerous initiatives are started and then abandoned. [4.5](#)

Cooperation: Willing and able to work together for the good of the project. They are willing to share resources, be flexible, accommodate each other's needs and meet deadlines. [4.3](#)

Coordination: They need to work together on the project to "keep things on track" and integrate each other's work into the daily outcomes. [4.3](#)

Conflict Resolution: They need to have the skills to motivate and resolve conflict when it arises. Disagreements are part of any project as each member has different ideas on how to perform tasks in the project. Effective team members can discuss issues, brainstorm ideas for resolve, and continue to work in harmony. [4.3](#)

Console: They need to maintain positive attitudes and be mentally and psychologically stable, and support each other to be and do the same. They must be able to be empathic, provide soothing to each other, and help each other build self-esteem and self-confidence in the project duties. [4.3](#)

Define The Purpose of The Team and Project: The team needs to know the overall purpose and goals. The HR Specialist can help them set goals within the project. [4.3](#)

Encouraging Individual Achievement: Most people have long-term aspirations, and sometimes even formalized professional development plans. As a team leader, you should be on the lookout for ways to nudge

team members toward these goals. It's not your job to ensure that they fully achieve their personal goals, but you should try to allow for at least a little forward movement.[4.5](#)

Formal Communication: Can include questionnaires/surveys, mentoring, suggestion boxes, bulletin boards, memos, electronic mail, project handbook, meetings [4.4](#)

Forming: The group is brought together for the first time. The team is orienting themselves to the task at hand. At this stage, there may be little agreement on how to approach the project and team members may struggle with understanding the purpose of the project. The project manager needs to provide guidance and direction during this stage.[4.3](#)

Goal Setting: The team along with the project manager plan a simple project, with goals and outcomes, measures of success.[4.3](#)

Informal Communication: Informal chat, the grapevine (ie. being involved in information sharing between the team and other departments, chat in the lunchroom, small talk at the beginning of meetings, unofficial discussions, advice and suggestion offered or given. [4.4](#)

Leader Versus Follower: “The conflation of leader and leadership makes it easier to create an additional false dichotomy around the terms leader and follower,” with follower considered a lesser role. “The label of leader/follower, then, is tied solely to positional authority rather than the contributions of individuals within the organization.[4.6](#)

Leader Versus Leadership: People tend to conflate the terms leader and leadership, but, according to Dugan (2017), “Leader refers to an individual and is often, but not always, tied to the enactment of a particular role.[4.6](#)

Leadership Versus Management: “Also tied up in leader/leadership and leader/follower dichotomies are arguments about whether leadership and management represent the same or unique phenomena. Once again, the role of authority gets tied up in the understanding of this. [4.6](#)

Measure The Team's Performance: The project manager the HR Specialist can discuss and establish metrics and reporting of metrics related to performance. These measurements would be discussed with the team to ensure success. The HR Specialist can help to monitor performance throughout the project.[4.3](#)

Mentorship: Team members need to be able to talk things over with more experienced people. Encourage your team to seek out mentors. They don't necessarily have to be part of the project. [4.5](#)

Norming: At this stage, the team will have developed a consensus regarding roles, processes and approaches to the work ahead. The project manager should participate by working as a facilitator for the group.[4.3](#)

Performing: At this point, the group has a clear vision and purpose and is focused on meeting performance goals, project milestones and other benchmarks. The project manager should be able to delegate more and more responsibility to the team, with less supervision.[4.3](#)

Problem-Solving Exercises: The team is given a challenge ie. planning a trip into space. They must work together to plan the trip and include all the resources needed to survive the trip.[4.3](#)

Reward The Team: HR Specialists can set up reward systems that are linked to the goals of the project which helps to motivate the team for success.[4.3](#)

Role Definition: Each team member is given a defined role within a team challenge and plays out the role.[4.3](#)

Sailboat Rules Communication: No one takes offence for clear direction—On a sailboat, once the sail goes up, you need to be ready to take direction from the captain, who is responsible for the welfare of all on board, and not take offence if he seems critical or unfriendly.[4.5](#)

Storming: Team members are trying to figure out their roles in the group. Conflict and power struggles are common, but so is a clearer vision for the group. During this time of intergroup conflict, the project manager needs to provide support and coaching.[4.3](#)

CHAPTER 5 – PROJECT LIFE CYCLE, SCOPE, CHARTERS, PROPOSALS



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5.1. LEARNING OUTCOMES

Learning Outcomes

By the end of this chapter, you should be able to:

1. Explain the importance of understanding a project's context, and the potential for that context to change as you begin the initiation process.
2. Describe the living order approach to project planning.
3. Explain the importance of designing good monitoring practices.
4. Describe elements of effective project monitoring and controlling.
5. Decide what to monitor and when, and list some useful items to monitor.
6. Distill monitoring information into reports that are useful to different stakeholders.
7. Identify the process of project closure.

5.2. INITIATION

Project Management, Life Cycle of Projects

Project Management has a dual nature; it is both a series of distinct phases with a clear beginning and end, and a continuous, circular process in which each ending leads to a new beginning. Throughout a project, a successful project manager strives to anticipate changing conditions, rather than simply responding to them as they arise. Project Management uses specific skills, tools, and knowledge to deliver a product/service to improve the business processes of an organization. The project is led by a Project Manager who has the leadership and management abilities and experience to complete the project successfully. In the current world, they are the driver behind change and prosperity in an organization.

The **Project Life Cycle** is series of phases that the project progresses through from beginning to end. It is the foundation of the project. The four major phases include: Initiation, Planning, Execution or Implementation, and Closure. Some projects do include other phases such as Selection, Scheduling, and Monitoring & Control. However, often Selection would be included in Initiation, Scheduling included in Planning, and Monitoring & Control included in Execution.

Think!

Think of a project that you may have undertaken? Was there a life cycle?

Selection of Projects

Project Selection is determined by a team of people, usually at the executive level, of projects that are a priority to the organization and align with the mission, vision and values of the organization. If there are several projects to be approved, the team would prioritize the projects based on importance to the organization. The team would develop criteria they believe to be important. Some projects may be eliminated, others may be put on hold. This depends on the amount of financial resources available at any given time.

Some examples of criteria to measure what projects to complete might be time it takes to complete, the budget, and/or future value the project outcomes would bring to the organization.

Let's start with the more traditional view, which describes project management as a series of four sequential phases, with project initiation coming right after project selection. You can think of these phases, shown in Figure 5-1, as the particle nature of project management.

Traditional View of Project Management

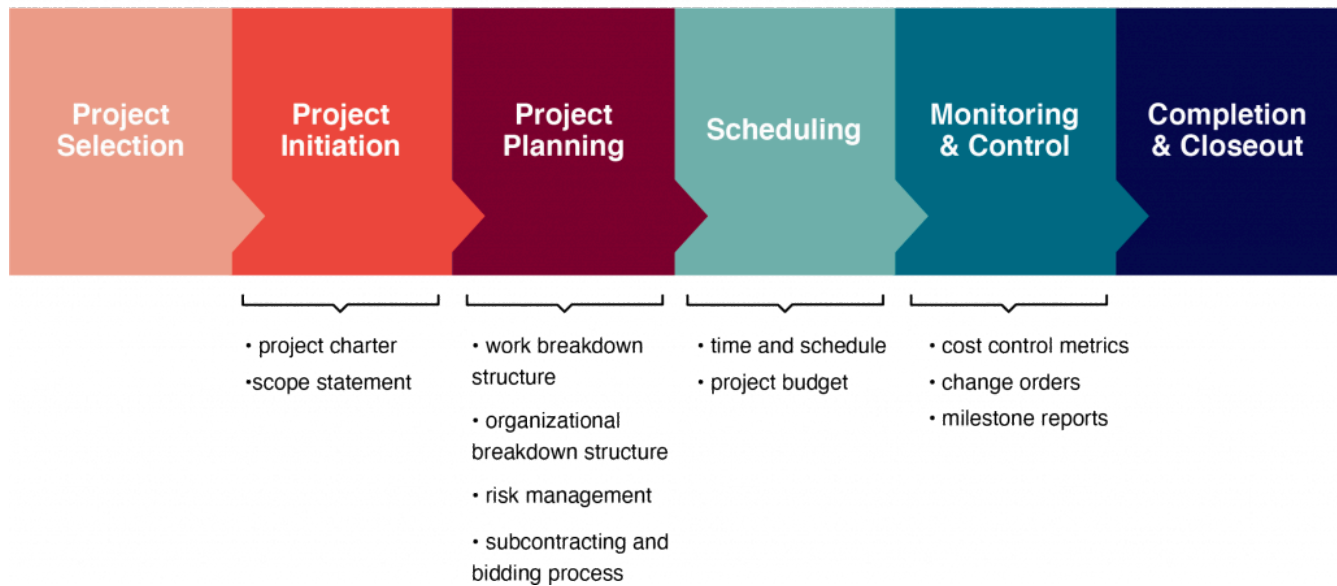


Figure 5-1: Project phases

HR in Focus: Human Resources and Project Management Selection

Human Resources Specialists may be involved in the Project Management of the project from beginning to end. They may be asked to help align the project goals and outcomes with the mission and vision of the organization. They may help with the project selection along with the executive team. They may design the criteria for the executive team to make the decisions on which projects to go forward with, which ones to eliminate, or which ones to place on hold.

Phase 1: Initiation Phase

While project **initiation** marks the official beginning of a project, doing it well also requires looking past the making stage to the entire life cycle of the project's end result. You can think of this as the wave nature of project management. As illustrated in Figure 3-1, the making stage, in which a project is initiated and executed, is one part of the larger cycle that includes the operating/using/changing stage, in which the customer makes use of the project. Finally, the demolishing stage is when the project is retired so it can be replaced by something new and better.

The team is often selected for the project in the initiation. As well, the team may put together a business case. It shows how the resources will be used (people, finances, equipment, materials). It supports the need for the project or the problem at hand that needs a solution. It should be easy to read, clear and logical to the reader. Many of the elements will be tracked or measured throughout the project. It shows where the accountability lies, and the commitment of the team to deliver the product/service.

Human Resources and Initiation of Projects

In the initial phase of the project management cycle, Human Resources could be involved in the introduction of the plan. They could help outline the purpose, what is included and how the team will make decisions to keep the work moving forward. Human Resources could assign clear roles, through job descriptions. They would look at the skills required, and work with the Project Manager on what type of skills are required for the activities within the project. Next, they would create a structure for the team. Some of the roles and responsibilities could include:

- **Project Manager:** manages the project from planning to execution to closure, and responsible for the success of the project.
- **Project Stakeholders:** Formalize the project scope, deliverables.
- **Project Sponsor:** Could be one of or all of the stakeholders. They would authorize the funds to be used for the project, be a champion of the project.
- **Project Department Managers:** May participate in the planning, provide resources for the project-including employees
- **Project Team Members:** Provide their expertise to the project and contribute to the work being done on the project.

Human Resources would assign a role for each of the roles based on their responsibility, authority and competencies. One type of chart shows the responsibility and accountability for each element of the project. It is sometimes called a RACI matrix. It lists the project tasks and person responsible.

Example of a RACI (**R**-Responsible, **A**- Accountable, **C**-Consulted, **I**-Informed):

	HR Director	HR Manager	CIO	IT Manager	Web Developer
Define Problem	A	R	I	I	I
Design Solution	I	C	A	R	C
Develop	I	C	A	R	R
Test	I	I	C	A	R
Implement	I	C	I	A	R

There is also software to produce Responsibility Charts, or Human Resources may develop their own chart in a word processing software.

Once Human Resources has supported the Project Manager and the team in the initial phase, they may also help out with Planning Phase.

5.3. PLANNING

Phase 2: Project Planning

After the project has been defined and the project team has been appointed, you are ready to enter the second phase in the project management life cycle: the detailed **project planning** phase.

Project planning is at the heart of the project life cycle, and tells everyone involved where you're going and how you're going to get there. The **planning phase** is when the project plans are documented, the project deliverables and requirements are defined, and the project schedule is created. It involves creating a set of plans to help guide your team through the implementation and closure phases of the project. The plans created during this phase will help you manage time, cost, quality, changes, risk, and related issues. They will also help you control staff and external suppliers to ensure that you deliver the project on time, within budget, and within schedule.

The project planning phase is often the most challenging phase for a project manager, as you need to make an educated guess about the staff, resources, and equipment needed to complete your project. You may also need to plan your communications and procurement activities, as well as contract any third-party suppliers. The purpose of the project planning phase is to:

1. Establish business requirements
2. Establish cost, schedule, list of deliverables, and delivery dates
3. Establish resources plans
4. Obtain management approval and proceed to the next phase

Merriam Webster's definition of **planning** is "the act or process of making a plan to achieve or do something" (Merriam-Webster, n.d.) This suggests that the ultimate goal of planning is the plan itself. It also presumes that once a plan has been formulated, you only need to follow the plan to achieve the desired outcome. That's fine for ordinary conversation. But when we begin to think about living order project planning, a more expansive understanding of the nature of planning emerges. In living order, planning is a process that prepares the project team to respond to events as they actually unfold. The whole point of planning is to develop strategies to manage the:

- Changes to scope
- Schedule
- Cost

- Quality
- Resources
- Communication
- Risk
- Procurement
- Stakeholder engagement

Planning results in a plan, but the plan is not an end in itself. Rather, a plan is a strategic framework for the scheduling and execution of a project. It's only useful if it includes the information team members require to begin moving forward. And it only remains useful if team members modify the plan as they learn the following about the project:

- Key constraints such as the timeline, cost, and functional requirements.
- Information on project system issues, such as workflow and milestones, which provide a broad look at the project as a whole.
- Plans for periodic check-ins that allow participants and leadership to re-evaluate the project and its original assumptions

Die-hard geometric order planners take a **deterministic approach**, laboring under the false notion that once everyone agrees on a plan, the plan itself determines what comes next. Indeed, it is tempting to think you can nail down every detail at the beginning of a project and then get going without looking back. But effective living order planners understand that, especially early in a project, these details are nearly always provisional and subject to change. Thus, effective living order planners stand ready to alter their plans in response to what they learn in changing conditions. They also understand that the context in which a project unfolds has varying levels of detail and variability, with potentially thousands of decisions made over the project's life cycle.

As Alexander Laufer and Gregory Howell explained in an article for *Project Management Journal*, a project leader's work is founded in uncertainty (Howell et al., 1993). **Uncertainty** is not an exceptional state in an otherwise predictable process of work, they argue. Instead, it is a permanent feature of modern work. What's more, the longer the time between planning and implementation, the higher the uncertainty surrounding individual activities. Naturally, the higher the uncertainty in a project, the more difficult it is to plan and the less effective the plans will be at articulating actions and outcomes. Finally, they emphasize that no amount of planning can eliminate the variability intrinsic to the work of a complex project.

Think!

Think about a time you planned a project. We have all planned projects whether big or small. Perhaps a trip? a wedding? painting your bedroom? building a patio? When we plan a project, in our minds we all put together a plan. Have you ever used any of the planning strategies above before you started your project? Example: cost it out, decide who will help you, decide how much money you want to spend. Everyone has designed a project at some point in their lives. This form of designing projects is just more formal.

Human Resources and the Planning Phase

The Planning Phase makes sure everyone involved is available for tasks, and that everyone is working together to move forward on the work to be completed. Human Resources Specialists can help the Project Manager and the team define all the facets of staffing for the projects. These can include:

Time requirements for team members to complete specific tasks on the project?

Human Resources can assist the team in designing a chronological chart with time frames. Sometimes a **Gantt Chart** is developed. This is a bar chart that shows a project schedule, showing the dependency relationship between tasks and the current status of the project. The Gantt Chart shows the start and finish dates, with names and tasks included on the chart.

There is software available for this type of planning that could include training, qualifications, and attendance. Or, Human Resources can create templates or word documents including the key aspects required in the planning.

Does everyone have all the skills required? If not, help them develop the skills.

The skills for team members would be established before employees/consultants are hired for the positions. However, the team needs to have job descriptions and specifications to help guide their work. Also, team members skills may overlap, and to avoid conflict, the team's skills are defined in their roles (who will do what?) to avoid duplication.

What is the onboarding plan to bring the team together?

Onboarding (define) is a similar process Human Resources would use when completing the recruitment and selection of hiring. They want to “bring on the right people” to ensure the project gets completed on time, on budget and within the scope of the project. The onboarding could include the importance and purpose of

the project, who the stakeholders are, and define the roles. Team dynamics are important and team training could be included in the onboarding of the team.

How will performance be measured, both of the project and the team (individually and as a team)?

Human Resources can ensure a performance management system is set up initially, and that all team members are aware of how they will be measured on performance throughout the project. Evaluation of the team is important to encourage high performance and behaviour. Before the “kick off” of the project, the team needs to be aware of their expectations, the standards of the project, who is supporting them, and any limitations that could be in place. The quality of the deliverables to the customer/stakeholder is significant to how well the team produces the product/service. As well, performance can be evaluated on team dynamics, and team strengths in group decision making, problem solving and conflict resolution. This evaluation would be conducted with the Human Resources Specialist and the Project Manager.

As well, individuals need to be evaluated on performance. This could involve an appraisal similar to a function of the employee’s performance review. The Human Resources Specialist would identify the team member’s strengths and weaknesses, and develop a plan of action during the project. This would be based on how well the team members performed and allows for an assessment of the team members upon completion of the project. This performance review would be conducted with a Human Resources Specialist and the Project Manager.

Finally, the Project Manager needs to be evaluated on performance. Often, the Program Manager or another functional department stakeholder who has a vested interest in the project, along with the Human Resource Specialist, would evaluate the Project Manager. The same criteria applies to the Project Manager as to the team. Were the expectations and standards met? Was the quality of the product and deliverables satisfactory? Beyond this, the Project Manager is evaluated on their ability to manage the team, network with stakeholders, manage the budget, lead and motivate the team, set priorities, work in an ethical manner, and have the ability to problem solve and make good decisions. Some other considerations for evaluation for Project Managers are: Did they innovate? Were they a visionary? Were they hands on/hands off? Were they flexible? Was there trust and loyalty (to the organization and to the team?)

How will results be measured, and how will the Project Manager and the team be rewarded?

Project results are measured through data collection, reports and analysis. Operations is generally involved in evaluation control through formal processes. This control holds people accountable, helps everyone stay focused, and avoid or mitigate problems. Human Resources may be consulted about these controls, and receive reports. However, where they are actively involved is through the rewards for the Project Manager and the team.

Rewards may be established at the beginning of the project. There may be monetary rewards through compensation rewards for individual achievement, or team achievement. There may be group-related performance pay schemes established. As well, there could be commissions, bonuses, or profit-related pay. Non-monetary incentives may be provided through time off, work flexibility and experiential rewards. Other non-monetary rewards could include tuition assistance, gym memberships or membership discounts. Other

rewards built into the organization may be promotions when team members return to their regular jobs. Human Resources would be responsible to ensure all these rewards were granted to team members, as outlined in the Planning Phase.

How will the team be released back to their functional (regular) jobs; or be released from their contracts?

When the project wraps up, team members need to move on. For regular employees this means returning to their regular position within the company. Releasing the team could happen all at once, or in stages, depending on the tasks involved. Reassignment would be planned in advance by Human Resources. If a person was hired in a temporary capacity to replace project team members, they would be given notice. The project team member would return to their regular job. Human Resources may assist in re-orienting the employee back into the position if the project was for a long period of time. The employee would need time to re-adjust and the department employees need to adjust to having the employee back in the department. If the team member was a contract person, it simply means the contract is over. Sometimes, contract workers are able to find employment within the organization with the help of a Human Resources Specialist. Other times, team members a new project may become available; and the cycle starts over again.

How will safety and compliance be measured; and what is the plan for creating safety and compliance for the team?

Simply stated, the team members and Project Manager need to comply to all the safety and compliance standards and regulations that are built into the Safety Plan for the organization. Human Resources Specialists would conduct training sessions, or inform the project team of the guidelines. The Project Manager's role is to ensure that the team abides by the guidelines and enforces compliance.

How will time be managed for the beginning and ending of the project?

Human Resources may be involved in the Planning Phase with the Project Manager to develop a well-defined project plan that includes time lines and meets deadlines. It would be the Project Manager's role to communicate the day-to-day issues related to time management to avoid delays. However, Human Resources could provide training for the Project Manager and/or the team in time management, communication related to avoiding delays, sending out emails ahead of time of tasks to be completed, how to make quick decisions, and problem solving that effective.

5.4. EXECUTION OR IMPLEMENTATION PHASE

Phase 3: Execution or Implementation Phase

During the third phase, the **implementation phase or execution phase**, the project plan is put into motion and the work of the project is performed. It is important to maintain control and communicate as needed during implementation. Progress is continuously monitored in order to make appropriate adjustments as required, which are then recorded as variances from the original plan. In any project, a project manager spends most of the time in this step. During project implementation, people are carrying out the tasks, and progress information is being reported through regular team meetings.

The project manager uses this information to maintain control over the direction of the project by comparing the progress reports with the project plan to measure the performance of the project activities and take corrective action as needed. The first course of action should always be to bring the project back on course (i.e., to return it to the original plan). If that cannot happen, the team should record variations from the original plan and record and publish modifications to the plan. Throughout this step, project sponsors and other key stakeholders should be kept informed of the project's status according to the agreed-on frequency and format of communication. HR would support the team in designing a Communication Plan, and help to monitor the plan to ensure success. The plan should be updated and published on a regular basis for all stakeholders.

Status reports should always emphasize the anticipated end point in terms of cost, schedule, and quality of deliverables. Each project deliverable produced should be reviewed for quality and measured against the acceptance criteria. Once all of the deliverables have been produced and the customer has accepted the final solution, the project is ready for closure.

After you have carefully planned your project, you will be ready to start the project implementation phase, the third phase of the project management life cycle. The **implementation phase** involves putting the project plan into action. It's here that the project manager will coordinate and direct project resources to meet the objectives of the project plan. Human Resources could play a role in helping to coordinate the resources based on team competencies. As the project unfolds, it's the project manager's job to direct and manage each activity, every step of the way. That's what happens in the implementation phase of the project life cycle: you follow the plan you've put together and handle any problems that come up.

The implementation phase is where you and your project team actually do the project work to produce the deliverables. The word "**deliverable**" means anything your project delivers. The deliverables for your project

include all of the products or services that you and your team are performing for the client, customer, or sponsor, including all the project management documents that you put together.

The steps undertaken to build each deliverable will vary depending on the type of project you are undertaking, and cannot therefore be described here in any real detail. For instance, engineering and telecommunications projects will focus on using equipment, resources, and materials to construct each project deliverable, whereas computer software projects may require the development and implementation of software code routines to produce each project deliverable. The activities required to build each deliverable will be clearly specified within the project requirements document and project plan.

The job of project manager is to direct the work, but you need to do more than deliver the results. You also need to keep track of how well your team performs. HR would actively support the Project Manager with Performance Plans, and help monitor them. The implementation phase keeps the project plan on track with careful monitoring and control processes to ensure the final deliverable meets the acceptance criteria set by the customer. This phase is typically where approved changes are implemented.

Most often, changes are identified by looking at performance and quality control data. Routine performance and quality control measurements should be evaluated on a regular basis throughout the implementation phase. HR would support the performance measurement process in an indirect way with the Project Manager. Gathering reports on those measurements will help you determine where the problem is and recommend changes to fix it.

HR in Focus: Human Resources and Execution or the Implementation Phase

During this phase, Human Resources may play a less active role as the project activities are completed by the team. However, they may be involved in monitoring the communication plan, report distribution, and performance of the team.

Communication Plan

Human Resources would assist in setting up the Communication Plan and on a regular basis “check in” with the team on how communication between the team, and the Project Manager, and between the Project Team and external stakeholders is developing. If there are issues, they may act as a support to help get communication channels back on track.

Report Distribution

Human Resources may play a role in monitoring report distribution, and ensuring that reports are flowing where they need to be. For example, who needs the reports, and what time do they need them by? If there are issues, Human Resources may intervene to figure out the issues, and help the team solve the problems.

Performance Plans

Human Resources would have established performance plans with the team and Project Manager at the beginning of the project. They would regularly “check in” and perhaps have mini-performance reviews with the team (individually, or team) to ensure the goals are being met, that deadlines are being met, and the team dynamic is strong. If there are issues, HR may support the team in developing strategies to improve performance through training, individual or team motivational speeches, and through workshops on team building (refreshers.) If there are issues the Project Manager is having difficulty with, the same would apply. If the Project Manager was having difficulty with the team, or an individual, HR could provide support and guidance on how to deal with the issues.

5.5. MONITORING

The best project managers succeed through an artful combination of leadership and teamwork, focusing on people and using their emotional intelligence to keep everyone on task and moving forward. HR could provide training in emotional intelligence to ensure the team are aware of, control, and express their emotions. However, successful project managers also know how to gather data on the health of their projects, analyze that data, and then, based on that analysis, make adjustments to keep their projects on track. In other words, they practice project monitoring, analytics, and control.

Note that most project management publications emphasize the term monitoring and control to refer to this important step of project management, with no mention of the analysis that allows a project manager to use monitoring data to make decisions. But of course, there's no point in collecting data on a project unless you plan to analyze it for trends that tell you about the current state of the project. Often, monitoring and control is part of the Execution or Implementation Phase.

For simple, brief projects, that analysis can be a simple matter—you're clearly on schedule, you're clearly under budget—but for complex projects you'll need to take advantage of finely calibrated data analytics tools. In this chapter, we'll focus on tasks related to monitoring and control, and also investigate the kind of thinking required to properly analyze and act on monitoring data.

Generally speaking, project monitoring and control involves reconciling “projected performance stated in your planning documentation with your team's actual performance” and making changes where necessary to get your project back on track (Peterman, 2016). It occurs simultaneously with project execution because the whole point of monitoring and controlling is making changes as team members perform their tasks.

The monitoring part of the equation consists of collecting progress data and sharing it with the people who need to see it in a way that allows them to understand and respond to it. The controlling part consists of making changes in response to that data to avoid missing major milestones. If done right, monitoring and controlling enables project managers to translate information gleaned by monitoring into the action required to control the project's outcome. A good monitoring and control system is like a neural network that sends signals from the senses to the brain about what's going on in the world. The same neural network allows the brain to send signals to the muscles, allowing the body to respond to changing conditions.

Because monitoring and controlling is inextricably tied to accountability, government websites are a good source of suggestions for best practices. According to the state of California, monitoring and controlling involves overseeing all the tasks and metrics necessary to ensure that the approved and authorized project is within scope, on time, and on budget so that the project proceeds with minimal risk. This process involves comparing actual performance with planned performance and taking corrective action to yield the desired

outcome when significant differences exist. The monitoring and controlling process is continuously performed throughout the life of the project (California Office of Systems Integration, 2008).

In other words, monitoring is about collecting data. Controlling is about analyzing that data and making decisions about corrective action. Taken as a whole, monitoring and controlling is about gathering intelligence and using it in an effective manner to make changes as necessary. Precise data are worthless unless they are analyzed intelligently and used to improve project execution. At the same time, project execution uninformed by the latest data on changing currents in the project can lead to disaster.

Active Control takes a two-pronged approach:

- **Controlling** what you can by making sure you understand what's important, taking meaningful measurements, and building an effective team focused on project success.
- **Adapting** to what you can't control through early detection and proactive intervention.

The first step in active control is ensuring that the monitoring information is distributed in the proper form and to the right people so that they can respond as necessary. In this way, you need to function as the project's nervous system, sending the right signals to the project's muscles (activity managers, senior managers, clients, and other stakeholders), so they can take action. These actions can take the form of minor adjustments to day-to-day tasks, or of major adjustments, such as changes to project resources, budget, schedule, or scope.

HR in Focus: HR and Monitoring

Human Resources would be less involved in monitoring the data and analytics of the project. This would be left to the Project Manager and other stakeholders. However, HR could monitor communication, performance as stated earlier.

Within the communication plan, it is important to monitor the process and identify where there may be weaknesses and strengths. There may be a need to change the approach to have more impact, improve efficiency, and accountability of the communication plan. This could be accomplished through surveys to team members, individual or team interviews, or discussing the communication channels with stakeholders. Human Resources can help everyone involved find clarity in the relationships between the stakeholders.

Performance monitoring would be conducted by HR on a regular basis to ensure there are no

underlying problems that could negatively impact the project. They can collect data if and when a problem arises, and deal with it quickly. They may also gather the data as a baseline to compare with other issues at a later time in the project. Both these monitoring systems, set up at the beginning of the project, is a proactive approach to problem solving to avoid issues. However, performance monitoring during the project helps to boost productivity and build a successful project by resolving problems quickly and easily.

5.6. CLOSURE AND EVALUATION

Phase 4: Closing Processes

At the end of our project, or the entire project, we must get final approval from the customer, archive our records from the project, compile the lessons learned, and pay any outstanding bills. These and several other activities make up the closing processes. Closing processes include:

- Paying bills
- Releasing team members
- Closing accounts
- Shutting down facilities
- Writing final reports
- Seek approval from the customer
- Prepare an audit on success of project through retrospectives (lessons learned)
- Evaluation of team performance and Project Manager's management of the project

There are many tasks involved in closing out a project. The responsibility of closure lies with the Project Manager and the team. HR can be involved with the team with specific activities.

Human Resources and Closure of Projects

Human Resources may assist with several elements of closure of projects. Through Lessons Learned and Performance Evaluations the wisdom from the project is transferred back to the organization to help improve future projects.

Lessons Learned

Retrospectives are lessons learned on projects. Human Resources would work with the team (as an outside facilitator). They would act as a guide to lead the team through a workshop and process to identify what went well in the project, what could they have improved upon, and what type of follow up action plan could they develop with goals and accountability. Human Resources, to perform this activity, needs to remain unbiased.

The Human Resources Specialist would design a workshop, or purchase one that uses questionnaires. It

focuses on the operation of the project, how the culture of the organization impacted the results. The team members also review mistakes made, and failures within the project. This is important information for future projects. A review of successes are also documented. Each team member and the Project Manager participate equally, with no judgement. Each item addressed could be assigned to a team member who witnessed the success or failure, and expands on the success or failure. This person may serve as a contact person for future projects as a consultant.

The person may also communicate the report to other employees in the organization. These Lessons Learned would be documented by the HR Specialist, distributed to the appropriate stakeholders, and archived for future use. These archived documents will serve as tools for future team members to avoid the mistakes made, and how successes were achieved. Retrospectives were almost non-existent until recently. They are becoming more important in organizations, therefore, involving Human Resources more in project management.

Project Team Evaluation – Individuals

Performance management is important in the Planning Phase to encourage team success and project success. Human Resources would develop the performance plans for each team member and the Project Manager. The monitoring would take place regularly to ensure all team members and the Project Manager are performing continuously to the expectations of the roles assigned.

At the end of the project, Human Resources will want to support the team's individual career development. The HR Specialist would set-up a meeting with each team member to review the performance plan. They would measure the success against the criteria that was established at the beginning of the project. Given the project's expectations, standards, organizational support and limitations, an effective performance review can be conducted.

Following the individual team member review, the exit strategy would be discussed with the employee. Post project the employee may return to their regular job, or if a consultant, they are released from the organization. Often times, project employees seek promotions or are offered promotions within the company. Human Resources would support any of these transitions.

Project Team Evaluation – Team

Most often team evaluation is omitted at the end of project. This is unfortunate for the team members. It ought to be an important step in Closure of projects. Human Resources could work with the team on evaluating the team's problem solving steps and processes, the team's decision making steps and processes, team unity, trust between team members and between the team and the Project Manager, and communication between and among the team. Project success depends on all these factors as the quality of the product/service is dependent on the team.

This evaluation could be through a survey administered by the HR Specialist. The survey may be only offered to the team and Project Manager, or to other stakeholders who had a vested interest in the project. Following the submission and analysis of the survey, the HR Specialist would meet with the team to review the results. These results would be used to assess the strengths and weaknesses of the team, lessons learned, and the development of the team overtime. This information is helpful for future teams and projects to communicate better, and, may offer better approaches to team development. The HR Specialist would prepare the report, distribute the reports to the stakeholders, and archive the documents.

Think!

Many of us have been part of a team. In College, you are part of a team/group. You work on group projects together. When all things are equal, and everyone does their “part”, the team will be successful in earning great marks. If this does not happen, sometimes, some team members take on larger portions than others in the team. However, everyone earns the same grade.

Do you prefer group work? Do you prefer individual work? Why?

How would you reward a team working on a project, if some team members told you they “did more work” than other team members?

Project Manager Evaluation

If Project Managers were hired with the competencies, skills, leadership and management skills set out by Human Resources, the performance review ought to be positive. If they did a good job of producing a quality product/service to the customer, the performance will be applauded by all concerned. Similar to the team members, if the expectations, standards, support from the organization, and limitations were reviewed, post project reviews ought to be admirable. In many cases, the same type of performance review would be completed with the Project Manager as the team members.

However, a popular evaluation today is **360-degree review**. It is a process where an employee would receive anonymous feedback from stakeholders based on performance. Trained Human Resources Specialists can conduct the 360-degree review. This method is for personal and professional growth. It is not intended to affect an employee’s position or pay. Three rules apply:

1. It is completed confidentially by the identified stakeholders (could be team, customer, functional department managers, the Project Manager themselves, and others deemed and agreed upon).
2. The participation is anonymous and the performance feedback will only go to the Human Resources Specialist, who in turn, will critique the Project Manager based on the results.
3. The review is only based on the time the project began until it finished.

The Human Resources Specialist would ensure the three rules were followed. The HR Specialist would review the report with the Project Manager. A career plan could be created for future career development.

Think!

As an employee, would you want to have a 360-degree evaluation? Why? Who not?

5.7. S.M.A.R.T. GOALS IN PROJECTS

Setting Project Objectives in the Initiation Phases

The project **initiation phase** is the first phase within the project management life cycle, as it involves starting up a new project. Within the initiation phase, the business problem or opportunity is identified, a solution is defined, a project is formed, and a project team is appointed to build and deliver the solution to the customer. A business case/proposal (sometimes called a feasibility study) is created to define the problem or opportunity in detail and identify a preferred solution for implementation. The business case/proposal includes:

- A detailed description of the problem or opportunity with headings such as Introduction, Business Objectives, Problem/Opportunity Statement, Assumptions, and Constraints
- A list of the alternative solutions available
- An analysis of the business benefits, costs, risks, and issues
- A description of the preferred solution
- Main project requirements
- A summarized plan for implementation that includes a schedule and financial analysis

SMART Project Objectives

In the early 1980s, George T. Doran introduced the SMART set of criteria for projects, goals and objectives. **SMART** is an acronym for Specific, Measurable, Achievable, Realistic, and Time-Related/Timely. The smart criteria have been applied in many different areas of management, including project management. Let's take a look at each of Doran's criteria as they apply to project management.



Figure 5.2: Smart Goals by [Fanshawe College CC-BY-NC-SA](#) (click to enlarge)

- **Specific** – A project needs to be specific about what it will accomplish. Unlike many organizational goals, the goal of a project should not be vague or nebulous. An organization may want to ‘*make London, Ontario a great place to live*’, but its projects need to focus on a specific goal. For example, a more specific goal would be to build a downtown farmers’ market. A project that is specific is one that can be clearly communicated to all team members and stakeholders. A specific project goal will answer the five ‘W’ questions:

1. **W**hat do we want to accomplish?
2. **W**hy are we undertaking this project?
3. **W**ho is involved or will be affected by the project?
4. **W**here will this project be conducted?
5. **W**hich constraints (scope, time, money, risk, etc.) have been placed on our project?

- **Measurable** – How will project progress and success be measured? What will be the measurable difference once our project is completed successfully? These measures should be quantifiable.
- **Assignable** – Who will do the work? Can people be identified who have the expertise in the organization to complete this work? Or can the expertise be hired from outside of the organization?
- **Realistic** – Is it realistic that the organization can achieve this project, given its talents and resources?

This is a very important consideration for businesses of all sizes. Yes, it would be great to produce a new driverless car, but is that realistic given the resources that the organization has available?

- **Time-related** – when will the project be completed and how long will it take? These criteria can be very useful when defining a project. If the description for a project does not meet all these criteria, then it is time to go back to the drawing board and make sure that what is being described is really a project, rather than a program or strategic goal.



“Monaco 2004” by [Cord Rodefald](#) is licensed under [CC BY 2.0](#) (top); “Jarno Trulli” by [ph-stop](#) is licensed under [CC BY-SA 2.0](#) (middle); “Jenson Button” by [Evoflash](#) is licensed under [CC BY 2.0](#) (bottom)

For example, an objective of the team principle (project manager) of a Formula 1 racing team may be that their star driver, “finish the lap as fast as possible.” That objective is filled with ambiguity.

How fast is “fast as possible?” Does that mean the fastest lap time (the time to complete one lap) or does it mean the fastest speed as the car crosses the start/finish line (that is at the finish of the lap)?

By when should the driver be able to achieve the objective? It is no use having the fastest lap after the race has finished, and equally the fastest lap does not count for qualifying and therefore starting position if it is performed during a practice session.

The ambiguity of this objective can be seen in the following example. Ferrari’s Michael Schumacher achieved the race lap record at the Circuit de Monaco of 1 min 14.439 sec in 2004. However, he achieved this on lap 23 of the race but crashed on lap 44 of a 77-lap race. While he achieved the fastest lap and therefore met the specific project goal of “finish the lap as fast as possible,” it did not result in winning the race, clearly a different

project goal. In contrast, the fastest qualifying time at the same event was by Renault’s Jarno

Trulli (1 min 13.985 sec), which gained him pole position for the race, which he went on to win. In his case, he achieved the specific project goal of “finish the lap as fast as possible,” but also the larger goal of winning the race.

The objective can be strengthened considerably if it is stated as follows: “To be able to finish the 3.340 km lap at the Circuit de Monaco at the Monaco Grand Prix in 1 min 14.902 sec or less, during qualifying on May 23, 2009.” This was the project objective achieved by Brawn GP’s Jenson Button.

5.8. PROJECT SCOPE

After looking at the 4 phases of the Life Cycle of a project, we will move to the Project Scope that is designed at the beginning of the project.

You always want to know exactly what work has to be done before you start it. You have a collection of team members, and you need to know exactly what they're going to do to meet the project's objectives. The scope planning process is the very first thing you do to manage your scope. **Project scope planning** is concerned with the definition of all the work needed to successfully meet the project objectives. The whole idea here is that when you start the project, you need to have a clear picture of all the work that needs to happen on your project, and as the project progresses, you need to keep that scope up to date and documented in the project's scope management plan.

Defining the Scope

The **Scope** is the work that needs to be completed to deliver the product/service. It is the final result of the project. In simple terms, the **Scope Statement** includes Who? What? When? Where? Why? Costs.

Example of a simple Scope Statement:

A party is planned for my parents on September 15th, 2022 from 6:00pm-12:00pm at the ABC Community Centre for their anniversary at a cost of \$2,000.00 There will be a dinner and a band.

Deliverables

You already have a head start on refining the project's objectives in quantifiable terms, but now you need to plan further and write down all the intermediate and final deliverables that you and your team will produce over the course of the project. **Deliverables** include everything that you and your team produce for the project (i.e., anything that your project will deliver). The deliverables for your project include all of the products or services that you and your team are performing for the client, customer, or sponsor. They include every

intermediate document, plan, schedule, budget, blueprint, and anything else that will be made along the way, including all of the project management documents you put together.

Project deliverables are tangible outcomes, measurable results, or specific items that must be produced to consider either the project or the project phase completed. Intermediate deliverables, like the objectives, must be specific and verifiable.

Deliverables can be simply stated in project documents. They are the final output along the way of completing the project. Some examples may include:

- Designing the product
- Reporting progress
- Complete content strategy
- Proposal written
- Technical support
- Financial Reporting
- Communication Plan
- Product prototype development

One of the project manager's primary functions is to accurately document the deliverables of the project and then manage the project so that they are produced according to the agreed-on criteria. Deliverables are the output of each development phase, described in a quantifiable way.

Project Requirements

After all the deliverables are identified, the project manager needs to document all the requirements of the project. **Requirements** describe the characteristics of the final deliverable, whether it is a product or a service. They describe the required functionality that the final deliverable must have or specific conditions the final deliverable must meet in order to satisfy the objectives of the project. A requirement is an objective that must be met. The project's requirements, defined in the scope plan, describe what a project is supposed to accomplish and how the project is supposed to be created and implemented. Requirements answer the following questions regarding the as-is and to-be states of the business: who, what, where, when, how much, and how does a business process work?

Requirements may include attributes such as dimensions, ease of use, color, and specific ingredients. If we go back to the example of the company producing holiday eggnog, one of the major deliverables is the cartons that hold the eggnog. The requirements for that deliverable may include carton design, photographs that will appear on the carton, and colour choices.

Requirements specify what the final project deliverable should look like and what it should do. Requirements must be measurable, testable, related to identified business needs or opportunities, and defined

to a level of detail sufficient for system design. They can be divided into six basic categories: functional, non-functional, technical, business, user, and regulatory requirements.



Figure 5.4: Project Requirements by [Fanshawe College CC-BY-NC-SA](#) (click to enlarge)

Functional Requirements

Functional requirements describe the characteristics of the final deliverable in ordinary non-technical language. They should be understandable to the customers, and the customers should play a direct role in their development. Functional requirements are what you want the deliverable to do.

Vehicle Example: If you were buying vehicles for a business, your functional requirement might be: “The vehicles should be able to take up to a one-ton load from a warehouse to a shop.”

Computer System Example: For a computer system you may define what the system is to do: “The system should store all details of a customer’s order.”

The important point to note is that what is wanted is specified and not how it will be delivered.

Other examples include:

- Business rules
- Tracking audit
- Certification requirements
- Levels of authorization for project

Non-functional Requirements

Non-functional requirements specify criteria that can be used to judge the final product or service that your project delivers. They are restrictions or constraints to be placed on the deliverable and how to build it. Their purpose is to restrict the number of solutions that will meet a set of requirements. Using the vehicle

example, the functional requirement is for a vehicle to take a load from a warehouse to a shop. Without any constraints, the solutions being offered might result in anything from a small to a large truck. Non-functional requirements can be split into two types: performance and development. To restrict the types of solutions, you might include these performance constraints:

- The purchased trucks should be American-made trucks due to government incentives.
- The load area must be covered.
- The load area must have a height of at least 10 feet.

Projects have constraints that can be categorized according to type of requirements. There are three general types of non-functional development constraints:

- **Time:** When a deliverable should be delivered
- **Cost:** How much money is available to develop the deliverable
- **Quality:** Any standards that are used to develop the deliverable, development methods, etc.

Technical Requirements

Technical requirements emerge from the functional requirements to answer the questions: how will the problem be solved this time and will it be solved technologically and/or procedurally? They specify how the system needs to be designed and implemented to provide required functionality and fulfill required operational characteristics.

For example, in a software project, the functional requirements may stipulate that a database system will be developed to allow access to financial data through a remote terminal. The corresponding technical requirements would spell out the required data elements, the language in which the database management system will be written (due to existing knowledge in-house), the hardware on which the system will run (due to existing infrastructure), telecommunication protocols that should be used, and so forth.

Other examples:

- Software availability
- Security of information
- Internal controls

Business Requirements

Business requirements are the needs of the sponsoring organization, always from a management perspective. Business requirements are statements of the business rationale for the project. They are usually expressed in broad outcomes, satisfying the business needs, rather than specific functions the system must perform. These requirements grow out of the vision for the product that, in turn, is driven by mission (or business) goals and objectives.

Examples include:

- Accurate monthly reporting
- Consistent data produced
- Complete surveys and questionnaires for accuracy of information

User Requirements

User requirements describe what the users need to do with the system or product. The focus is on the user experience with the system under all scenarios. These requirements are the input for the next development phases: user-interface design and system test cases design.

- Software needs to allow 500 users access simultaneously
- Adequate internet speed
- Software must have ease of use for users
- Data collected needs to be tracked that is consistent

Regulatory Requirements

Regulatory requirements can be internal or external and are usually non-negotiable. They are the restrictions, licenses, and laws applicable to a product or business that are imposed by the government. They required compliance for all, and standards must be met.

5.9. MANAGING THE SCOPE

Time (schedule), cost, and scope are known as the **triple constraints** of project management. It's not possible to change one without changing at least one of the others. If the project takes twice as long as expected to complete, then the cost will almost certainly go up. On the other hand, a decision to cut costs, perhaps by using less experienced labor, could lead to a work slowdown, extending the schedule. Such a decision might also result in a change to the project's scope, perhaps in the form of a lower quality product.

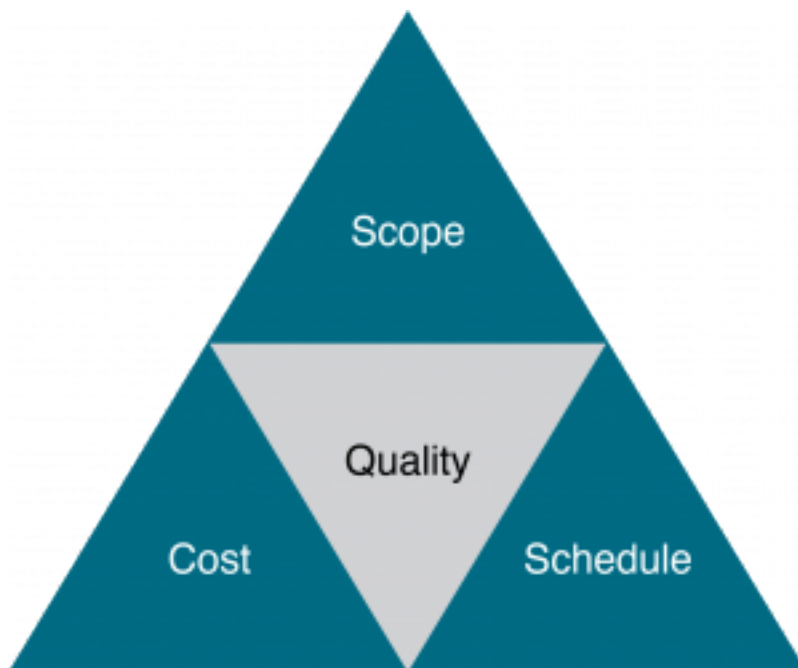


Figure 5:5:A schematic of the triple constraint triangle. Adapted from the [triad constraints](#) by John M. Kennedy T. [CC-BY-SA license](#).

In this triangle, each side represents one of the constraints (or related constraints) wherein any changes to any one side cause a change in the other sides. The best projects have a perfectly balanced triangle.

The initiation phase is too early in the project to nail down precise details about time and cost, but it is a good time to think long and hard about scope, which is “all of the work that needs to be done to provide the product or service your project is delivering” (Martinez, n.d.). In this early stage, you and the project stakeholders might do some blue sky thinking about what your project could possibly achieve, without regard to the constraints of time, cost, and scope. But before too long you’ll need to zero in on a definition of the project’s scope, formalizing it as a scope statement, using the information currently available to you.

Except for the simplest projects, any scope definition will almost certainly evolve as you learn more about the project and the customer's needs. The term **scope evolution** refers to changes that all stakeholders agree on, and that are accompanied by corresponding changes in budget and schedule. Scope evolution is a natural result of the kind of learning that goes on as a project unfolds. This includes learning that arises from fresh insights into the needs of the end user, new regulations, or upheaval in the marketplace. As long as all stakeholders agree on the scope changes (and the associated changes to the budget and schedule), scope evolution ensures that customers actually get what they want out of the project. The more you talk with the client and learn about their needs, the more you will be able to refine the scope.

Indeed, one of the main jobs of a project manager is managing scope evolution. But different types of projects will involve varying amounts of scope evolution. For example, if you're working on a project related to satisfying a specific environmental regulation, the initial definition of the project's scope might be clear, requiring little refinement as the project unfolds, as long as the regulation itself is not altered. But if you are working on a product designed to satisfy a brand-new market demand, you might need to refine the scope continually to ensure that you satisfy your customers' needs.

Perhaps the most common cause of scope evolution is a change in the context in which a project is planned and executed. Alterations in market forces, changing demographics, new or more vigorous competition, and technological advancements can all change a project's context, forcing you to rethink its scope. This potential for changing contexts means that no two projects are the same. You might think Project B is nearly identical to Project A, but then a sudden shift in context can change everything. As shown in Figure 4-3, context is largely defined by the organizational, social, and political structures in which a project occurs.

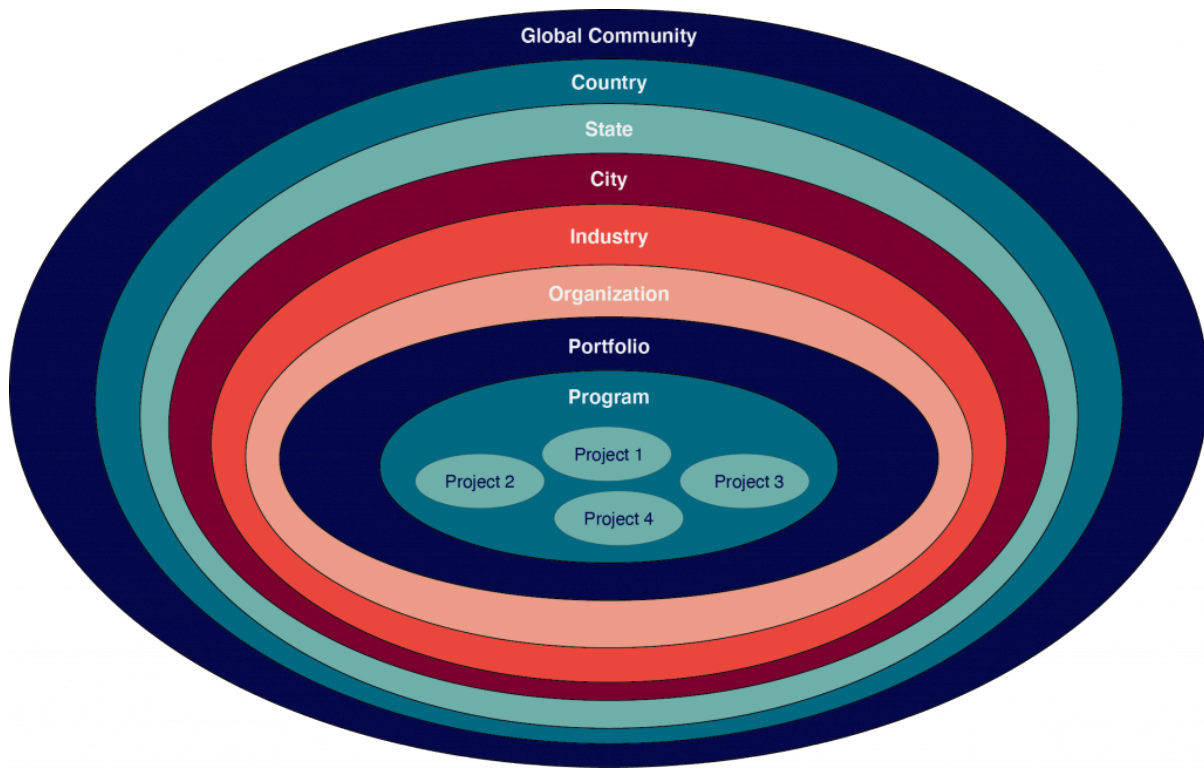


Figure 5-6: Context is largely defined by the organizational, social, and political structures in which a project occurs. (Click to enlarge)

Scope evolution is managed change. It is an approved alteration to the project scope that occurs as the project participants learn more about the project. It results in an official change in the project scope, and therefore to the project budget or schedule, as agreed to by all project participants. This kind of managed change is a natural and rational result of the kind of learning that goes on throughout the course of a project. It is a conscious choice necessitated by new information forcing you to reconsider project essentials in order to achieve the intended project value.

Scope creep is unmanaged change. It is caused by uncontrolled changes to the project scope. Such changes might add value from the customer's perspective, but the time, money, and resources consumed by the change of scope lead to additional overruns. Scope creep tends to happen bit by bit because no one is paying close attention to the project's scope. For example, in a kitchen remodeling project intended to replace countertops and cabinets, deciding at the last minute to replace all appliances might be an example of scope creep.

Creating a Clear Scope Statement (interchangeable with Project Charter)

The key to managing scope is a carefully crafted scope statement, which should be clear and precise. The details

of how you plan to carry out a project may be vague at first, but what you want to achieve should be perfectly clear. Vagueness can lead to small changes to the project’s scope, which in turn lead to other changes, until the original project is no longer recognizable.

Writing a **scope statement**, the document that defines the project’s scope, is a major part of the initiation phase. However, according to Brad Bigelow (2012, p. 1) in an article for the Project Management Institute, it is “usually expressed in qualitative terms that leave room for interpretation and misunderstanding. Consequently, it’s often the biggest source of conflicts in a project”.

To avoid such problems, experienced project managers put a lot of effort into learning what should and shouldn’t be included in the project, and then articulating these boundaries as clearly as possible in the form of a scope statement. According to Bigelow (2012, p. 2), this work is essential to ensuring a project’s success: “No project’s scope can ever be entirely free of fuzziness—free from subjectivity and imperfect definitions—as long as human beings are involved. On the other hand, it’s also highly improbable that any project will ever survive initiation if its scope is entirely vague, undefined, and subject to unpredictable expectations”.

If the scope is poorly defined, then what is or isn’t within the project scope is reduced to a matter of perspective. Not surprisingly, these “different perspectives...can often be the root of conflicts within a project” Bigelow (2012, p. 2). Bigelow describes a project in which the team and the customer see things very differently:

When the scope is poorly defined, satisfying the customer can grow increasingly difficult, with the team going off and creating what it thinks the customer wants, only to be told, “No, that’s not it.”

- A brief justification of the project’s **purpose**, including a summary of the **business needs** the project will address.
- A **description** of the project and how it will be accomplished.
- An explanation of the **project’s goals**.
- A **business case** explaining the benefits to the organization.
- Acceptance criteria that specify the **conditions the product or service** must satisfy before the customer will accept the deliverables. This could include the **business requirements**.
- **Deliverables**, which are “the quantifiable goods or services that will be provided upon the completion of a project. Deliverables can be tangible or intangible parts of the development process, and they are often specified functions or characteristics of the project” (Bloomenthal, n.d., para. 1.).
- **Milestones** or significant events that will occur at a certain time. They must include an end point (date.)
- An explanation of anything **excluded from the project**—in other words, an explanation

of what is out of scope for the project. This list should be “as detailed as is necessary to define the project boundaries to all stakeholders” (Feldsher, 2016, para. 11).

- **Constraints**, such as budget and schedule.
- **Assumptions**, including anything you currently believe to be true about the project. It’s also helpful to include ideas “about how you will address uncertain information as you conceive, plan, and perform your project” (Portny n.d., 2018).
- State the known **Risks**. What could go wrong?
- An explanation of any **new or unusual technology** you plan to use throughout the project. This is not a typical part of a scope statement, but “it’s likely that stakeholders will appreciate the transparency and feel more comfortable with the project moving forward” (Feldsher, 2016, para. 13).
- Identify the **Roles** of Project Manager, the team and responsibilities of each person.
- Provide the name(s) of the person(s) who has signing **Authority**. Include the Title.

Practical

- **Engage all stakeholders:** Your goal is to keep people meaningfully engaged in your project. You don’t want stakeholders showing up for ceremonial appearances at project meetings. Instead, you want them seriously focused on the prospects for project success.
- **Outcome clarity:** Ask your customer to define success right at the beginning. Then, working with the customer and other stakeholders, define how success will be measured.
- **Use a common vocabulary:** At the beginning of any project, go to your end-customers and learn their vocabulary. Make sure you understand the terms that are important to them and what such terms mean to them. Whenever possible, use your customer’s vocabulary, not yours. Also, strive to speak in plain English whenever you can, and avoid techno speak.
- **Create a glossary of terms:** On projects with a lot of complex jargon, consider creating a glossary of terms. Then publish it in a way that makes it accessible to all stakeholders, updating it as needed. Here’s an example of one such glossary: “COSO Framework “.
- Identify what you don’t know: When you start a project, there are always things you don’t know. The key is to know that you don’t know them. The more you strive to recognize this, the better you will be at predicting those unknowns and making provisions for them.
- **Have key team members sign major project documents:** Research shows that the act of signing a document makes people much more committed to delivering on the promises described in the document. Consider asking the entire project team to sign the project charter and scope documents.

This simple act can serve as a powerful inducement to completing the project successfully.

- **Proactive concurrency:** In the early stages, avoid the trap of plotting one thing after another, in a linear fashion. Instead, start fast, doing as many things as you can concurrently, as quickly as you can. This will give you a sense of whether or not the scope, budget, resources, and schedule are all in relatively close alignment at the macro scale. If you find they are not, report that to management right away.
- **Permanent urgency:** In the living order in which all modern projects unfold, permanent urgency is the new law of nature. In the traditional, geometric order form of project management, you could assume that you would have sufficient time and resources to do things in a linear, step-by-step manner. But in the modern world, that's rarely the case. Get used to an element of urgency in all projects. Try not to let this paralyze you and your team. Instead, let a sense of urgency spur you on to more agile, alert, and flexible project management techniques.
- **Post the project documents prominently:** Putting important documents front and center helps a team stay focused, especially if you have everyone sign them first. It also encourages the team to update them when necessary.
- **Plan for errors:** You and your team will almost certainly make mistakes, especially in the early stages of a project. Therefore, you should plan for that. Keep thinking ahead to what might go wrong, and how you could correct course.

5.10. PROJECT CHARTER

What is the Project Charter?

A **project charter**, project definition, or project statement is a statement of the scope, objectives, and participants in a project. It provides a preliminary delineation of roles and responsibilities, outlines the project objectives, identifies the main stakeholders, and defines the authority of the project manager. It serves as a reference of authority for the future of the project.

The charter document can be just a couple pages in length or can be 50-100 pages. Ideally it will be short (less than 5 pages) and written in clear and concise language so that anyone who reads it will have a clear understanding of the project, regardless of their technical background. Most project charters include a place at the end of the document for approval sign off by the project sponsors or customers (i.e. those people that are paying for the project).

Purpose of the Project Charter

The project charter is used by the project manager during the planning process. The project charter informs the project manager about what skills will be required on the project team, as well as the general scope of work for the project. Some organizations forgo creation of a project charter, viewing it as a document that merely takes time to create and contains information that “everyone already knows.” This can be a big mistake. The charter can be referenced by the project manager and stakeholders if some of the goals of the project are not met or they are asked to do something outside the scope of the project. A well-drafted project charter can prevent political interference in achieving the goals of the project and reduce scope creep.

In summary, the purpose of a project charter is to:

- Provide an understanding of the project, the reason it is being conducted, and its justification.
- Establish early on in the project the general scope.
- Establish the project manager and his or her authority level. A note of who will review and approve the project charter must be included.

What Should Be in the Project Charter?

There are many templates available for project charters and these vary greatly in the content and level of

detail. (The PMI affiliated web site ProjectManagement.com offers a number of [project charter templates](#)) At a minimum, good project charters will contain the following sections.

Background (Description of the project, purpose of the project)

The background should provide a broad overview of the project and answer the following questions:

- What is the purpose of the project?
- Where did the project originate? Have we conducted similar projects in the past?
- Who is the project manager and what level of authority does the project manager have?

Business Case and Business Requirements

The Business Case describes why this project was selected over others and answers the following questions:

- Why was this project selected to move forward (project justification)? What selection criteria were used? (Project selection techniques are covered in a later chapter.)
- What problems is this project solving or what opportunities is it creating? What are the high-level requirements?

Goals (these could be included in the Requirements)

Listing the goals for the project ensures that the stakeholders will not be disappointed when the project is completed. This section should answer the following questions:

- What are the broad goals of this project?
- How will we know if the project is a success (what are our metrics for success)?
- Are there industry standards that we are trying to meet or benchmarks for performance that we want this project to attain?

Assumptions

- Under what conditions would the project start?
- What's in and what's out of the project.?

Constraints

- What can the project control?
- What can the project not control?

Risks

- What risks are there undertaking the project? (What could go wrong?)

Deliverables

- What is delivered at the end of the project (broad)? Not tasks and steps. They are the outputs over the life of the project

Milestones

- What are the significant events in the project that occur at certain times (end dates)?

Project Budget (can be a high level budget in charter)

The project budget section should provide a summary of the budget for the project and information about how it was determined. It answers the following questions:

- What is the initial budget for this project?
- How was that budget developed?
- Are the numbers used for budgeting rough estimates based on top-down estimation techniques, such as analogous or parametric estimating, or are they hard constraints?
- What contingency funds have been allocated?

Key Stakeholders

This section describes the key stakeholders and their interest in the project. This doesn't have to be an exhaustive list of stakeholders, but should contain a list of people that are interested in the project, as well as people who will pay for, or benefit from, the project.

Authorization

- Who is/are the sponsors of the project?

- What has signing authority to approve the Charter and the Final Proposal?

5.11. EXAMPLE OF A SIMPLE PROJECT CHARTER

Example of a Simple Project Charter

Identification Section

List the project name, the date of the current version of the project charter, the sponsor's name and authority, and the project manager's name.

Example:

Project Name: Rice University Computer Store Creation

Project Sponsor: Jane Ungam, Facilities Manager

Date: Jan 12, 2010

Revision: 1

Project Manager: Fred Rubens

Overview of the Project

Provide a simple but precise statement of the project.

Example: Rice University is planning to create a store to sell computer supplies.

Objective

State the objectives of the project clearly and ensure they contain a measure of how to assess whether they have been achieved. The statement should be realistic and should follow the SMART protocol:

- Specific (get into the details)
- Measurable (use quantitative language so that you know when you are finished)
- Acceptable (to stakeholders)
- Realistic (given project constraints)
- Time based (deadlines, not durations)

Example: The objective of this project is to implement a campus store when class starts in August 2010 with enough inventory (computer supplies, such as memory sticks, mouse pads, and cables) to last through the first two weeks of classes.

Scope

Specify the scope of the project by identifying the domain or range of requirements.

Example: The scope of the Rice's school supplies store project includes the activities listed below:

1. Determine what supplies will be sold in the store.
2. Establish competitive prices for the computer supplies.
3. Source and secure supply vendors.
4. Establish marketing, procurement, operations, and any other necessary departments, schools, centers, and institutes

It is equally important to include in the scope what is not included in the project.

Example: The scope of the project does not include:

- Development of any other school store departments
- Store design or construction

Major Milestones

List all major milestones needed to ensure project completion successfully.

Example:

- All vendors selected
- Contracts or orders completed with all vendors
- Supplies delivered to the store
- Pricing determined

Major Deliverables

List and describe the major deliverables that will result from the project.

Example:

- Operations, procurement, marketing, and other teams established
- Store supplies stocked and displayed
- Store staffing completed, including work schedules
- Store operations policies, including hours of operation, established

Assumptions

Outline the assumptions made in creating the project. An assumption is a fact you are unsure of but can either confirm at a later time or are simply stating so that the project can proceed as if the statement were true.

Example:

- Only computer supplies will be sold in the store.
- Customers will be the Rice University student body and faculty.
- Rice University students will manage the project and be responsible for ongoing operations.
- A store sponsor from the university faculty or staff will be assigned to mentor students and provide oversight.
- Store hours of operation will be approved by the Rice University students or store sponsor.
- Supplier deliveries will be arranged or the store sponsor will pick them up with students.
- Students will be empowered to contact vendors for order placement and inquiries via telephone.

Constraints

Define any and all constraints on the project or those working on the project. This is an important part of the project charter. A constraint is anything that limits the range of solutions or approaches.

Example:

- Student availability to meet for project planning is limited to school hours.
- Software is not available for project planning and control.

Business Need or Opportunity (Benefits)

Provide a concise statement of the business need or opportunity that led to the creation of the project. Why was it created? What are the benefits? How does the project contribute to organizational objectives?

Example: The goal of this project is to provide income for the Rice Student Center while supplying necessary items to students and faculty at competitive prices. The school store will be a convenience to students since necessary supplies will be available on campus. This will help students learn to manage their personal supplies.

Preliminary Cost for the Project

Provide a statement indicating how the cost of the project will be defined and controlled.

Example: The procurement team will assemble a proposal based on expected costs for review by the Dean of Undergraduate Studies.

Project Risks

A risk is anything uncertain that may occur that will reduce or decrease the chances of project success.

Example:

1. There is a state election coming and the new government may change the taxation rules for private university retail outlets.
2. The cloud is changing student demand for media such as flash drives in somewhat unpredictable ways. If this happens faster than we forecast, we may be building a store that students don't need.
3. Deliveries of items, such as store shelves, will be delayed if a major hurricane occurs.

Project Charter Acceptance

Provide the names, titles, and signature lines of the individuals who will sign off on the project charter.

Project Stakeholders

Provide the key stakeholders and team members by function, name, and role.

5.12. REQUEST FOR PROPOSAL AND CONTRACTS

After an idea makes it through the project selection process and becomes a funded project, an organization typically issues a **request for proposal (RFP)**, which is a “document that describes a project’s needs in a particular area and asks for proposed solutions (along with pricing, timing, and other details) from qualified vendors. When they’re well crafted, RFPs can introduce an organization to high-quality vendor-partners and consultants from outside their established networks and ensure that a project is completed as planned” (Peters, 2011). The exact form of an RFP varies from one industry to the next and from one organization to another. You can find many templates for RFPs on the web.

In response to an RFP, other organizations submit proposals describing, in detail, their plan for executing the proposed project, including budget and schedule estimates, and a list of final deliverables. Officially, the term **proposal** is defined by Merriam-Webster as “something (such as a plan or suggestion) that is presented to a person or group of people to consider.” Depending on the nature of your company, this “something” might consist of little more than a few notes in an email, or it might incorporate months of research and documentation, costing hundreds of thousands of dollars to produce. When creating a proposal, you should seek to clearly understand and address your client’s needs and interests, convincingly demonstrate your ability to meet their needs (quality, schedule, price), and prepare the proposal in a form that meets requirements.

After reviewing all submitted proposals, the organization that issued the RFP accepts one of the proposals, and then proceeds with negotiating a contract with the vendor. The term contract is more narrowly defined as “an agreement with specific terms between two or more persons or entities in which there is a promise to do something in return for a valuable benefit known as consideration” (contract, n.d., para 1). As with proposals, however, a contract can take many forms, ranging from a submitted invoice which can serve as a binding agreement to several hundred pages of legal language.

HR in Focus: Human Resources and Requests for Proposals (RFP)

Human Resources may design the Request for Proposal for the project. It would be a template designed to include:

1. Summary of the project need
2. Summary of the Scope and deliverables
3. Specifications related to requirements
4. Organization and Consultant responsibilities
5. Schedule of the project
6. Costs of project
7. Type of contract being offered
8. Experience required and number of staff required
9. Criteria how the project will be measured and evaluated

The RFP would be posted on social media sites or other media external to the organization to attract consultants. It would be in the form of an advertisement. This is similar to attracting employees to the organization. Those interested would respond to the advertisement by completing the template provided. It would be submitted to Human Resources.

The next step is the selection of the contractor. Human Resources and other stakeholders would interview candidates. HR would design structured questions to ask the candidates. They may also design criteria for measuring or evaluating the candidates. A winning contractor is selected by the interview panel, and notified. The terms and conditions of the contract would be negotiated between the contractor and the stakeholders. Human Resources would set up the contract for signatures.

Training and orientation may be necessary for the contractor related to the business, the strategy, prior projects and details of the project. Human Resources would ensure there is constant and frequent reviews and feedback given to the contractor.

Contract Types

You should know a little bit about the major kinds of contracts available to you (the client) so that you choose the one that creates the most fair and workable deal for you and the contractor. Some contracts are fixed price: no matter how much time or effort goes into them, the client always pay the same. In Figure 7-1 the cost to the client stays the same, but as more effort is exerted the profit to the contractor goes down. Some are cost reimbursable also called cost plus. This is where the seller charges you for the cost of doing the work plus some fee or rate. Figure 7-2 illustrates this by showing that as efforts increase, costs to the client go up but the contractor's profits stay the same. The third major kind of contract is time and materials. That's where the client pays a rate for the time spent working on the project and also pays for all the materials used to do the work. Figure 7-3 shows that as costs to the client go up, so does the profit for the contractor.

Fixed-Price Contracts

The fixed-price contract is a legal agreement between the project organization and an entity (person or company) to provide goods or services to the project at an agreed-on price. The contract usually details the quality of the goods or services, the timing needed to support the project, and the price for delivering goods or services. There are several variations of the fixed-price contract. For commodities and goods and services where the scope of work is very clear and not likely to change, the fixed-price contract offers a predictable cost. The responsibility for managing the work to meet the needs of the project is focused on the contractor. The project team tracks the quality and schedule progress to ensure the contractors will meet the project needs. The risks associated with fixed-price contracts are the costs associated with project change. If a change occurs on the project that requires a change order from the contractor, the price of the change is typically very high. Even when the price for changes is included in the original contract, changes on a fixed-price contract will create higher total project costs than other forms of contracts because the majority of the cost risk is transferred to the contractor, and most contractors will add a contingency to the contract to cover their additional risk.

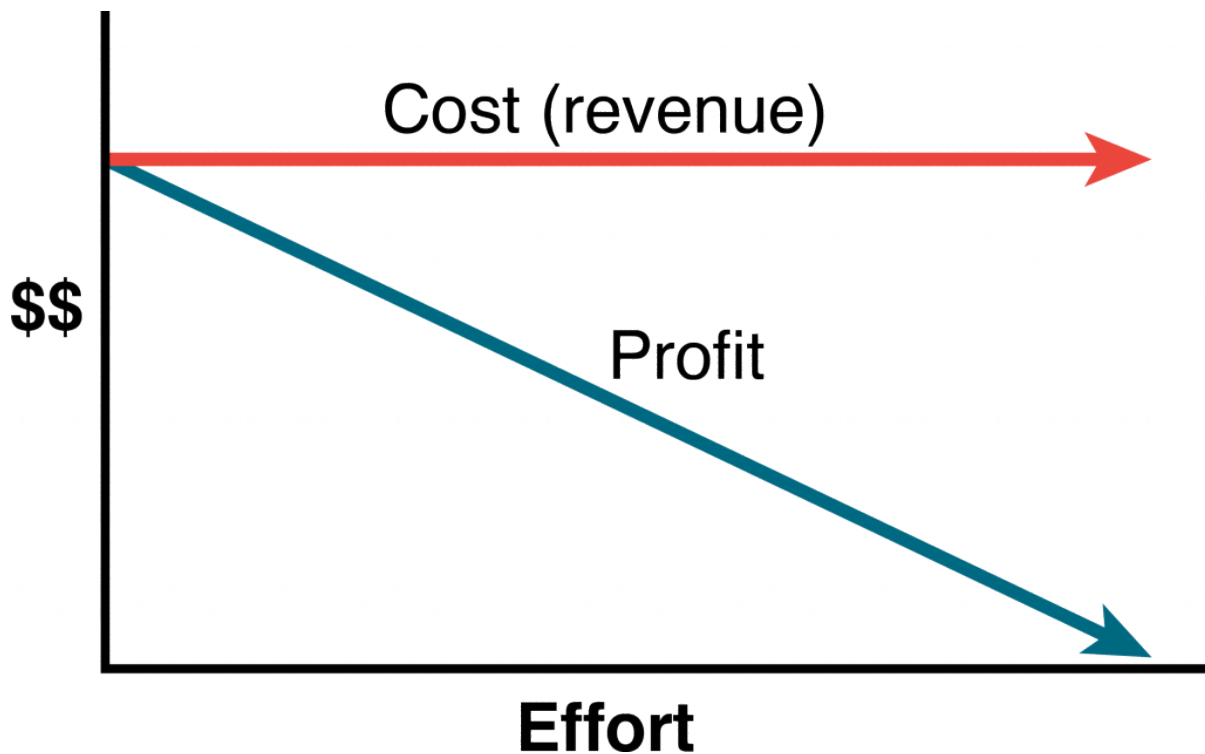


Figure 5-7: A fixed-price contract the cost to the client is constant regardless of effort applied or delivery date.

Type	Known Scope	Share of Risk	Incentive for Meeting Milestones	Predictability of Cost
Fixed Total Cost	Very High	All Contractor	Low	Very High
Fixed Unit Price	High	Mostly Project	Low	High
Fixed Price with Incentive Fee	High	Mostly Project	High	Medium-High
Fixed Fee with Price Adjustment	High	Mostly Project	Low	Medium

Table of Fixed Price Contracts and Characteristics – [PM for Instructional Designers](#) by Wiley et al [CC-BY-NC-SA](#)

Fixed-price contracts require the availability of at least two or more suppliers that have the qualifications and performance histories that ensure the needs of the project can be met. The other requirement is a scope of work that is most likely not going to change. Developing a clear scope of work based on good information, creating a list of highly qualified bidders, and developing a clear contract that reflects that scope of work are critical aspects of a good fixed-priced contract.

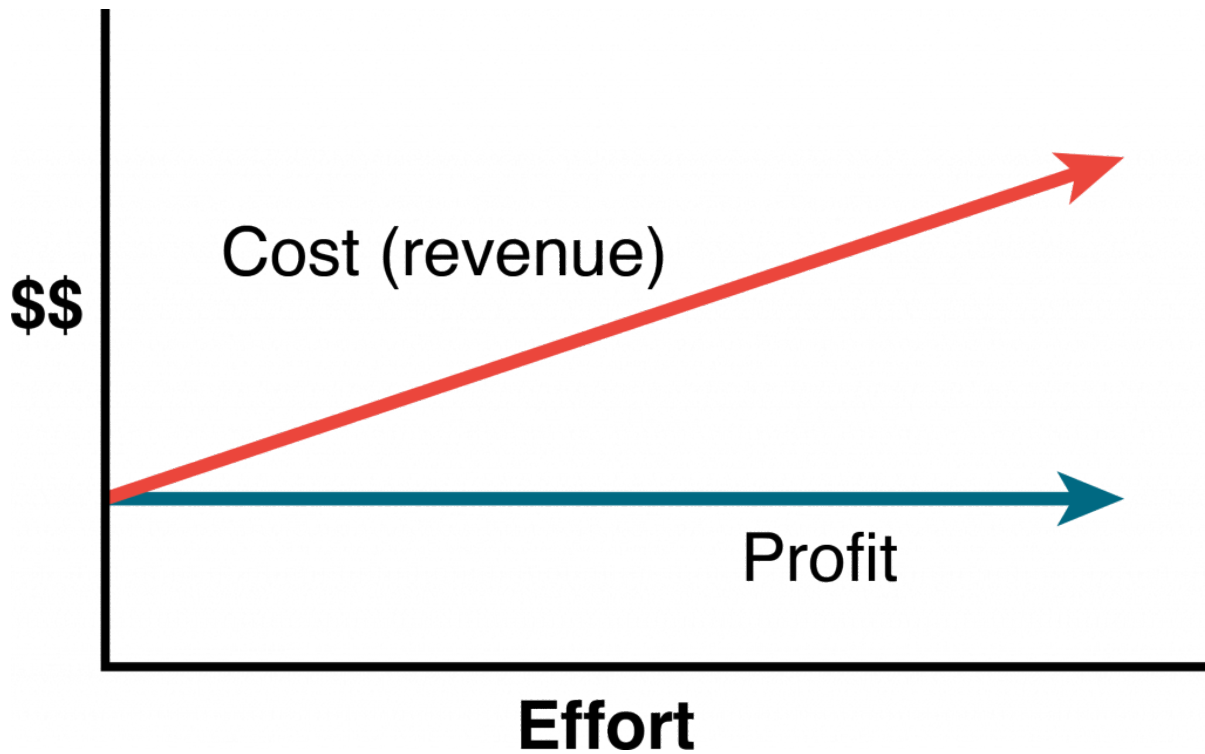


Figure 5-8: In a cost-reimbursable or cost-plus contract, the contractor is guaranteed a fee, but the client's costs can increase based on effort.

If the service provider is responsible for incorporating all costs, including profit, into the agreed-on price, it is a fixed-total-cost contract. The contractor assumes the risks for unexpected increases in labor and materials that are needed to provide the service or materials and, in the materials, and timeliness needed.

The Fixed-Price Contract with Price Adjustment is used for unusually long projects that span years. The most common use of this type of contract is the inflation-adjusted price. In some countries, the value of its local currency can vary greatly in a few months, which affects the cost of local materials and labor. In periods of high inflation, the client assumes the risk of higher costs due to inflation, and the contract price is adjusted based on an inflation index. The volatility of certain commodities can also be accounted for in a price-adjustment contract. For example, if the price of oil significantly affects the costs of the project, the client can accept the oil price volatility risk and include a provision in the contract that would allow the contract price adjustment based on a change in the price of oil.

The Fixed-Price Contract with Incentive Fee provides an incentive for performing on the project above the established baseline in the contract. The contract might include an incentive for completing the work on an important milestone for the project. Often contracts have a penalty clause if the work is not performed according to the contract. For example, if the new software is not completed in time to support the implementation of the training, the contract might penalize the software company a daily amount of money for every day the software is late. This type of penalty is often used when the software is critical to the project and the delay will cost the project significant money.

If the service or materials can be measured in standard units, but the amount needed is not known accurately, the price per unit can be fixed—a fixed-unit-price contract. The project team assumes the responsibility of estimating the number of units used. If the estimate is not accurate, the contract does not need to be changed, but the project will exceed the budgeted cost.

Cost-Reimbursable Contracts

In a cost-reimbursable contract, the organization agrees to pay the contractor for the cost of performing the service or providing the goods. Cost-reimbursable contracts are also known as cost-plus contracts. Cost-reimbursable contracts are most often used when the scope of work or the costs for performing the work are not well known. The project uses a cost-reimbursable contract to pay the contractor for allowable expenses related to performing the work. Since the cost of the project is reimbursable, the contractor has much less risk associated with cost increases. When the costs of the work are not well known, a cost-reimbursable contract reduces the amount of money the bidders place in the bid to account for the risk associated with potential increases in costs. The contractor is also less motivated to find ways to reduce the cost of the project unless there are incentives for supporting the accomplishment of project goals.

Cost-reimbursable contracts require good documentation of the costs that occurred on the project to ensure that the contractor gets paid for all the work performed and to ensure that the organization is not paying for something that was not completed. The contractor is also paid an additional amount above the costs. There are several ways to compensate the contractor.

- **A Cost-Reimbursable Contract with a Fixed Fee** provides the contractor with a fee, or profit amount, that is determined at the beginning of the contract and does not change.
- **A Cost-Reimbursable Contract with a Percentage Fee** pays the contractor for costs plus a percentage of the costs, such as 5% of total allowable costs. The contractor is reimbursed for allowable costs and is paid a fee.
- **A Cost-Reimbursable Contract with an Incentive Fee** is used to encourage performance in areas critical to the project. Often the contract attempts to motivate contractors to save or reduce project costs. The use of the cost reimbursable contract with an incentive fee is one way to motivate cost-reduction behaviors.
- **A Cost-Reimbursable Contract with Award Fee** reimburses the contractor for all allowable costs plus a fee that is based on performance criteria. The fee is typically based on goals or objectives that are more subjective. An amount of money is set aside for the contractor to earn through excellent performance, and the decision on how much to pay the contractor is left to the judgment of the project team. The amount is sufficient to motivate excellent performance.

On small activities that have a high uncertainty, the contractor might charge an hourly rate for labor, plus the

cost of materials, plus a percentage of the total costs. This type of contract is called time and materials (T&M). Time is usually contracted on an hourly rate basis and the contractor usually submits time sheets and receipts for items purchased on the project. The project reimburses the contractor for the time spent based on the agreed-on rate and the actual cost of the materials. The fee is typically a percentage of the total cost.

5.13. KNOWLEDGE CHECK

Question 1



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Question 2



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Question 3



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Question 4



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Question 5



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Question 6



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Question 7



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Question 8



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Question 9



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5.14. KEY TERMS

A Cost-Reimbursable Contract with Award Fee: Reimburses the contractor for all allowable costs plus a fee that is based on performance criteria. The fee is typically based on goals or objectives that are more subjective. An amount of money is set aside for the contractor to earn through excellent performance, and the decision on how much to pay the contractor is left to the judgment of the project team. The amount is sufficient to motivate excellent performance.[5.12](#)

A Cost-Reimbursable Contract with a Fixed Fee: Provides the contractor with a fee, or profit amount, that is determined at the beginning of the contract and does not change. [5.12](#)

A Cost-Reimbursable Contract with an Incentive Fee: Used to encourage performance in areas critical to the project. Often the contract attempts to motivate contractors to save or reduce project costs. The use of the cost-reimbursable contract with an incentive fee is one way to motivate cost-reduction behaviors.[5.12](#)

A Cost-Reimbursable Contract with a Percentage Fee: Pays the contractor for costs plus a percentage of the costs, such as 5% of total allowable costs. The contractor is reimbursed for allowable costs and is paid a fee.[5.12](#)

Active Control: Takes a two-pronged approach: Controlling what you can by making sure you understand what's important, taking meaningful measurements, and building an effective team focused on project success. Adapting to what you can't control through early detection and proactive intervention.[5.5](#)

Assignable: Who will do the work? Can people be identified who have the expertise in the organization to complete this work? Or can the expertise be hired from outside of the organization? [5.7](#)

Business Requirements: The needs of the sponsoring organization, always from a management perspective. Business requirements are statements of the business rationale for the project. [5.8](#)

Communication Plan: Human Resources would assist in setting up the Communication Plan and on a regular basis “check-in” with the team on how communication between the team, the team and the Project Manager, and between the Project Team and external stakeholders is developing.[5.4](#)

Deliverable: This means anything your project delivers. The deliverables for your project include all of the products or services that you and your team are performing for the client, customer, or sponsor, including all the project management documents that you put together.[5.4](#)

Deliverables: Include everything that you and your team produce for the project (i.e., anything that your project will deliver). The deliverables for your project include all of the products or services that you and your team are performing for the client, customer, or sponsor.[5.8](#)

Deterministic Approach: Labouring under the false notion that once everyone agrees on a plan, the plan itself determines what comes next.[5.3](#)

Functional Requirements: Describe the characteristics of the final deliverable in ordinary non-technical

language. They should be understandable to the customers, and the customers should play a direct role in their development. Functional requirements are what you want the deliverable to do. [5.8](#)

Implementation Phase: Involves putting the project plan into action. It's here that the project manager will coordinate and direct project resources to meet the objectives of the project plan. [5.4](#)

Implementation Phase or Execution Phase: The project plan is put into motion and the work of the project is performed. It is important to maintain control and communicate as needed during implementation. [5.4](#)

Initiation: Marks the official beginning of a project, doing it well also requires looking past the making stage to the entire life cycle of the project's end result. [5.2](#)

Initiation Phase: The first phase within the project management life cycle, as it involves starting up a new project. Within the initiation phase, the business problem or opportunity is identified, a solution is defined, a project is formed, and a project team is appointed to build and deliver the solution to the customer. [5.7](#)

Measurable: How will project progress and success be measured? What will be the measurable difference once our project is completed successfully? These measures should be quantifiable. [5.7](#)

Non-Functional Requirements: Specify criteria that can be used to judge the final product or service that your project delivers. [5.8](#)

Performance Plans: Human Resources would have established performance plans with the team and Project Manager at the beginning of the project. They would regularly "check-in" and perhaps have mini-performance reviews with the team (individually, or team) to ensure the goals are being met, that deadlines are being met, and the team dynamic is strong. [5.4](#)

Planning: The act or process of making a plan to achieve or do something. This suggests that the ultimate goal of planning is the plan itself. It also presumes that once a plan has been formulated, you only need to follow the plan to achieve the desired outcome. [5.3](#)

Planning Phase: When the project plans are documented, the project deliverables and requirements are defined, and the project schedule is created. It involves creating a set of plans to help guide your team through the implementation and closure phases of the project. [5.3](#)

Project Charter: project definition or project statement is a statement of the scope, objectives, and participants in a project. It provides a preliminary delineation of roles and responsibilities, outlines the project objectives, identifies the main stakeholders, and defines the authority of the project manager. [5.10](#)

Project Department Managers: May participate in the planning, provide resources for the project-including employees [5.2](#)

Project Life Cycle: A series of phases that the project progresses through from beginning to end. It is the foundation of the project. The four major phases include Initiation, Planning, Execution or Implementation, Closure. [5.2](#)

Project Management: Has a dual nature; it is both a series of distinct phases with a clear beginning and end and a continuous, circular process in which each end leads to a new beginning [5.2](#)

Project Manager: manages the project from planning to execution to closure, and is responsible for the success of the project.[5.2](#)

Project Planning: At the heart of the project life cycle, and tells everyone involved where you're going and how you're going to get there. [5.3](#)

Project Scope Planning: Concerned with the definition of all the work needed to successfully meet the project objectives. The whole idea here is that when you start the project, you need to have a clear picture of all the work that needs to happen on your project, and as the project progresses, you need to keep that scope up to date and documented in the project's scope management plan.[5.8](#)

Project Selection: Determined by a team of people, usually at the executive level, of projects that are a priority to the organization and align with the mission, vision and values of the organization.[5.2](#)

Project Sponsor: Could be one of or all of the stakeholders. They would authorize the funds to be used for the project, be a champion of the project.[5.2](#)

Project Stakeholders: Formalize the project scope, deliverables.[5.2](#)

Project Team Members: Provide their expertise to the project and contribute to the work being done on the project. [5.2](#)

Realistic: Is it realistic that the organization can achieve this project, given its talents and resources? This is a very important consideration for businesses of all sizes. Yes, it would be great to produce a new driverless car, but is that realistic given the resources that the organization has available? [5.7](#)

Regulatory Requirements: These can be internal or external and are usually non-negotiable. They are the restrictions, licenses, and laws applicable to a product or business that are imposed by the government. They required compliance for all, and standards must be met.[5.8](#)

Report Distribution: Human Resources may play a role in monitoring report distribution, and ensuring that reports are flowing where they need to be? to who do they need to go? and on time? If there are issues, Human Resources may intervene to figure out the issues, and help the team solve the problems.[5.4](#)

Retrospectives: These are lessons learned on Agile projects. Human Resources would work with the team (as an outside facilitator). They would act as a guide to lead the team through a workshop and process to identify what went well in the project, what could they have improved upon, and what type of follow-up action plan could they develop with goals and accountability.[5.6](#)

Request For Proposal (RFP): Which is a "document that describes a project's needs in a particular area and asks for proposed solutions (along with pricing, timing, and other details) from qualified vendors [5.12](#)

Requirements: Describe the characteristics of the final deliverable, whether it is a product or a service. They describe the required functionality that the final deliverable must have or specific conditions the final deliverable must meet in order to satisfy the objectives of the project.[5.8](#)

Scope: The work that needs to be completed to deliver the product/service. It is the final result of the project.[5.8](#)

Scope Evolution: Refers to changes that all stakeholders agree on, and that are accompanied by

corresponding changes in budget and schedule. Scope evolution is a natural result of the kind of learning that goes on as a project unfolds. [5.9](#)

Scope Statement: The document that defines the project's scope, is a major part of the initiation phase. [5.9](#). Includes Who? What? When? Where? Why? Costs. [5.8](#)

SMART: An acronym for Specific, Measurable, Assignable, Realistic, and Time-Related. The smart criteria have been applied in many different areas of management, including project management. Let's take a look at each of Doran's criteria as they apply to project management. [5.7](#)

Specific: A project needs to be specific about what it will accomplish. Unlike many organizational goals, the goal of a project should not be vague or nebulous. [5.7](#)

Technical Requirements: Emerge from the functional requirements to answer the questions: how will the problem be solved this time and will it be solved technologically and/or procedurally? They specify how the system needs to be designed and implemented to provide required functionality and fulfill required operational characteristics. [5.8](#)

The Fixed-Price Contract with Incentive Fee: Provides an incentive for performing on the project above the established baseline in the contract. The contract might include an incentive for completing the work on an important milestone for the project. [5.12](#)

The Fixed-Price Contract with Price Adjustment: Used for unusually long projects that span years. The most common use of this type of contract is the inflation-adjusted price. [5.12](#)

Time-Related: When will the project be completed and how long will it take? These criteria can be very useful when defining a project. If the description for a project does not meet all these criteria, then it is time to go back to the drawing board and make sure that what is being described is really a project, rather than a program or strategic goal. [5.7](#)

Triple Constraints: Time, cost, and scope [5.9](#)

Uncertainty: Is not an exceptional state in an otherwise predictable process of work, they argue. Instead, it is a permanent feature of modern work. What's more, the longer the time between planning and implementation, the higher the uncertainty surrounding individual activities. [5.3](#)

User Requirements: Describe what the users need to do with the system or product. The focus is on the user experience with the system under all scenarios. These requirements are the input for the next development phases: user-interface design and system test cases design. [5.8](#)

CHAPTER 6 – RISK MANAGEMENT



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6.1. LEARNING OUTCOMES

Learning Outcomes

By the end of this chapter, you should be able to:

1. Distinguish between risks and issues.
2. Describe the role of risk management in project success.
3. Identify types of risks based on the project phases.
4. Explain the risk management process.
5. Describe the five responses in risk management.

6.2. RISK MANAGEMENT AND PROJECT SUCCESS

Successful project managers manage the differing perceptions of risk, and the widespread confusion about its very nature, by engaging in systematic risk management. According to the Financial Times (n.d.), **risk management** is “the process of identifying, quantifying, and managing the risks that an organization faces”. In reality, the whole of project management can be thought of as an exercise in risk management because all aspects of project management involve anticipating change and the risks associated with it.

The tasks specifically associated with risk management include “identifying the types of risk exposure within the company; measuring those potential risks; proposing means to hedge, insure, or mitigate some of the risks; and estimating the impact of various risks on the future earnings of the company” (Financial Times, n.d.). Engineers are trained to use risk management tools like the risk matrix shown in figure 6-1, in which the probability of the risk is multiplied by the severity of consequences if the risk does indeed materialize.

		IMPACT				
		A	B	C	D	E
		Negligible	Minor	Moderate	Minor	Severe
PROBABILITY	E	Very Likely	Low Medium	Medium	Medium High	High
	D	Likely	Low	Low Medium	Medium	Medium High
	C	Possible	Low	Low Medium	Medium	Medium High
	B	Unlikely	Low	Low Medium	Low Medium	Medium
	A	Very Unlikely	Low	Low	Low Medium	Medium

Figure 6-1: A risk matrix is a tool engineers often use to manage risk (click to enlarge).

This and other risk management tools can be useful because they provide an objective framework for evaluating the seriousness of risks to your project. But any risk assessment tool can do more harm than good if it lulls you into a false sense of security. You don’t want to make the mistake of believing that the tools available for managing risk can ever be as precise as the tools we use for managing budgets and schedules, even as limited as those tools are.

Perhaps the most important risk management tool is your own ability to learn about the project. The more you know about a project, the better you will be at foreseeing the many ways the project could go awry and what the consequences will be if they do, and the better you will be at responding to unexpected challenges.

6.3. THE 5 STEPS OF THE RISK MANAGEMENT PROCESS

Managing risks on projects is a process that includes: planning and identifying the potential risks, a risk assessment, development of a risk response strategy, and monitoring and controlling risks. Identifying the potential risks is important—you can simply ask yourself: What could go wrong with the project? Risk assessment includes both the identification of potential risk and the evaluation of the potential impact of the risk. There are tools, both qualitative and quantitative to measure risk.

A risk response plan is designed to eliminate or minimize the impact of the risk events—occurrences that have a negative impact on the project. Monitoring the risks is important to reassess the likelihood and any consequences that may result because of the event. Identifying risk is both a creative and a disciplined process. The creative process includes brainstorming sessions where the team is asked to create a list of everything that could go wrong. All ideas are welcome at this stage with the evaluation of the ideas coming later.

1. Risk Management Planning

The Project Manager and a group of team members, as well as stakeholders, build a plan that is the way to perform the project. They come to an understanding and agreement on the parameters, and risk levels of the project. They have key parameters that include scheduling, performance, capability, technology, etc. The results are documented.

2. Risk Identification

Identifying risks is the most important part of the the risk management process, and have the biggest impact on the process. It is the first step in the process. If a risk is not identified it cannot be assessed or evaluated. A more disciplined process involves using checklists of potential risks and evaluating the possibility that those events might happen on the project. Some companies and industries develop risk checklists based on experience from past projects. These checklists can be helpful to the project manager and project team in identifying both specific risks on the checklist and expanding the thinking of the team. The past experience of the project team, project experience within the company, and experts in the industry can be valuable resources for identifying potential risk on a project.

Identifying the sources of risk by category is another method for exploring potential risk on a project. Some examples of categories for potential risks include the following:

- Technical
- Cost
- Schedule
- Client
- Contractual
- Weather
- Financial
- Political
- Environmental
- People

Risk Breakdown Structure

You can use the same framework as the work breakdown structure (WBS) for developing a **risk breakdown structure (RBS)**. A risk breakdown structure organizes the risks that have been identified into categories using a table with increasing levels of detail to the right. The people category can be subdivided into different types of risks associated with the people. It is a hierarchical structure of potential risks. A team of people (usually experts in the field that is guiding the project) get together and brainstorm: “What could go wrong?” A **risk register** is a list of all the risks that have been previously identified,.

Examples of people risks include the risk of not finding people with the skills needed to execute the project or the sudden unavailability of key people on the project. Other risks may include technology breakdowns, inclement weather, financial cutbacks, changes in laws and legislation, progress slows down and the project is behind schedule.

3. Risk Assessment

After the potential risks have been identified, the project team then assesses each risk based on the probability that a risk event will occur and the potential loss associated with it. Not all risks are equal. Some risk events are more likely to happen than others, and the cost of a risk can vary greatly. Evaluating the risk for probability of occurrence and the severity or the potential loss to the project is the next step in the risk management process.

Having criteria to determine high-impact risks can help narrow the focus on a few critical risks that require mitigation. For example, suppose high-impact risks are those that could increase the project costs by 5% of the conceptual budget or 2% of the detailed budget. Only a few potential risk events meet these criteria. These are the critical few potential risk events that the project management team should focus on when developing a project risk mitigation or management plan. Risk evaluation is about developing an understanding of which potential risks have the greatest possibility of occurring and can have the greatest negative impact on the project (Figure 9-3). These become the critical few.

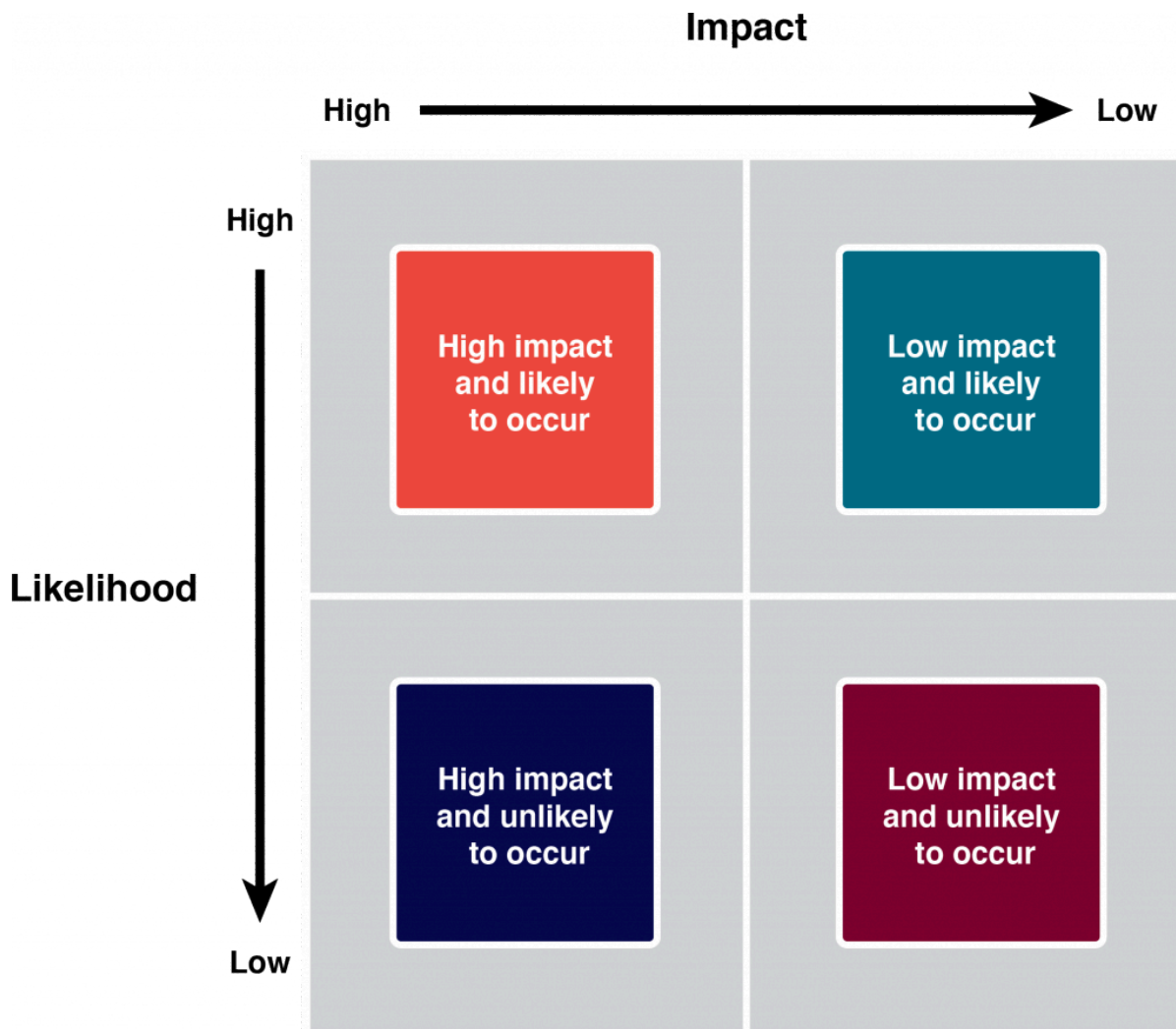


Figure 6-2: Risk and Impact

There is a positive correlation—both increase or decrease together—between project risk and project complexity. A project with new and emerging technology will have a high-complexity rating and a correspondingly high risk. The project management team will assign the appropriate resources to the technology managers to ensure the accomplishment of project goals. The more complex the technology, the more resources the technology manager typically needs to meet project goals, and each of those resources could face unexpected problems.

Risk evaluation often occurs in a workshop setting. Building on the identification of the risks, each risk event is analyzed to determine the likelihood of occurrence and the potential cost if it did occur. The likelihood and impact are both rated as high, medium, or low. A risk mitigation plan addresses the items that have high ratings on both factors—likelihood and impact.

Example: Risk Analysis of Equipment Delivery

A project team analyzed the risk of some important equipment not arriving at the project on time. The team identified three pieces of equipment that were critical to the project and would significantly increase costs if they were late in arriving. One of the vendors, who was selected to deliver an important piece of equipment, had a history of being late on other projects. The vendor was good and often took on more work than it could deliver on time. This risk event (the identified equipment arriving late) was rated as high likelihood with a high impact. The other two pieces of equipment were potentially a high impact on the project but with a low probability of occurring.

Example: Risk Assessment Charts

Project managers need to check all the risks, eliminating those that may be redundant, and those that need attention. Some Project Managers use scenario analysis, a method that can predict the possibility of an event happening that could disrupt or weaken the project. Project Managers ask themselves: What is the likelihood this event can happen? What would the impact be on the project if the event happened? How easy would it be to detect the event in time so as to reduce the chance of the event causing problems?

Likelihood:	The probability that the event will happen
Impact:	The effect the event would have on the project, and to what degree.
Detection Difficulty:	The amount of time the team would have to respond to the event to avoid or reduce the impact

Rating Scales are used in two ways:

Rank and Order Scales:	Criteria used from high impact to low impact. Example: very low, low, moderate, high, very high
Numerical Scales:	1 = very low, 2 = low, 3 = moderate, 4 = high, 5 = very high

Or, sometimes, the criteria includes both the impact scales and the numerical scales. The Project Manager and/or the team need to establish the criteria up front and distinguish what 1 means, versus a 2, and so on. See the sample risk assessment table below.

This is an example of a simple Risk Assessment Matrix for a vacation being planned with the family of 4 to Vancouver for 10 days.

Risk Event	Likelihood	Impact	Detection Difficulty	Risk Rating	When
Somebody gets sick	2	3	1	6	1 week ahead of trip
Flight cancelled	2	4	4	32	24 hours ahead of trip
Somebody does not have the money to go on the trip	1	2	1	2	2 months ahead of trip
Family conflict about destination	1	1	1	1	Discussed and agreed 3 months ahead of trip

Risk Event –What is the actual risk event that you have identified?

Likelihood – How likely is the event to occur? Scale: 1 = Not Likely to 5 = Very Likely

Cost Impact – What is the cost of the event? Scale: 1 = Low cost to 5 = High Cost

Time Impact – How much time will be lost? Scale: 1 = Little Time to 5 = Lots of Time

Scope Impact –How will the event effect the quality of the project? Scale: 1 = Little Effect to Major Effect

Risk Rating – Multiply the individual ratings from each category to get an overall Risk Rating

Not all project managers conduct a formal risk assessment on a project. One reason, as found by David Parker and Alison Mobey in their phenomenological study of project managers, was a low understanding of the tools and benefits of a structured analysis of project risks (Parker et. al., 2004). The lack of formal risk management tools was also seen as a barrier to implementing a risk management program. Additionally, the project manager’s personality and management style play into risk preparation levels. Some project managers are more proactive and develop elaborate risk management programs for their projects. Other managers are reactive and are more confident in their ability to handle unexpected events when they occur. Yet others are risk averse, and prefer to be optimistic and not consider risks or avoid taking risks whenever possible.

On projects with a low-complexity profile, the project manager may informally track items that may be

considered risk items. On more complex projects, the project management team may develop a list of items perceived to be higher risk and track them during project reviews. On projects of even greater complexity, the process for evaluating risk is more formal with a risk assessment meeting or series of meetings during the life of the project to assess risks at different phases of the project. On highly complex projects, an outside expert may be included in the risk assessment process, and the risk assessment plan may take a more prominent place in the project implementation plan.

Generally, for complex projects, statistical models are sometimes used to assess risk because there are too many different possible combinations of risks to calculate them one at a time. One example of the statistical model used on projects is the Monte Carlo simulation, which simulates a possible range of outcomes by trying many different combinations of risks based on their likelihood. The output from a Monte Carlo simulation provides the project team with the probability of an event occurring within a range and for combinations of events. For example, the typical output from a Monte Carlo simulation may indicate a 10% chance that one of the three important pieces of equipment will be late and that the weather will also be unusually bad after the equipment arrives.

4, Risk Response Plan

After the risk has been identified and evaluated, the project team develops a risk response plan, which is a plan to reduce the impact of an unexpected event. The project team mitigates risks in various ways:

- Risk avoidance (avoid or eliminate the risk)
- Risk acceptance (accept the risk, and move forward, deal with the consequences if any)
- Risk mitigation (reduce the probability of the risk, reduce the consequences)
- Risk transfer/share (let someone else deal with it, move the risk somewhere else ie. supplier)

Each of these techniques can be an effective tool in reducing individual risks and the risk profile of the project. The risk response plan captures the risk each identified risk event and the actions the project management team will take to reduce or eliminate the risk.

Risk Avoidance usually involves developing an alternative strategy that has a higher probability of success but usually at a higher cost associated with accomplishing a project task. A common risk avoidance technique is to use proven and existing technologies rather than adopt new techniques, even though the new techniques may show promise of better performance or lower costs. A project team may choose a vendor with a proven track record over a new vendor that is providing significant price incentives to avoid the risk of working with a new vendor. The project team that requires drug testing for team members is practicing risk avoidance by avoiding damage done by someone under the influence of drugs.

Risk Acceptance involves partnering with others to share responsibility for the risky activities. Or, hiring someone else to take on that part of the project. Many organizations that work on international projects will

reduce political, legal, labor, and others risk types associated with international projects by developing a joint venture with a company located in that country. Partnering with another company to share the risk associated with a portion of the project is advantageous when the other company has expertise and experience the project team does not have. Or, they may contract out a portion of the project to a company with greater skills and experience to ensure success.

Risk Mitigation (reduction) is an investment of funds to reduce the risk on a project. On international projects, companies will often purchase the guarantee of a currency rate to reduce the risk associated with fluctuations in the currency exchange rate. A project manager may hire an expert to review the technical plans or the cost estimate on a project to increase the confidence in that plan and reduce the project risk. Assigning highly skilled project personnel to manage the high-risk activities is another risk-reduction method. Experts managing a high-risk activity can often predict problems and find solutions that prevent the activities from having a negative impact on the project. Some companies reduce risk by forbidding key executives or technology experts to ride on the same airplane.

Risk Transfer (or sometimes shared) is a risk reduction method that shifts the risk from the project to another party. The purchase of insurance on certain items is a risk-transfer method. The risk is transferred from the project to the insurance company. A construction project in the Caribbean may purchase hurricane insurance that would cover the cost of a hurricane damaging the construction site. The purchase of insurance is usually in areas outside the control of the project team. Weather, political unrest, and labor strikes are examples of events that can significantly impact the project and that are outside the control of the project team.

See the example in the table below of a risk response plan for a company that provides computer software and hardware.

Event	Response	Contingency	Trigger	Responsibility
Somebody gets sick	Accept: If sick, cannot go on trip	Find another family member to go on trip	Family member tells us about sickness	Sick family member
Flight cancelled	Mitigate: Check with airlines regularly	Find another flight or airline to book tickets	Notice from airline about cancellation	Airline
Somebody does not have the money to go on the trip	Avoid: Ensure everyone has the money before tickets are booked	Find another family member who has the money for the trip	Notification from family member	Family member
Family conflict about destination	Avoid: Ensure at planning meeting everyone agrees on destination	Family member does not go on trip and find another family member to go	Family member changes their mind before tickets purchased	Family member

Follow the Event Questions to complete Risk Response Plan:

Risk Event – What is the actual risk event that you are planning for

Response – How do you expect to respond to that event – Mitigate, Share, Avoid, Transfer or Retain

Contingency – What do you do if your initial response doesn't work (Plan B)

Trigger – When do you implement your contingency (Plan B)

Responsibility – Who is responsible for initiating the contingency (Plan B)

5. Monitoring and Control of Risk

Once the risk plan, assessment and response plan are developed, the monitoring and controlling starts. These elements involve thinking about what might trigger an event (risk) how do team members monitor the changes and how do they track the changes to ensure the project continues to meet the goals of the project. The tracking and reporting of these changes needs to be in a logical format.

The Project Manager and team use simple charts that explain the trigger, and how it will be monitored and tracked. A simple worksheet allows them to make a list. A database could be set up to track and report the changes.

The 5 Step Risk Management Process will improve the completion of the project through charts (visible), good communication among all the stakeholders, and capturing lessons learned when the project closes.

6.4. CONTINGENCY PLAN, RISK RESPONSE PLAN

The project risk plan balances the investment of the mitigation of risks against the benefit for the project. The project team often develops an alternative method for accomplishing a project goal when a risk event has been identified that may frustrate the accomplishment of that goal. These plans are called **contingency plans**.

They are a Plan B. If plan A falls apart, what is Plan B?

The risk of a truck drivers' strike may be mitigated with a contingency plan that uses a train to transport the needed equipment for the project. If a critical piece of equipment is late, the impact on the schedule can be mitigated by making changes to the schedule to accommodate a late equipment delivery.

Contingency funds are funds set aside by the project team to address unforeseen events that cause the project costs to increase. Projects with a high-risk profile will typically have a large contingency budget. Although the amount of contingency allocated in the project budget is a function of the risks identified in the risk analysis process, contingency is typically managed as one line item in the project budget.

Some project managers allocate the contingency budget to the items in the budget that have high risk rather than developing one line item in the budget for contingencies. This approach allows the project team to track the use of contingency against the risk plan. This approach also allocates the responsibility to manage the risk budget to the managers responsible for those line items. The availability of contingency funds in the line item budget may also increase the use of contingency funds to solve problems rather than finding alternative, less costly solutions. Most project managers, especially on more complex projects, manage contingency funds at the project level, with approval of the project manager required before contingency funds can be used.

More on the Risk Response Plan

The Risk Response Plan includes who, what, when, and cost of action. Without a risk response plan there could be impacts that are costly with time, money and quality. This can cause a reactionary approach to the project which is also costly. The project may get delayed, or even cancelled. Making decisions under pressure are stressful, and people can make more mistakes. Therefore, the risk response plan helps the team evaluate what to do, quickly, to respond to an event happening. They ask themselves: What is the best alternative if something goes wrong? This helps with a smooth adjustment of the plan. This, in turn, increases the chance of success. All stakeholders would agree to the Risk Response Plan. In summary, the below checklist is important in project planning.

The steps to developing a Risk Response Plan include:

1. Identify the risk event
2. Identify whether the response will be avoid the risk? share/transfer the risk? mitigate (reduce) the risk? accept the risk?
3. Develop the contingency plan
4. Decide what would “trigger” the team to implement the contingency plan (sometimes time is used)
5. Assign who is responsible for monitoring the potential risk
6. Wise Project Managers ensure they have a Risk Response Plan in place before the project begins.

HR in Focus: Human Resources and Risk Management

The HR Specialist may be involved in helping to build the Risk Management Plan from beginning to end. They may facilitate the process for the project team, allowing the team to focus on the content, brainstorming and critical thinking. They may be only included in potential risk events that include people in the team, or external to the team. These could include risks of poor employee behaviour, the team losing a member, a team member sickness, discipline for team members who are not performing, handling discrimination in the group, security risks, employee disparity in salaries, and handling an injury on the job.

As professionals, the HR Specialist would assist the team in identifying all the possible employee risks (employee behaviour, management style and leadership, salaries as examples.) They would look for ways to reduce or eliminate these risk situations. The involvement of HR in the Risk Management Plan protects the employees in the team, and the organization.

6.5. RISKS IN PROJECT PHASES

Risks can happen at any point in the project. Project risk is dealt with in different ways depending on the phase of the project.

Initiation Phase

Risk is associated with things that are unknown. More things are unknown at the beginning of a project, but risk must be considered in the initiation phase and weighed against the potential benefit of the project's success in order to decide if the project should be chosen.

Example: Risks by Phase in John's Move

In the initiation phase of his move, John considers the risk of events that could affect the whole project. Let's assume that John's move is not just about changing jobs, but also a change of cities. This would certainly incur more risks for the project. He identifies the following risks during the initiation phase that might have a high impact and rates the likelihood of their happening from low to high.

1. His new employer might change his mind and take back the job offer after he's given notice at his old job: Low.
2. The current tenants of his apartment might not move out in time for him to move in by the first day of work at the new job: Medium.
3. The movers might lose his furniture: Low.
4. The movers might be more than a week late delivering his furniture: Medium.
5. He might get in an accident driving from Chicago to Atlanta and miss starting his job: Low.

John considers how to mitigate each of the risks.

1. During his job hunt, John had more than one offer, and he is confident that he could get another job, but he might lose deposit money on the apartment and the mover. He would also lose wages during the time it took to find the other job. To mitigate the risk of his new employer changing his mind, John makes sure that he keeps his relationships

with his alternate employers' cordial and writes to each of them thanking them for their consideration in his recent interviews.

2. John checks the market in Atlanta to determine the weekly cost and availability of extended-stay motels.
3. John checks the mover's contract to confirm that they carry insurance against lost items, but they require the owner to provide a detailed list with value estimates and they limit the maximum total value. John decides to go through his apartment with his digital camera and take pictures of all of his possessions that will be shipped by truck and to keep the camera with him during the move so he has a visual record and won't have to rely on his memory to make a list. He seals and numbers the boxes so he can tell if a box is missing.
4. If the movers are late, John can use his research on extended-stay motels to calculate how much it would cost. He checks the moving company's contract to see if they compensate the owner for late delivery, and he finds that they do not.
5. John checks the estimated driving time from Chicago to Atlanta using an Internet mapping service and gets an estimate of 11 hours of driving time. He decides that it would be too risky to attempt to make the drive by himself in one day, especially if he didn't leave until after the truck was packed. John plans to spend one night on the road in a motel to reduce the risk of an accident caused by driving while too tired.

John concludes that the medium-risks can be mitigated and the costs from the mitigation would be acceptable in order to get a new job.

Planning Phase

Once the project is approved and it moves into the planning stage, risks are identified with each major group of activities. A risk breakdown structure (RBS) can be used to identify increasing levels of detailed risk analysis.

Legend:			
RA: Risk Avoidance	RA: Risk Sharing	RA: Risk Reduction	RA: Risk Transfer
Level 1	Level 2	Level 3 – Risks	Mitigation
Packing	Pack Kitchen	Cuts from handling sharp knives	Buy small boxes for packing knives (RR)
		Cuts from cracked glasses that break while being packed	Discard cracked glass (RA)
		Transporting alcoholic beverages	Give open bottles to Dion or Carlita (RA)
	Pack Living Room	Damage to antique furniture	Supervise wrapping and loading personally (RR) and require movers to insure against damage (RT)
		Lose parts while taking apart the entertainment center	Buy box of large freezer bags with a marker to bag and label parts (RR)
		Break most valuable electronics – TV, DVD, Tuner, Speakers	Buy boxes of the right size with sufficient bubble wrap (RR)
	Pack Bedroom		Buy or rent a mirror-box with styrofoam blacks at each corner (RR)
		Lose perscription drugs or pack them where they cannot be found quickly	Seperate perscription drugs from transportation in the car (RA)
	Pack Remaining Items	Damage to house plants	Ask Carlita to care for them and bring them with her in the van when she visits in exchange for half of them (RS)
		Transportation of flammable liquids from charcoal grill	Give to Dion or Carlita (RA)

Figure 9-4: Risk Breakdown Structure (RBS) for Packing John’s Apartment

John decides to ask Dion and Carlita for their help during their first planning meeting to identify risks, rate their impact and likelihood, and suggest mitigation plans. They concentrate on the packing phase of the move. They fill out a table of risks, as shown in Figure 9-4.

Implementation Phase

As the project progresses and more information becomes available to the project team, the total risk on the project typically reduces, as activities are performed without loss. The risk plan needs to be updated with new information and risks checked off that are related to activities that have been performed.

Understanding where the risks occur on the project is important information for managing the contingency budget and managing cash reserves. Most organizations develop a plan for financing the project from existing organizational resources, including financing the project through a variety of financial instruments. In most cases, there is a cost to the organization to keep these funds available to the project, including the contingency

budget. As the risks decrease over the length of the project, if the contingency is not used, then the funds set aside by the organization can be used for other purposes.

To determine the amount of contingency that can be released, the project team will conduct another risk evaluation and determine the amount of risk remaining on the project. If the risk profile is lower, the project team may release contingency funds back to the parent organization. If additional risks are uncovered, a new mitigation plan is developed including the possible addition of contingency funds.

Closeout Phase

During the closeout phase, agreements for risk sharing and risk transfer need to be concluded and the risk breakdown structure examined to be sure all the risk events have been avoided or mitigated. The final estimate of loss due to risk can be made and recorded as part of the project documentation. If a Monte Carlo simulation was done, the result can be compared to the predicted result.

6.6. KNOWLEDGE CHECK

Question 1



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<https://ecampusontario.pressbooks.pub/hrstrategicprojectmanagement/?p=202#h5p-24>

Question 2



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Question 3



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Question 4



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Question 5



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Question 6



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6.7. KEY TERMS

Contingency Plans: The project risk plan balances the investment of the mitigation against the benefit for the project. The project team often develops an alternative method for accomplishing a project goal when a risk event has been identified that may frustrate the accomplishment of that goal. [6.4](#)

Risk Acceptance: Involves partnering with others to share responsibility for risky activities. Or, hiring someone else to take on that part of the project. [6.3](#)

Risk Avoidance: This usually involves developing an alternative strategy that has a higher probability of success but usually at a higher cost associated with accomplishing a project task. [6.3](#)

Risk Breakdown Structure (RBS): A risk breakdown structure organizes the risks that have been identified into categories using a table with increasing levels of detail to the right. [6.3](#)

Risk Management: The process of identifying, quantifying, and managing the risks that an organization faces. [6.2](#)

Risk Mitigation (reduction): This is an investment of funds to reduce the risk on a project. On international projects, companies will often purchase the guarantee of a currency rate to reduce the risk associated with fluctuations in the currency exchange rate. [6.3](#)

Risk Register: A list of all the risks that have been previously identified. [6.3](#)

Risk Transfer (or sometimes shared): A risk reduction method that shifts the risk from the project to another party. The purchase of insurance on certain items is a risk-transfer method. [6.3](#)

CHAPTER 7 – SCHEDULING RESOURCES AND BUDGETS



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7.1. LEARNING OUTCOMES

Learning Outcomes

By the end of this chapter, you should be able to:

1. Define terms related to scheduling.
2. Demonstrate how cost and time are summarized in a WBS.
3. Demonstrate the process of decomposition and numbering used to create a WBS.
4. Explain the difference between a deliverable and work package.
5. Differentiate top-down estimation and bottom-up methods.
6. Define basic terms such as budget, estimate, price, cost, and value.
7. Discuss the relationship between cost and budget.
8. Explain basic concepts related to budgeting.
9. Identify different types of costs, and discuss issues related to contingency funds, profit, and cost estimating.
10. Explain the benefits of contingencies.

7.2. SCHEDULING TERMS

Making sure all stakeholders use the same terminology is crucial in all phases of project management, but it is especially important when you are trying to get a group of diverse people to agree to a schedule. After all, a schedule only works as a form of communication if it is written in a language everyone understands. And since contract terms are often tied to schedule, a lack of common agreement on the meaning of specific terms in a schedule can have far-ranging effects.

Terminology is so important that many state governments publish their own project management glossaries. As you embark on a new project, you'd be wise to find out if the organization you work for, or the vendors you will be working with, have compiled such a glossary. If such organizational resources exist, use them as a starting point for your own project glossary. Otherwise, you can always turn to the Project Management Institute's lexicon (available here: "[PMI Lexicon of Project Management Terms](#)") or glossaries provided online by consulting firms or other project management resources such as the following:

Project Management Terms

- [Project Management Glossary of Terms](#)
- [Project Management Glossary](#)

The following definitions of scheduling-related terms are taken from a variety of sources.

Term	Definition
Milestone	“A significant event in the project; usually completion of a major deliverable” (State of Michigan: Department of Technology, Management & Budget, 2013, p. 13). An important distinction is that a milestone is a zero-duration activity; e.g., “acceptance of software by client” is a milestone, preceded by many contributing activities.
Activity	“An element of work performed during the course of a project. An activity normally has an expected duration, an expected cost, and expected resource requirements” (Project-Management.com, 2016). Beware that some organizations subdivide activities into tasks while others use task and activity synonymously.
Duration	“The amount of time to complete a specific task given other commitments, work, vacations, etc. Usually expressed as workdays or workweeks” (State of Michigan: Department of Technology, Management & Budget, 2013, p. 9).
Resource	“Any personnel, material, or equipment required for the performance of an activity” (Project-Management.com, 2016).
Cost	“An expenditure, usually of money, for the purchase of goods or services” (Law, 2016).
Slack	“Calculated time span during which an event has to occur within the logical and imposed constraints of the network, without affecting the total project duration” (Project-Management.com, 2016). Or put more simply, slack, which is also called float, is the amount of time that a task can be delayed without causing a delay to subsequent tasks or the project’s overall completion date.

7.3. SCHEDULING RESOURCES, BENEFITS, CONSTRAINTS

Resources are people, materials and equipment that come together to complete a project. Project Managers need to ensure all the resources required are available for the project. Constraints are when the resources are not available or limited. It is important to understand constraints as they can affect the outcomes of the projects. Project Managers need to balanced the resources and constraints to ensure success.

People: Providing enough qualified people on a project is the most important resource. Human Resources would be active in supplying or supporting the hire of qualified people for the project. People are hired based on the skills they bring to the project.

Materials: The materials required for the project need to be planned for in advance, ordered/brought in as needed in the project. As well, delivery of products and timing of delivery need to be considered.

Equipment: Equipment needs to be purchased, leased, or rented for the project. It needs to be available when needed.

Once people, materials or equipment are placed on the schedule, it is important they are allocated as needed. Project Managers tend to classify resources and determine what and who they need, where they need the resource, and when it is needed. Much of this planning is done in advance. However, project resource schedules are critical.

Project Managers use a classification of scheduling in two ways:

Time-constrained resources: This would mean there is an imposed time frame for the project (the time cannot be changed.) Example: Planning a wedding. Once the date is decided, it will not change. Or, planning a New Year's Eve party. We must hold it on January 31st.

Resource-constrained: There is an assumptions that all the resources will be available when and where they are needed. If the resources are not available or not adequate, the project could be delayed. Example: Two people are scheduled to paint a room. The contractor scheduled 8 hours with 2 people. One person was sick. Now, it will take 1 person 16 hours to paint the room. The cost is "time which is money", and the contractor may need to pay the 1 person overtime.

Benefits of Scheduling People, Materials, Equipment

1. If resources are time-constrained or resource-constrained, it is important for Project Managers to plan a schedule ahead of time. This leaves time to look at different options.
2. Resource schedules allow time to prepare budgets and work plans (tasks, activities). Project Managers then can quickly assess if unanticipated events occur.
3. Project Managers can predict how much flexibility they have with resources over a period of time. This would be helpful if team members are sick or need to removed themselves from the project for a period of time.

7.4. DEFINING ACTIVITIES

An **activity** is a process of further breakdown of the work package elements of the work breakdown structures (WBS). It documents the specific activities needed to fulfill the deliverables detailed in the WBS. These activities are not the deliverables themselves but the individual units of work that must be completed to fulfill the deliverables. Activity definition uses everything we already know about the project to divide the work into activities that can be estimated. You might want to look at all the lessons learned from similar projects your company has done to get a good idea of what you need to do on the current one.

Expert judgment in the form of project team members with prior experience developing project scope statements and WBS can help you define activities. If you are asked to manage a project in a new domain, you might also use experts in that particular field to help define tasks so you can understand what activities are going to be involved. You may want to create an activity list and then have the expert review it and suggest changes. Alternatively, you could involve the expert from the very beginning and ask to have an activity definition conversation with him or her before even making your first draft of the list.

Sometimes you start a project without knowing a lot about the work that you'll be doing later. Rolling-wave planning lets you plan and schedule only the portion that you know enough about to plan well. When you don't know enough about a project, you can use placeholders for the unknown portions until you know more. These are extra items that are put at high levels in the WBS to allow you to plan for the unknown.

7.5. WORK BREAKDOWN STRUCTURES

The **Work Breakdown Structure (WBS)** is a hierarchical outline of all the deliverables involved in completing a project. The WBS is part of a project scope statement. The creation of a WBS is one of the first steps in organizing and scheduling the work for a project.

The WBS is a breakdown of a project into sub-deliverables and eventually work-packages. Each level of the WBS, represents more detailed information about a project. *Figure 7-1* shows how the project is broken down into major deliverables and then into sub-deliverables and work packages.

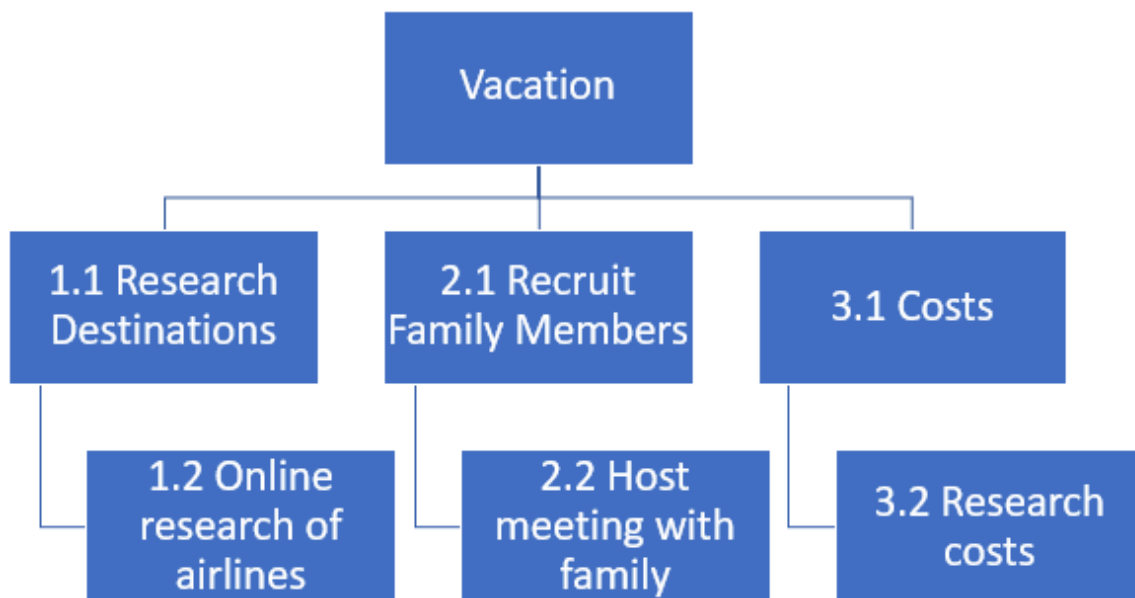


Figure 7-1: The WBS is an outline that shows how the deliverables, sub-deliverables and work packages relate to the final project.

Deliverables vs. Work Packages

Deliverables and sub-deliverables are things such as physical objects, software code, or events. In a WBS, deliverables and sub-deliverables are represented by nouns. **Work packages** are assignable units of work that will be performed to create the related deliverable. A work package can be assigned to one particular project team member, one outside contractor, or another team. The work packages may be further broken down into

activities or tasks by the project team or the experts who will perform that work (see WBS dictionary later in this section).

Work packages are action oriented and will be represented by phrases containing verbs. The cost of a deliverable is the sum of all of its related sub-deliverables. As well, a work package is somewhat similar to specific tasks that need completed and can be delegated to the appropriate person.

Since the WBS provides a natural way to summarize (or “rollup”) the costs and labor involved for various sub deliverables, it also provides the project team with the information need to determine whether some deliverables would be better performed by an outside specialist who could deliver the item or service more cost-effectively.

WBS Numbering

Project managers use the WBS during project execution to track the status of deliverables and work packages. The items in a WBS are numbered so it is easy to understand the deliverable, or sub-deliverable, to which any particular work package is related.

This numbering system allows for easy reference and filtering. For example, an electrician working on the Warehouse project only needs to receive details and updates that are related to work packages that start with 2.2 (the Electrical sub-deliverable). This would be the same number that the Accounting Department would use for billing.

Decomposition

Decomposition is the process used to break the project scope of work into the deliverables, sub-deliverables, and work packages involved in completing the project.

The process of decomposition begins with identifying the highest-level deliverables. These deliverables are then broken into sub-deliverables. Many layers of sub-deliverables may be needed for a project. A general rule of thumb is that if the WBS has more than 5 layers of sub-deliverables, the project team should reassess and try to simplify the WBS structure (often by changing the way higher level deliverables are grouped and broken down).

Once the lowest level of deliverable has been reached, the next step is to break the sub-deliverables into work packages. The work packages describe the work that needs to be done to create the sub-deliverable. Remember that work packages typically contain verbs, and can be assigned to a person, team or contractor.

Once the project team has drafted the WBS, they should ask themselves: ” If all the work packages were completed, and all the deliverables in this WBS were delivered, would the project be complete?” If the answer is no, then pieces of the WBS are still missing. If the answer is yes, then the project team can move on to creating

the WBS dictionary, getting bottom-up estimates on time and resource requirements, and planning how to schedule the work.

The WBS Dictionary

The WBS dictionary provides detailed documentation about each work package including;

- Who is responsible for completing the work package?
- What resources will be needed to complete the work package?
- What deliverable(s) is the work package contributing to?
- What deadlines or milestones are associated with this work package?
- What are the acceptance criteria for this work package?

When the WBS is created, not all of the information about the work packages is known (for example, the estimates for labor and material costs). Remember from Chapter One that the planning process continues throughout the execution of the project. As a result, the WBS dictionary is a “living document” that will be augmented, edited and updated as the project moves forward. *Figure 7-2* is an example of a WBS Dictionary entry; note that several items will be added later in the planning process. The dictionary in *Figure 7-2* includes the following columns: item number, description, constraints, responsibility, milestone, schedule, resources, cost, quality, acceptance criteria, references and guidelines.

Hammer and Chisel Incorporation											
WBS Dictionary											
Item Number	Description	Constraints	Responsible	Milestone	Schedule	Resources	Cost	Quality	Acceptance Criteria	References	Guidelines
11											
111											
112											
113											

Figure 7-2: WBS Dictionary entry example.(Click to enlarge)

7.6. TIME ESTIMATION

Estimates have a huge influence on a project and are a large source of project risk. Watch this [video on time estimates to learn about how estimates](#) are used for project planning by Prof C [3:04] below. The transcript is available on YouTube.



One or more interactive elements has been excluded from this version of the text. You can view them online here: <https://ecampusontario.pressbooks.pub/hrstrategicprojectmanagement/?p=116#oembed-1>

Top-down estimation

Also referred to as macro, estimation methods are used to determine if a project is feasible, to calculate funding requirements, and to determine the resources needed to complete a project. These methods are not extremely accurate but provide a relatively fast way to make an estimate of the time and costs required for a project.

Bottom-up estimation

Also referred to as micro, estimation methods are used to provide a detailed, and more accurate, estimate and are usually derived from the detailed list of work packages or activities found in the work-breakdown structure.

As the video mentions, all estimates contain risk. If estimates are too low, then a project will take more time and money to complete than what was budgeted. Obviously, a bad situation. If estimates are too high, then a project will take less time and money than originally estimated. This might seem to be a desirable situation, but good project managers will realize that estimates that are too high will cause an organization to over allocate resources to a project, thereby preventing other projects from being pursued due to organizational resource shortages.

Therefore, it is important to have the most accurate estimates possible. The project team needs to understand the value of accurate estimates and avoid the natural human tendency to pad estimates. Once unbiased estimates for a project have been generated, the project manager can calculate what time buffers and budgetary reserves should be added to the project plan to deal with uncertainty.

Accuracy of Estimates

Prior to project authorization, estimates for project cost need to be given, but these estimates can be rough estimates. As the project progresses, more definitive estimates will be needed and can be generated.

PMI defines the following ranges for estimates:

Rough Order of Magnitude (ROM)	ROM estimates are made at the initiation of the project and can be +/- 50 percent from the actual or final cost.
Budget Estimate.	Budget estimates are used in project planning and can be within a range from -10 to +25 percent from the actual or final cost.
Definitive Estimate	Definitive estimates are generated as the project progresses and the variability of the estimate is reduced (<i>see Figure 7-3</i>). Definitive estimates are within a range from -5 to +10 percent from the actual or final cost.

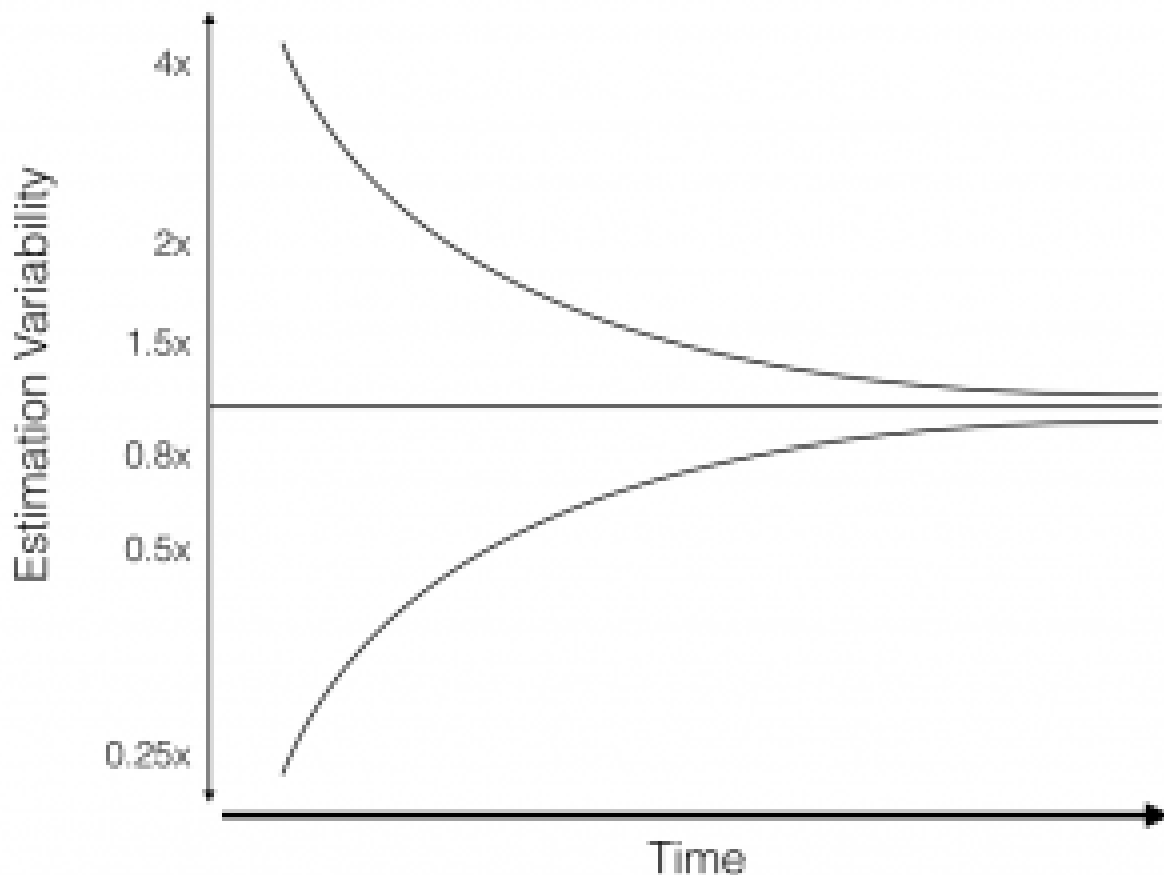


Figure 7-3: Estimates contain a high degree of variability at the inception of a project, and that variability decreases as the project is defined and moves toward completion.

Top Down (Macro) Estimation

Top-down, or macro, estimation methods allow for a quick estimate of project costs based on historical information.

Analogous Estimating

Analogous estimating uses information from a previous project to estimate the cost of completing a similar project in the future. This provides a quick estimate, but should be used with caution. Analogous estimating only works when comparing projects that are similar in scope and will be completed in similar conditions.

For example, a small IT business developed a website for a local restaurant for which they charged \$4000. Another restaurant approaches the IT firm and asks for a rough cost estimate for a similar site. The IT firm can tell the second restaurant that such work will cost approximately \$4000. Of course, the caveat is that this second website will have a similar number of pages, functions, and graphics as the first site.

The advantage of analogous estimating is that it allows for a very quick estimate to be provided for a customer. If in the example above, the second restaurant had only budgeted \$200 for a website, they would have quickly determined that they have not budgeted enough, and the IT firm would be able to quickly determine that this is not a serious customer. However, if the second restaurant is okay with this approximate price, the IT firm can work with the restaurant to develop a detailed cost proposal.

Analogous estimating, is not accurate if:

- The projects differ in scope.
- There is a difference in the conditions under which the work will be performed.
- There is a difference in the cost of resources (materials, labor).

Parametric Estimating

Parametric estimates, also called the ratio method, uses historical information or industry benchmarks as the basis for making an estimate. Parametric estimates are made by multiplying the size of a project by an established cost per unit.

Cost Estimate (Union Labor)	Cost per Square Foot
Labor and Materials	\$234.09
Contractor Fees (GC, Overhead, Profit)	\$58.52
Architectural Fees	\$26.34
Total Building Cost (per Square foot)	\$318.95

Cost Estimate (Open Shop)	Cost per Square Foot
Labor and Materials	\$217.51
Contractor Fees (GC, Overhead, Profit)	\$54.38
Architectural Fees	\$24.47
Total Building Cost (per Square foot)	\$296.36

Table 7-1: Hospital construction costs – Data from Reed Construction (<http://www.cmdgroup.com/>) 2014.

For example, industry data is available for the per square foot construction cost for many types of buildings. An architect can use this information to make a parametric estimate by multiplying the cost per square foot by the size of any new building being considered. If an organization wants to build a new hospital using union labor, a rough estimate of the construction cost can be calculated using the information in Table 5.1: $20,000 \text{ ft}^2 \text{ clinic} \times \$318.95/\text{ft}^2 = \$6,379,000$. The organization can then use this estimate as an approximate cost and start securing the money for the project. Once the funding is secured, an architect can develop a complete plan and produce a more accurate project budget, using a bottom-up estimation method.

Learning Curves

Projects that require an activity to be repeated several times throughout the project will benefit from a so-called **learning curve**. Learning curves, also known as improvement curves or experience curves, are important when labor is one of our main resources.

Consider a large construction project for a new highway. The first hundred feet of highway may be fairly slow to complete. But as workers become more experienced, and figure out better ways to organize their work, the time required to construct the next one hundred feet of new highway will be less.

Learning curves were first observed in aircraft production and are also used heavily in operations management. Each time production doubles, a learning rate can be calculated. *See Table 7.2* for the calculation of a learning curve. When output doubles, from the first screen installed to the second, a learning rate is calculated. Another learning rate is calculated when the output doubles from the second screen installed to the fourth, and so on. The average learning curve can then be calculated. Later, if this company is contracted to install projector screens as part of a project, they can use this learning curve in their labor estimates.

There is a limit to the improvement of a learning curve. Eventually, the learning curve will “bottom out” and no more improvement gains can be achieved.

Table 7-2

Number of screens installed	Time to install	
	projector screen	Learning Rate
1	500	
2	440	88.0%
3	420	
4	400	90.9%
5	390	
6	380	
7	370	
8	360	90.0%
9	355	
10	350	
11	345	
12	344	
13	342	
14	340	
15	339	
16	338	93.9%
Average	90.7%	<i>Data from Table 7-2 shown on graph 7-4. Notice that the longer production occurs, the less improvement from one installation to the next.</i>

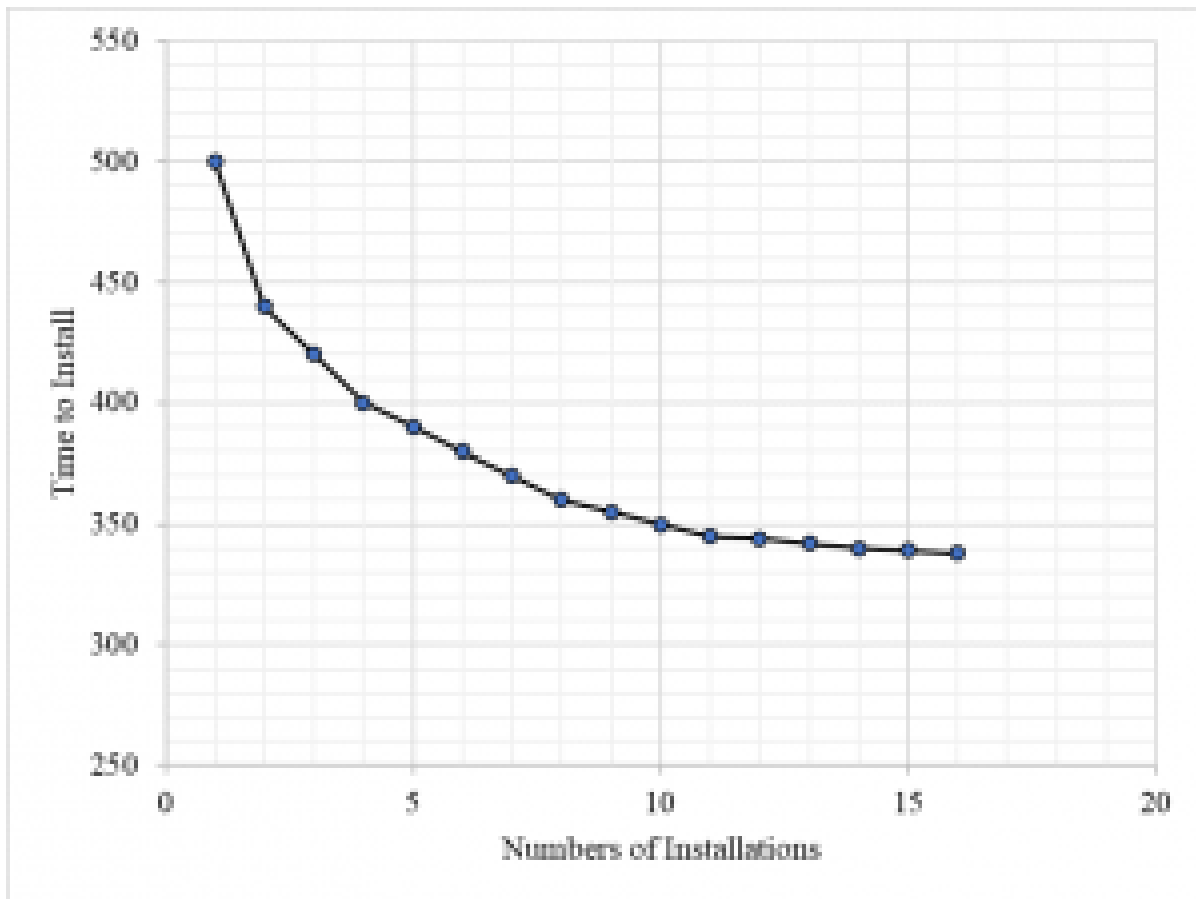


Figure 7-4: Learning curve calculation – Each time production is doubled, the learning rate for that doubling is calculated: (screen 2 time/screen 1 time), (screen 4 time/screen 2 time), (screen 8 time/screen 4 time), and (screen 16 time/screen 8 time).

However, there are several things that can be done to extend and improve the slope of a learning curve:

- Incentivize workers to improve the processes they are using to complete their tasks. These incentives are “built in” for companies that are employee owned, where employees share in the reward if profits increase.
- Make investments in new technology and equipment.
- Invest in training and education for new workers, so they are not “learning on the job.”
- Give workers the flexibility to make changes to how materials are sourced, delivered, and organized.
- Re-engineer the deliverables so they are easier to produce.

Learning curves usually hold if the work is continuous. If there is a break in the work, gains in productivity when work resumes will not be as great as if the work had continued uninterrupted.

Bottom Up (Micro) Estimation

Bottom up, or micro, estimation techniques are used when the project is approved or is very likely to be approved. Bottom up estimation techniques generate estimates for individual work packages or sub-deliverables, which are then summarized to reflect total costs. Bottom up estimates are more accurate, detailed and take more time to generate. Instead of relying on historical information, bottom-up estimates rely on people with experience who can provide time and cost estimates for a particular work package or sub-deliverable.

These basic guidelines should be followed when generating bottom up estimates:

- Have people familiar with the work make the estimate.
- If possible, use several people to make estimates.
- Estimates should be based on normal conditions and a normal level of resources.
- Estimates should not make allowances for contingencies.

The project manager or team will add buffer times and contingency funds to the project after estimates are collected and analyzed.

Single Point Estimate

Single point estimation is an estimate obtained from just one estimator. This can work well with experienced estimators and work packages that are straight forward. Single point estimates are quick to generate and summarize in a project plan. The risk with single point estimates is that the estimator will overlook some aspect of the work and inadvertently provide an inaccurate estimate.

Three-points estimate

Instead of asking an estimator for just one estimate, a three-points estimate asks the estimator to provide three-time estimates for each activity:

- An optimistic time estimate (if all goes well, what is the shortest time period one could realistically expect for the completion of this activity?). This will be designated in calculations as *a*.
- The most likely time estimate (if all goes normally, what is the average time one would expect it would take for an activity to be completed?). This will be designated in calculations as *m*.
- A pessimistic time estimate (if work goes poorly, what is the longest time period one could realistically expect for the completion of this activity?). This will be designated in calculations as *b*.

These three estimates can be used as inputs to calculate an estimated time for the activity or work package to be completed.

7.7. MANAGING THE SCHEDULE

The project schedule is important as it serves as a baseline to measure time and costs. There are 2 common, visual methods to display schedules.

The Gantt Chart

A **Gantt chart** is a type of bar chart, developed by Henry Gantt, that illustrates a project schedule. Gantt charts are easy to read and are commonly used to display schedule activities. These charts display the start and finish dates of the terminal elements and summary elements of a project. Terminal elements and summary elements comprise the work breakdown structure of the project. Some Gantt charts also show the dependency relationships (i.e., precedence network) between activities.

Gantt charts show all the key stages of a project and the duration as a bar chart, with the time scale across the top. The key stages are placed on the bar chart in sequence, starting in the top left corner and ending in the bottom right corner (*Figure 7-5*). A Gantt chart can be drawn quickly and easily and is often the first tool a project manager uses to provide a rough estimate of the time that it will take to complete the key tasks. Sometimes it is useful to start with the target deadline for completion of the whole project, because it is soon apparent if the time scale is too short or unnecessarily long. Thus, the detailed Gantt chart is usually constructed after the main objectives have been determined.

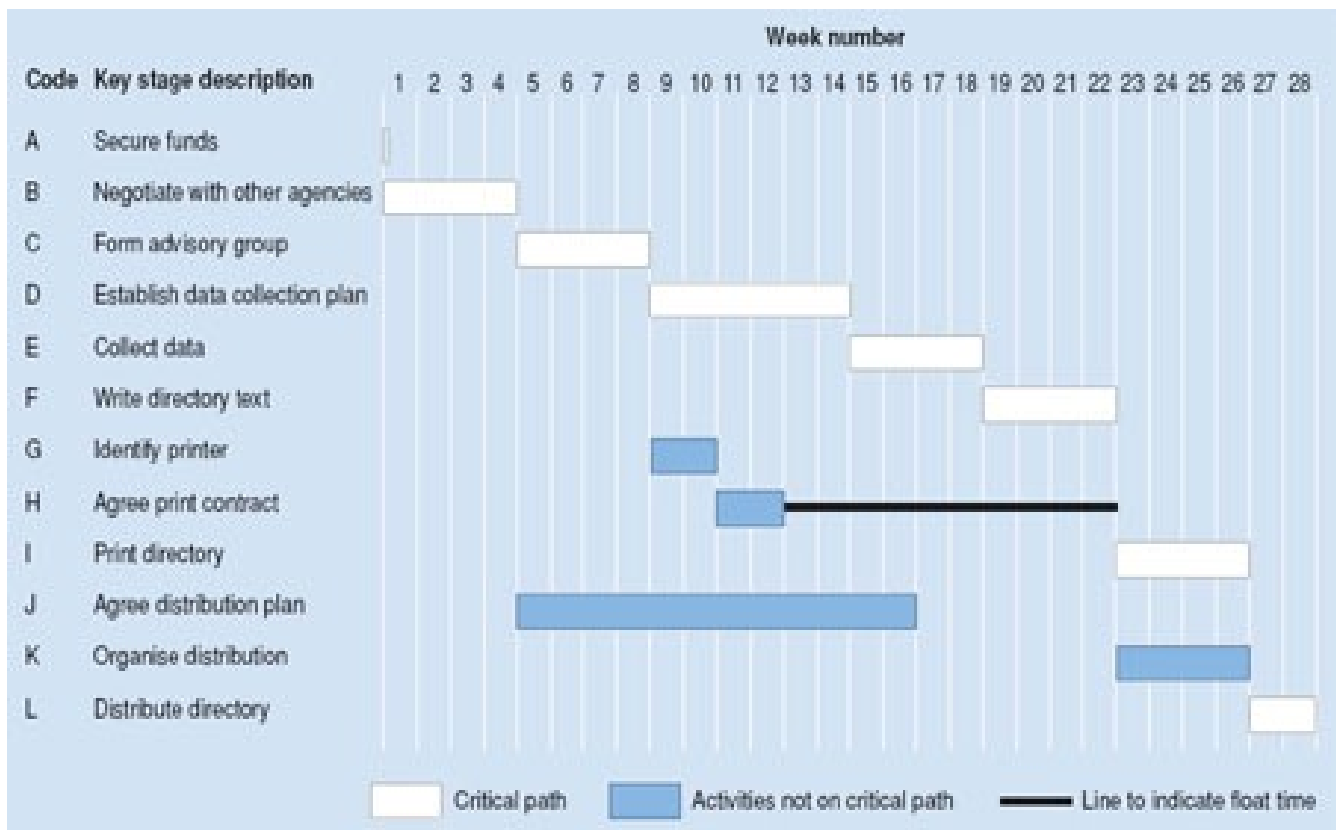


Figure 7-5: Gantt Chart

The Network Diagram

Some project managers use network diagrams when scheduling a project. The **network diagram** is a way to visualize the interrelationships of project activities. Network diagrams provide a graphical view of the tasks and how they relate to one another. The tasks in the network are the work packages of the WBS. All of the WBS tasks must be included in the network because they have to be accounted for in the schedule. Leaving even one task out of the network could change the overall schedule duration, estimated costs, and resource allocation commitments.

The first step in creating a network diagram is to arrange the tasks from your WBS into a sequence. Some tasks can be accomplished at any time throughout the project where other tasks depend on input from another task or are constrained by time or resources.

The WBS is not a schedule, but it is the basis for one. The network diagram is a schedule but is used primarily to identify key scheduling information that ultimately goes into user-friendly schedule formats, such as milestone and Gantt charts.

The network diagram provides important information to the project team. It provides information about how the tasks are related (Figure 7-6), where the risk points are in the schedule, how long it will take as currently planned to finish the project, and when each task needs to begin and end.

All network diagrams have the advantages of showing task interdependencies, start and end times, and the critical path (the longest path through the network) but the AOA network diagram has some disadvantages that limit the use of the method.

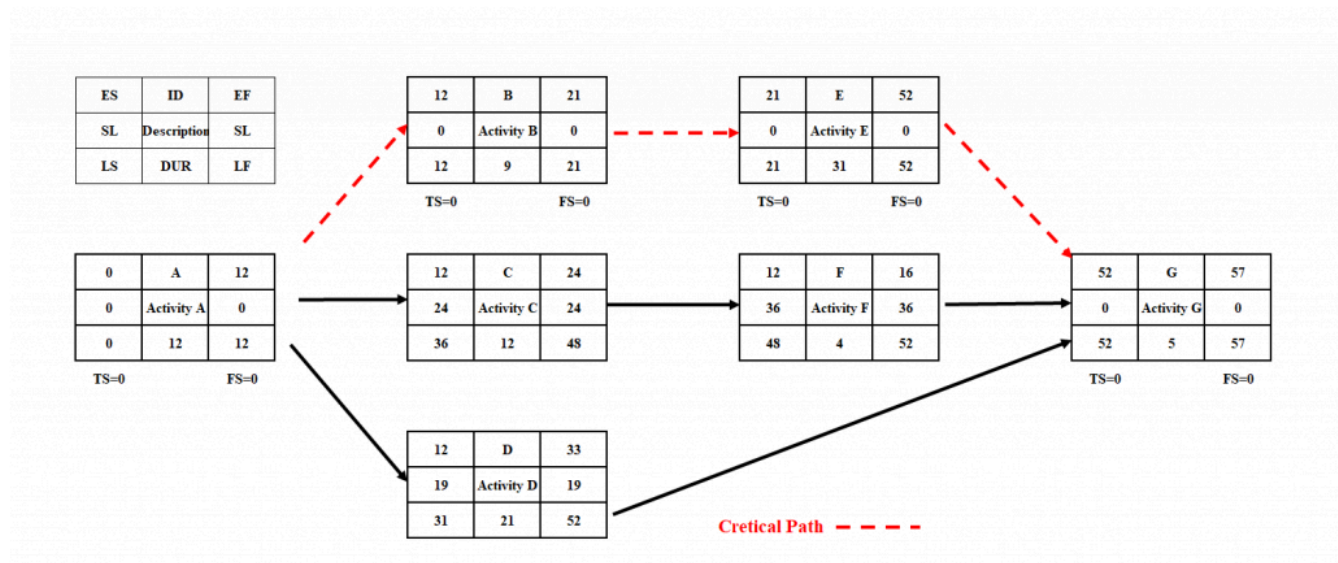


Figure 7-6: An example of an activity on node (AON) diagram

Forward and Backward Pass


Once a network diagram has been made and estimated activity durations have been assigned to each activity, the following attributes of each activity can be calculated:

- Early start time (ES)
- Late start time (LS)
- Early finish time (EF)
- Late finish time (LF)
- Slack or float (SL or FL)

These activity attributes are calculated using two processes: the forward pass and the backward pass. Watch the video: [Project Management Networks Part 2: Forward and Backward Pass](#) by Prof C [7:08] to learn how to make these calculations. Transcript available on YouTube.



One or more interactive elements has been excluded from this version of the text. You can view

 them online here: <https://ecampusontario.pressbooks.pub/hrstrategicprojectmanagement/?p=120#oembed-1>

The forward and backward pass are also used to fully calculate the critical path(s) in a project. Note: there can be instances where the start of an activity is on the critical path, but the finish is not on the critical path. This is unusual, but can happen depending on the types of relationships that are involved.

The Critical Path

The critical path (dashed red line as seen in figure 5-7) describes the sequence of tasks that would enable the project to be completed in the shortest possible time. It is based on the idea that some tasks must be completed before others can begin. A critical path diagram is a useful tool for scheduling dependencies and controlling a project. In order to identify the critical path, the length of time that each task will take must be calculated.

Milestones

One way to avoid getting lost in a sea of details is to focus on your project's milestones, which can serve as a high-level guide. You can use pull planning to identify your project's milestones, and then use the critical path to figure out how to hit those milestones. It gives a reality test to whether your milestones are in fact achievable. Then you're off and running, in living order.

In an excellent blog post on the usefulness of milestones, Elizabeth Harrin (2017) explains that milestones should be used “as a way of showing forward movement and progress and also show people what is going on, even if they don't have a detailed knowledge of the tasks involved to get there. In that respect, they are very useful for stakeholder communication and setting expectations” (Harrin, 2017). You can use milestones, she explains, to track your progress, focus on:

- starting of significant phases of work
- ending of significant phases of work
- marking the deadline for something
- showing when an important decision is being made (Harrin, 2017)

Milestones are especially useful as a form of communication on the health of a project. A version of a project schedule that consists only of milestones allows stakeholders to get a quick sense of where things stand. You

may want to report on milestones in the project's dashboard, which should serve as an at-a-glance update for the project.

7.8. ESTIMATING RESOURCES

Primary resources are people, equipment, and often, places, money, or anything else that you need in order to do all of the activities that you planned for. Every activity in your activity list needs to have resources assigned to it. Before you can assign resources to your project, you need to know their availability. Resource availability includes information about what resources you can use on your project, when they're available to you, and the conditions of their availability.

Remember that some resources, like consultants or training rooms, have to be scheduled in advance, and they might only be available at certain times. You'll need to know this before you can finish planning your project. If you are starting to plan in January, a June wedding is harder to plan than one in December, because the wedding halls are all booked up in advance. That is clearly a resource constraint. You'll also need the activity list that you created earlier, and you'll need to know how your organization typically handles resources. Once you've got a handle on these things, you're set for resource estimation.

The goal of activity **resource estimating** is to assign resources to each activity in the activity list. There are five tools and techniques for estimating activity resources.

- **Expert judgment means** bringing in experts who have done this sort of work before and getting their opinions on what resources are needed.
- **Alternative analysis** means considering several different options for how you assign resources. This includes varying the number of resources as well as the kind of resources you use. Many times, there's more than one way to accomplish an activity and alternative analysis helps decide among the possibilities.
- **Published estimating data** is something that project managers in a lot of industries use to help them figure out how many resources they need. They rely on articles, books, journals, and periodicals that collect, analyze, and publish data from other people's projects.
- **Project management software** such as Microsoft Project will often have features designed to help project managers estimate resource needs and constraints and find the best combination of assignments for the project.
- **Bottom-up estimating** means breaking down complex activities into pieces and working out the resource assignments for each piece. It is a process of estimating individual activity resource need or cost and then adding these up together to come up with a total estimate. Bottom-up estimating is a very accurate means of estimating, provided the estimates at the schedule activity level are accurate. However, it takes a considerable amount of time to perform bottom-up estimating because every activity must be assessed and estimated accurately to be included in the bottom-up calculation. The smaller and more

detailed the activity, the greater the accuracy and cost of this technique.

Resource Management

Resource management is the efficient and effective deployment of an organization's resources when they are needed. Such resources may include financial resources, inventory, human skills, production resources, or information technology (IT). In the realm of project management, processes, techniques, and philosophies for the best approach for allocating resources have been developed.

These include discussions on functional versus cross-functional resource allocation as well as processes espoused by organizations like the Project Management Institute (PMI) through the methodology of project management outlined in their publication *A Guide to the Project Management Body of Knowledge (PMBOK)*. Resource management is a key element to activity resource estimating and project human resource management. As is the case with the larger discipline of project management, there are resource management software tools available that automate and assist the process of resource allocation to projects.

HR in Focus Human Resources Assistance with Scheduling

The most important resource to a project is its people—the project team. Human Resources Departments help projects as they require specific expertise at specific moments in the schedule, depending on the milestones being delivered or the given phase of the project. An organization can host several strategic projects concurrently over the course of a budget year, which means that its employees can be working on more than one project at a time.

Alternatively, an employee may be seconded away from his or her role within an organization to become part of a project team because of a particular expertise. Moreover, projects often require talent and resources that can only be acquired via contract work and third-party vendors. Procuring and coordinating these human resources, in tandem with managing the time aspect of the project, is critical to overall success, and an important role for Human Resources Specialists.

In order to successfully meet the needs of a project, it is important to have a high-performing project team made up of individuals who are both technically skilled and motivated to contribute to the project's outcome. One of the many responsibilities of Human Resources is to provide support to the project manager and to

enhance the ability of each project team member to contribute to the project, while also fostering individual growth and accomplishment. At the same time, each individual must be encouraged to share ideas and work with others toward a common goal. Goal planning, brainstorming techniques, and project planning are all skills that can be taught by Human Resources Specialists through workshops.

Human Resources Specialists can provide training or skill development in performance evaluation for the Project Manager. Through performance evaluation, the manager will get the information needed to ensure that the team has adequate knowledge, to establish a positive team environment and a healthy communication climate, to work properly, and to ensure accountability.

As well, the Human Resources department can provide training in performance appraisal systems and performance motivators and controls. The HR Specialist could also be involved directly in the performance appraisals with the Project Manager. They provide a different perspective based on behaviour and characteristics of team members, while the Project Manager's perspective is based on performance and outcomes of the project. Managing the project team includes appraisal of employee performance and project performance. The performance reports provide the basis for managerial decisions on how to manage the project team.

Employee performance includes the employee's work results such as:

- Quality and quantity of outputs
- Work behavior (such as punctuality)
- Job-related attributes (such as cooperation and initiative)

After conducting employee performance reviews, project managers and HR Specialists should:

- Provide feedback to employees about how well they have performed on established goals
- Provide feedback to employees about areas in which they are weak or could do better
- Take corrective action to address problems with employees performing at or below minimum expectations
- Reward superior performers to encourage their continued excellence

Techniques for Managing Resources

One resource management technique is **resource leveling**. It aims at smoothing the stock of resources on hand, reducing both excess inventories and shortages. The required data are the demands for various resources, forecast by time period into the future as far as is reasonable; the resources' configurations required in those demands; and the supply of the resources, again forecast by time period into the future as far as is reasonable. The goal is to achieve 100% utilization. However, that is very unlikely, when weighted by important

metrics and subject to constraints; for example, meeting a minimum quality level, but otherwise minimizing cost.

Resource Levelling

Resource leveling is used to examine unbalanced use of resources (usually people or equipment) over time and for resolving over-allocations or conflicts.

When performing project planning activities, the manager will attempt to schedule certain tasks simultaneously. When more resources such as machines or people are needed than are available, or perhaps a specific person is needed in two tasks, the tasks will have to be rescheduled sequentially to manage the constraint. Resource leveling during project planning is the process of resolving these conflicts. It can also be used to balance the workload of primary resources over the course of the project, usually at the expense of one of the traditional triple constraints (time, cost, scope).

When using specially designed project software, levelling typically means resolving conflicts or over-allocations in the project plan by allowing the software to calculate delays and update tasks automatically. Project management software leveling requires delaying tasks until resources are available. In more complex environments, resources could be allocated across multiple, concurrent projects thus requiring the process of resource levelling to be performed at company level.

In either definition, levelling could result in a later project finish date if the tasks affected are in the critical path.

7.9. ESTIMATING COSTS

Ultimately cost, the number management typically cares about most in a for-profit organization, is determined by price. For many projects, it's impossible to know the exact cost of an endeavor until it is completed. Stakeholders can agree on an intended value of a project at the beginning, and that value has an expected cost associated with it. But you may not be able to pin down the cost more precisely until you've done some work on the project and learned more about it.

To estimate and manage costs effectively, you need to understand the different types of costs:

Direct Costs:	“An expense that can be traced directly to (or identified with) a specific cost center or cost object such as a department, process, or product” (Business Dictionary, n.d.). Examples of direct costs include labor, materials, and equipment. A direct cost changes proportionately as more work is accomplished. Examples: trainer fees, training materials (booklets)
Indirect Costs:	Expenses incurred to create a product/service that are not directly related to the project, yet are costs of the project. They could include materials and supplies in the daily operation of the organization, and contribute in some way to the project. Examples: office equipment, cell phones.
Direct Project Overhead Costs:	Costs that are directly tied to specific resources in the organization that are being used in the project. Examples include the cost of lighting, heating, and cleaning the space where the project team works. Overhead does not vary with project work, so it is often considered a fixed cost
General and Administrative (G&A) Overhead Costs:	The “indirect costs of running a business,” such as IT support, accounting, and marketing” (Tracy, n.d., para. 1).

Types of Contracts

The type of contract governing your project can affect your consideration of costs. The two main types of contracts are fixed-price and cost-plus.

- **Fixed price** is the more predictable of the two with respect to final cost, which can make such contracts appealing to the issuing party. But “this predictability may come with a price. The seller may realize the risk that he is taking by fixing a price and so will charge more than he would for a fluid price, or a price that he could negotiate with the seller on a regular basis to account for the greater risk the seller is taking” (Symes, 2018).

- **Cost-plus** refers to a contract where a company is reimbursed for its expenses, plus earns a profit (in a percentage.) It is sometimes called “mark up” or “profit margin.” The full cost of the product is covered and a rate of return is guaranteed by the increase.

Many contracts include both fixed-price and cost-plus features. For example, they might have a fixed price element for those parts of the contract that have low variability and are under the direct control of the project team (e.g., direct labor) but have variable cost elements for those aspects that have a high degree of uncertainty or are outside the direct control of the project team (e.g., fuel costs or market driven consumables).

It is important to come up with detailed estimates for all the project costs. Once this is compiled, you add up the cost estimates into a budget plan. It is now possible to track the project according to that budget while the work is ongoing.

Tools for Estimating Cost

Often, when you come into a project, there is already an expectation of how much it will cost or how much time it will take. When you make an estimate early in the project without knowing much about it, that estimate is called a rough order-of-magnitude estimate (or a ballpark estimate). This estimate will become more refined as time goes on and you learn more about the project. Here are some tools and techniques for estimating cost:

- **Determination of Resource Cost Rates:** People who will be working on the project all work at a specific rate. Any materials you use to build the project (e.g., wood or wiring) will be charged at a rate too. Determining resource costs means figuring out what the rate for labor and materials will be.
- **Vendor Bid Analysis:** Sometimes you will need to work with an external contractor to get your project done. You might even have more than one contractor bid on the job. This tool is about evaluating those bids and choosing the one you will accept.
- **Reserve Analysis:** You need to set aside some money for cost overruns. If you know that your project has a risk of something expensive happening, it is better to have some cash available to deal with it. Reserve analysis means putting some cash away in case of overruns.
- **Cost of Quality:** You will need to figure the cost of all your quality-related activities into the overall budget. Since it's cheaper to find bugs earlier in the project than later, there are always quality costs associated with everything your project produces. Cost of quality is just a way of tracking the cost of those activities. It is the amount of money it takes to do the project right.

Once you apply all the tools in this process, you will arrive at an estimate for how much your project will cost. It's important to keep all of your supporting estimate information. That way, you know the assumptions made when you were coming up with the numbers. Now you are ready to build your budget plan.

Estimating Costs to Compare and Select Projects

During the conceptual phase when project selection occurs, economic factors are an important consideration in choosing between competing projects. To compare the simple paybacks or internal rates of return between projects, an estimate of the cost of each project is made. The estimates must be accurate enough so that the comparisons are meaningful, but the amount of time and resources used to make the estimates should be appropriate to the size and complexity of the project.

The methods used to estimate the cost of the project during the selection phase are generally faster and consume fewer resources than those used to create detailed estimates in later phases. They rely more on the expert judgment of experienced managers who can make accurate estimates with less detailed information. Estimates in the earliest stages of project selection are usually based on information from previous projects that can be adjusted—scaled—to match the size and complexity of the current project or developed using standardized formulas.

Analogous Estimate

An estimate that is based on other project estimates is an **analogous estimate**. If a similar project cost a certain amount, then it is reasonable to assume that the current project will cost about the same. Few projects are exactly the same size and complexity, so the estimate must be adjusted upward or downward to account for the differences. The selection of projects that are similar and the amount of adjustment needed is up to the judgment of the person who makes the estimate. Normally, this judgment is based on many years of experience estimating projects, including incorrect estimates that were learning experiences for the expert.

Less-experienced managers who are required to make analogous estimates can look through the documentation that is available from previous projects. If projects were evaluated using the Darnall-Preston Complexity Index (DPCI), the manager can quickly identify projects that have profiles similar to the project under consideration, even if those projects were managed by other people.

The DPCI assesses project attributes, enabling better-informed decisions in creating the project profile. This index assesses the complexity level of key components of a project and produces a unique project profile. The profile indicates the project complexity level, which provides a benchmark for comparing projects and information about the characteristics of a project that can then be addressed in the project execution plan. It achieves this objective by grouping 11 attributes into four broad categories: internal, external, technological complexity, and environmental.

Comparing the original estimates with the final project costs on several previous projects with the same DPCI ratings gives a less-experienced manager the perspective that it would take many years to acquire by trial and error. It also provides references the manager can use to justify the estimate.

Example: Analogous Estimate for John's Move

John sold his apartment and purchased another one. It is now time to plan for the move. John asked a friend for advice about the cost of his move. His friend replied, "I moved from an apartment a little smaller than yours last year and the distance was about the same. I did it with a 14-foot truck. It cost about \$575 for the truck rental, pads, hand truck, rope, boxes, and gas." Because of the similarity of the projects, John's initial estimate of the cost of the move was less than \$700, so he decided that the cost would be affordable and the project could go forward.

Parametric Estimate

If the project consists of activities that are common to many other projects, average costs are available per unit. For example, if you ask a construction company how much it would cost to build a standard office building, the estimator will ask for the size of the building in square feet and the city in which the building will be built. From these two factors—size and location—the company's estimator can predict the cost of the building. Factors like size and location are parameters—measurable factors that can be used in an equation to calculate a result. The estimator knows the average cost per square foot of a typical office building and adjustments for local labor costs. Other parameters such as quality of finishes are used to further refine the estimate. Estimates that are calculated by multiplying measured parameters by cost-per-unit values are parametric estimates.

Activity-Based Estimates

An activity can have costs from multiple vendors in addition to internal costs for labor and materials. Detailed estimates from all sources can be reorganized so those costs associated with a particular activity can be grouped by adding the activity code to the detailed estimate (Table 7-3). The detailed cost estimates can be sorted and then subtotaled by activity to determine the cost for each activity.

Table 7-3: John's Move example – Detailed Costs Associated with Activities

Category	Description	Activity	Quantity	Unit Price	Cost
Packing Materials	Small Boxes	2.1	10	\$1.70	\$17.00
Packing Materials	Medium Boxes	2.1	15	\$2.35	\$35.25
Packing Materials	Large Boxes	2.1	7	\$3.00	\$21.00
Packing Materials	Extra Large Boxes	2.1	7	\$3.75	\$26.25
Packing Materials	Short Hanger Boxes	2.1	3	\$7.95	\$23.85
Packing Materials	Box Tape	2.1	2	\$3.85	\$7.70
Packing Materials	Markers	2.1	2	\$1.50	\$3.00
Packing Materials	Mattress Bags	2.1	2	\$2.95	\$5.90
Packing Materials	Lift Straps	2.1	1	\$24.95	\$24.95
Packing Materials	Bubble Wrap	2.1	1	\$19.95	\$19.95
Packing Materials	Furniture Pads	2.1	4	\$7.95	\$31.80
Packing Materials	Rental	2.1		0	\$400.00
Packing Materials	Gas at 10mpg	2.1	200	\$2.25	\$45.00

7.10. UNDERSTANDING BUDGETS

A budget is part of the overall plan in a project. A **budget** is a decision made on the amount of money that will be spent on a project and how it will be spent.

A **Project Budget** is a combination of all the activities milestones and tasks in the project plan; and the costs that the project must accomplish. Simply stated, it is the money the team needs to complete the project. It is important to the project to:

1. **Secure the funding:** it tells the stakeholders exactly how much is needed to complete the project
2. **Financial viability in a direct way to the company:** increase the operating margin and improve overall project success
3. **Cost control can be maintained:** the project can be measured through actual costs versus the approved budget. This shows how the budget is progressing (ahead, behind, on budget.)



[Budget Ahead](#) by 401(k) 2012 [CC-BY-SA](#)

It helps the Project Manager keep the spending of the money in check. It must be realistic, flexible (where possible), clearly communicated and well planned for all stakeholders to agree. A budget is generally approved by a person of authority in the organization.

Budgeting is an exercise in refining your focus. You start with a wide-angle estimate, in which the details are necessarily fuzzy, and bit by bit zero in on a sharper picture of project costs. You might be temperamentally inclined to try to nail down every figure in an early draft of a budget, but in fact you should only develop a budget when decisions are made what the budget costs are for the project. Your overall precision can and should advance as the project advances.

This is especially important in the earliest stages of the budgeting process, when you are working out rough estimates. Take care to estimate at the appropriate level of precision: Don't make the mistake of thinking you can estimate costs to the exact penny or dollar. \$378,333.27 is not a realistic or intelligent estimate. Ultimately, overly precise budgets represent a communication failure. By proposing a budget to the customer that contains overly precise figures, you risk giving a false sense of accuracy regarding your understanding of and knowledge about the project.

In the early stages of the budgeting process, when you are still working out estimates, it's helpful to include an uncertainty percentage. A typical approach is to include a +/- percentage, such as \$400,000 +/- 10%. The percentage may initially be large but should gradually decrease as the project progresses and the level of uncertainty declines.

For IT projects, which are notoriously difficult to estimate, consider going a step further and adding an uncertainty percentage to every line item. Some items, such as hardware, might be easy to estimate. But other items, such as labor to create new technology, can be extremely difficult to estimate. These line item variances can influence the total estimate variance by a significant amount in many projects.

But even when you have a final budget in hand, you need to prepare for uncertainty by including an official contingency fund, which is a percentage of the budget set aside for unforeseen costs. Contingency funds are described in more detail later in this chapter.

Successful project managers use the budgeting process as a way to create stakeholder buy-in regarding the use of available resources to achieve the intended outcome. By being as transparent as possible about costs and resource availability, you'll help build trust among stakeholders. By taking care to use the right kinds of contracts—for example, contracts that don't penalize stakeholders for escalating prices caused by a changing economy—you can create incentives that keep all stakeholders focused on delivering the project value, rather than merely trying to protect their own interests. The relationship between costs and contracts is discussed in more detail later in chapter 7.

Creating a Project Budget

This blog post by Tim Clark includes some helpful tips on creating a project budget:
<https://www.liquidplanner.com/blog/7-ways-create-budget-project/>.

7.11. CREATING A PROJECT BUDGET

A simple budget can be created in 5 steps:

1. **Break the project into small tasks and milestones:** Create a task list. This will help the team understand all the details of what needs to be accomplished.
2. **Estimate each task and milestone:** Research comparable costs and give each task/milestone an estimation. This is a good time to identify all the resources (people, materials, equipment) work performed, and work out the costs.
3. **Add the estimates all together:** Calculate the total costs by either adding them up. If you use an excel sheet, you can sum to get the total.
4. **Add in any contingencies, taxes, other costs:** This can include overhead costs, reserve funds, governmental taxes.
5. **Seek approval:** Speak to the person of the authority, review the project budget in detail, and get approval with a signature.

You can use a checklist to ensure you have covered all the budget expenses before seeking approval:

1. Can I define the project and its end goal?
2. Are there any ground rules, constraints, and assumptions I should consider?
3. Do I have sources of data (Task List, WBS, Cost Estimates, Schedule) to rely on?
4. Is the estimating methodology in use acceptable?
5. Do I know who is going to work on the project?
6. Do I have a list of resources and their rates to complete the project?
7. Can I compare my estimate against the best practices industry standard?
8. Do I have contingency reserves to account for risk?
9. Who are the key project team members to help me in the estimating/budgeting process?



checklist

10. Am I on the same page with Project Stakeholders?
11. Can I compare the budget with original estimates and reconcile differences?

(Viter, 2021)

Watch the video: [How to Create a Project Budget](#) by Project Manager [3:05] below. Transcript available on YouTube.



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7.12. CONTINGENCY FUNDS



“Contingency Fund” by [Nick Youngson](#) is licensed under [CC BY-SA 3.0](#)

In addition to creating the project plan, you need to create a **contingency plan**, which is a plan for addressing key possible obstacles to project success. As discussed in Ch. 6 – Risk Management, a contingency plan defines alternate paths for the project in case various risks are realized.

A contingency plan typically includes a **contingency fund**, which is an amount of resources set aside to cover unanticipated costs. Contingency plans and funds are necessary because even the most seasoned project planner sometimes succumbs to excessive optimism, assuming everything will go well and that all resources will be available when needed. Also, no matter how thoroughly you plan a project, you will inevitably miss at least a few small issues.

Examples of issues that might necessitate the use of a contingency fund:

- Inadequate initial estimates
- Small items not covered in the planning
- Errors in initial estimates
- Small deviations due to inevitable delays

Note that a contingency fund is not designed to manage major deviations or scope changes.

A simple and effective form of contingency planning is setting aside a contingency fund consisting of a fixed percentage of all resources (time, money, people) in addition to the amounts spelled out in the final budget. Ten percent is a typical amount, but that can vary depending on the size and type of project, as well as the type of industry.

One of the chief difficulties of contingency planning is getting people to agree on exactly what is and is not covered by a contingency fund, and how it applies in specific circumstances. A considerable amount of research has been done on this topic, but there is still no clear consensus. For that reason, before launching a major project, you would be wise to investigate the ins and outs of contingency planning at your organization in particular, and in your industry in general.

Contingency planning is closely related to risk management, which is discussed in Chapter 6. When you are working on small projects of limited complexity, you can probably assume that a fixed percentage contingency plan will cover most risks. However, for highly complex, technically challenging projects, it's important to distinguish between generic budget planning contingencies (using a fixed percentage) and the more sophisticated modelling of risk for uncertainty.

If money is not available from other sources, then cost overruns typically result in a change in the project's scope or a reduction in overall quality. To prevent this, organizations build contingency funds into their budgets. Technically, a contingency fund is a financial reserve that is allocated for identified risks that are accepted and for which contingent or mitigating responses are developed. The exact amount of a contingency is typical 10% to 15% of the total budget.

Contingency funds are often available to pay for an agreed-upon scope change. However, some project managers make a practice of treating a contingency fund as a "Get Out of Jail Free" card that they can use to escape any cost limitations. Some, as a practical matter, will artificially inflate a contingency fund to ensure that they have plenty of resources to draw to manage any unforeseen future risks. But that is never a good idea because if you wind up with a large contingency fund that you ultimately don't spend, you have essentially held that money hostage (i.e., lost opportunity costs) from the rest of the enterprise. That can be as damaging to your organization's mission as a cost overrun that prevents you from finishing a project.

As explained, contingency funds are a form of risk management. They are a necessary tool for dealing with uncertainty. Unfortunately, as necessary as they are, it's not always possible to build them into your approved budget. For example, if you are competitively bidding on a contract that will be awarded on the lowest cost, then including a contingency fund in your estimate will almost certainly guarantee that your company won't win the contract. It is simply not practical to include a contingency fund in a lump sum contract.

In the living order approach to this problem, the owner maintains a shared contingency fund instead and makes it available, upon justification, for all project stakeholders. This approach helps ensure that project participants will work collaboratively with the project sponsor to solve any problems they might notice, confident that there is money available to address problems that threaten project value or to leverage opportunities that will provide greater project value.

For example, in a lecture on Lean and integrated project delivery, David Thomack, a long-time veteran of

the construction industry, explained how the Boldt Company and other stakeholders involved in a \$2 billion healthcare project protected millions of dollars in contingency funding, which was then ultimately shared among all stakeholders (Thomack, 2018). Such shared contingency funds are typically spelled out in the project contract and are an effective tool to manage risk and uncertainty. Although some organizations only manage out-of-pocket project costs, the best practice is to manage total cost, including costs associated with staff (engineering, purchasing, testing, etc.) working on the project.

7.13.MANAGING BUDGET

Budgets are an outcome of developing estimates. Once a budget is approved, the Project Manager needs to manage the budget. The Project Manager is responsible for monitoring the financial performance of the project and making financial decisions. Sometimes the Project Manager has full authority over spending; while other times, expenditures need to be approved by another authority in the organization.

Projects seldom go according to plan in every detail. It is necessary for the project manager to be able to identify when costs are varying from the budget and manage those variations.

Evaluating the Budget During the Project

A project manager must regularly compare the amount of money spent with the budgeted amount and report this information to managers and stakeholders. It is necessary to establish an understanding of how this progress will be measured and reported.

The Project Manager evaluates regularly whether the project is ahead, behind or on track with spending. The budget would include estimates and then “actual expenditures” within a certain period of time. This could be a month, quarterly or yearly. The Project Manager would be responsible for reporting financial information to accounting departments, and other stakeholders.

If the budget is overspent, the Project Manager would need to take corrective action. It is important that the Project Manager be transparent in reporting good news, as well, as bad news. The Project Manager may seek ideas from accounting personnel, and the project team on how to get the project back on track. Constructive feedback is valuable to reviewing problem areas, and adjusting to ensure success.

Example: Reporting Budget Progress on John's Move

In the John's move example, he estimated that the move would cost about \$1,500 and take about 16 days. Eight days into the project, John has spent \$300. John tells his friends that the project is going well because he is halfway through the project but has only spent a fifth of his budget. John's friend Carlita points out that his report is not sufficient because he did not compare the amount spent to the budgeted amount for the activities that should be done by the eighth day.

As John's friend pointed out, a budget report must compare the amount spent with the amount that is expected to be spent by that point in the project. Basic measures such as percentage of activities completed, percentage of measurement units completed, and percentage of budget spent are adequate for less complex projects, but more sophisticated techniques are used for projects with higher complexity.

7.14. KNOWLEDGE CHECK

Question 1



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7.15. KEY TERMS

Activity: An element of work performed during the course of a project. An activity normally has an expected duration, an expected cost, and expected resource requirements.[7.2](#)The process of further breakdown of the work package elements of the work breakdown structures (WBS).[7.4](#)

Alternative Analysis: This means considering several different options for how you assign resources. This includes varying the number of resources as well as the kind of resources you use. [7.8](#)

Analogous Estimate: An estimate that is based on other project estimates. [7.9](#)

Analogous Estimating: Uses information from a previous project to estimate the cost of completing a similar project in the future. This provides a quick estimate but should be used with caution. Analogous estimating only works when comparing projects that are similar in scope and will be completed in similar conditions.[7.6](#)

Budget: This is a decision made on the amount of money that will be spent on a project and how it will be spent.[7.10](#)

Budget Estimate: Budget estimates are used in project planning and can be within a range from -10 to +25 percent from the actual or final cost.[7.6](#)

Bottom-Up Estimating: This means breaking down complex activities into pieces and working out the resource assignments for each piece. It is a process of estimating individual activity resource needs or costs and then adding these up together to come up with a total estimate.[7.8](#)

Bottom-Up, or Micro, Estimation: Techniques are used when the project is approved or is very likely to be approved. Bottom-up estimation techniques generate estimates for individual work packages or sub-deliverables, which are then summarized to reflect total costs.[7.6](#)

Contingency Fund: This is a number of resources set aside to cover unanticipated costs.[7.12](#)

Contingency Plan: Which is a plan for addressing key possible obstacles to project success. As discussed in Ch. 6: Risk Management, a contingency plan defines alternate paths for the project in case various risks are realized.[7.12](#)

Cost: An expenditure, usually of money, for the purchase of goods or services [7.2](#)

Cost Control Can be Maintained: The project can be measured through actual costs versus the approved budget. This shows how the budget is progressing (ahead, behind, on budget).[7.10](#)

Cost-Plus: Refers to a contract where a company is reimbursed for its expenses, plus earns a profit (in a percentage.) It is sometimes called “mark up” or “profit margin.” The full cost of the product is covered and a rate of return is guaranteed by the increase.[7.9](#)

Cost of Quality: You will need to figure the cost of all your quality-related activities into the overall budget. Since it's cheaper to find bugs earlier in the project than later, there are always quality costs associated with

everything your project produces. Cost of quality is just a way of tracking the cost of those activities. It is the amount of money it takes to do the project right.[7.9](#)

Definitive Estimate: Definitive estimates are generated as the project progresses and the variability of the estimate is reduced (see Figure 5-4). Definitive estimates are within a range from -5 to +10 percent from the actual or final cost.[7.6](#)

Deliverables and Sub-Deliverables: These are things such as physical objects, software code, or events. In a WBS, deliverables and sub-deliverables are represented by nouns (see Figure 5-2)[7.5](#)

Determination of Resource Cost Rates: People who will be working on the project all work at a specific rate. Any materials you use to build the project (e.g., wood or wiring) will be charged at a rate too. Determining resource costs means figuring out what the rate for labour and materials will be.[7.9](#)

Direct Costs: “An expense that can be traced directly to (or identified with) a specific cost center or cost objects such as a department, process, or product” (Business Dictionary, n.d.).[7.9](#)

Direct Project Overhead Costs: Costs that are directly tied to specific resources in the organization that is being used in the project. Examples include the cost of lighting, heating, and cleaning the space where the project team works.[7.9](#)

Duration: The amount of time to complete a specific task given other commitments, work, vacations, etc. Usually expressed as workdays or workweeks.[7.2](#)

Equipment: Equipment needs to be purchased, leased, or rented for the project. It needs to be available when needed.[7.3](#)

Expert Judgment: This means bringing in experts who have done this sort of work before and getting their opinions on what resources are needed.[7.8](#)

Financial Viability in a Direct Way to The Company: Increase the operating margin and improve overall project success [7.10](#)

Fixed Price: This is the more predictable of the two with respect to the final cost, which can make such contracts appealing to the issuing party.[7.9](#)

Gantt Chart: A type of bar chart, developed by Henry Gantt, that illustrates a project schedule. Gantt charts are easy to read and are commonly used to display scheduled activities. These charts display the start and finish dates of the terminal elements and summary elements of a project. [7.7](#)

General and Administrative (G&A) Overhead Costs: The “indirect costs of running a business,” such as IT support, accounting, and marketing” (Tracy, n.d., para. 1).[7.9](#)

Indirect Costs: Expenses incurred to create a product/service that is not directly related to the project, yet are costs of the project.[7.9](#)

Learning Curves: Also known as improvement curves or experience curves are important when labour is one of our main resources.[7.6](#)

Materials: The materials required for the project need to be planned for in advance, ordered/brought in as needed in the project. As well, delivery of products and timing of delivery need to be considered. [7.3](#)

Milestone: A significant event in the project; usually completion of a major deliverable. An important

distinction is that a milestone is a zero-duration activity; e.g., “acceptance of software by a client” is a milestone, preceded by many contributing activities.[7.2](#)

Network Diagram: A way to visualize the interrelationships of project activities. Network diagrams provide a graphical view of the tasks and how they relate to one another.[7.7](#)

Parametric Estimates (Ratio Method): Uses historical information or industry benchmarks as the basis for making an estimate. Parametric estimates are made by multiplying the size of a project by an established cost per unit.[7.6](#)

People: Providing enough qualified people on a project is the most important resource. Human Resources would be active in supplying or supporting the hiring of qualified people for the project. People are hired based on the skills they bring to the project. [7.3](#)

Project Budget: A combination of all the activities milestones and tasks in the project plan; and the costs that the project must accomplish.[7.10](#)

Project Management Software: Such as Microsoft Project will often have features designed to help project managers estimate resource needs and constraints and find the best combination of assignments for the project.[7.8](#)

Published Estimating Data: Something that project managers in a lot of industries use to help them figure out how many resources they need. They rely on articles, books, journals, and periodicals that collect, analyze, and publish data from other people’s projects.[7.8](#)

Resource: Any personnel, material, or equipment required for the performance of an activity [7.2](#)

Reserve Analysis: You need to set aside some money for cost overruns. If you know that your project has a risk of something expensive happening, it is better to have some cash available to deal with it. Reserve analysis means putting some cash away in case of overruns.[7.9](#)

Resource-Constrained: There is an assumption that all the resources will be available when and where they are needed. If the resources are not available or not adequate, the project could be delayed. [7.3](#)

Resource Estimating: This is to assign resources to each activity in the activity list. There are five tools and techniques for estimating activity resources.[7.8](#)

Resource Management: The efficient and effective deployment of an organization’s resources when they are needed. Such resources may include financial resources, inventory, human skills, production resources, or information technology (IT).[7.8](#)

Rough Order of Magnitude (ROM): ROM estimates are made at the initiation of the project and can be +/- 50 percent from the actual or final cost.[7.6](#)

Secure The Funding: It tells the stakeholders exactly how much is needed to complete project [7.10](#)

Single Point Estimation: Estimate obtained from just one estimator. This can work well with experienced estimators and work packages that are straight forward.[7.6](#)

Slack: Calculated time span during which an event has to occur within the logical and imposed constraints of the network, without affecting the total project duration. Or put more simply, slack, which is also called

float, is the amount of time that a task can be delayed without causing a delay to subsequent tasks or the project's overall completion date. [7.2](#)

Three-Points Estimate: Instead of asking an estimator for just one estimate, a three-points estimate asks the estimator to provide three-time estimates for each activity. [7.6](#)

Time-Constrained Resources: This would mean there is an imposed time frame for the project (the time cannot be changed.) [7.3](#)

Vendor Bid Analysis: Sometimes you will need to work with an external contractor to get your project done. You might even have more than one contractor bid on the job. This tool is about evaluating those bids and choosing the one you will accept. [7.9](#)

Work Breakdown Structure (WBS): Hierarchical outline of all the deliverables involved in completing a project. The WBS is part of a project scope statement. The creation of a WBS is one of the first steps in organizing and scheduling the work for a project. [7.5](#)

Work Packages: These are action-oriented and will be represented by phrases containing verbs (see Figure 5-2). [7.5](#)

CHAPTER 8 – ROLE OF COMMUNICATION



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8.1. LEARNING OUTCOMES

Learning Outcomes

By the end of this chapter, you should be able to:

1. Identify types of communications.
2. Recognize the importance of the level of detail in communication for project success.
3. Discuss the special challenges of virtual teams.
4. Discuss the role of communication in building trust, and describe behaviors that help build trust.
5. Prepare a communication plan matrix

8.2. ROLE OF COMMUNICATION IN PM



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Communication Management

Communications management is about keeping everybody in the loop. The communications planning process defines the types of information you will deliver, who will receive it, the format for communicating it, and the timing of its release and distribution. A great deal of a project manager's job is spent on communication, so it's important to make sure everybody gets the right message at the right time.

The first step in defining your communication plan is figuring out what kind of communication your stakeholders need from the project so they can make good decisions. This is called the **communications requirements analysis**. Your project will produce a lot of information. You do not want to overwhelm your stakeholders with all of it. Your job is to figure out what they feel is valuable. Furthermore, communicating valuable information doesn't mean you always paint a rosy picture.

Communications to stakeholders may consist of either good news or bad news. The point is that you don't want to bury stakeholders in too much information but you do want to give them enough so that they're informed and can make appropriate decisions.

Communication Methods

Communications technology has a major impact on how you keep people in the loop. Methods of communicating can take many forms, such as written reports, conversations, emails, formal status reports, meetings, online databases, online schedules, and project websites. You should consider several factors before deciding what methods you'll choose to transfer information. The timing of the information exchange or need for updates is the first factor. Do you need to procure new technology or systems, or are there systems already in place that will work? The technologies available to you should figure into your plan of how you will keep everyone notified of project status and issues. Staff experience with the technology is another factor. Are the project team members and stakeholders experienced at using this technology, or will you need to train them?

Finally, consider the duration of the project and the project environment. Will the technology you're choosing work throughout the life of the project or will it have to be upgraded or updated at some point? And how does the project team function? Are they located together or spread out across several campuses or locations? The answers to these questions should be documented in the communication plan.

All projects require a sound communication plan, but not all projects will have the same types of communication or the same methods for distributing the information. The communication plan documents the types of information needs the stakeholders to have, when the information should be distributed, and how the information will be delivered.

Types of Information Communicated

The types of information you will communicate typically include project status, project scope statements and updates, project baseline information, risks, action items, performance measures, project acceptance, and so on. It's important that the information needs of the stakeholders be determined as early in the planning phase of the project management life cycle as possible so that as you and your team develop project planning documents, you already know who should receive copies of them and how they should be delivered.

HR in Focus: Human Resources and Communication

For Human Resources Specialists communication is a two-way process to disseminate information, plans, problems, and solutions. When communication is flowing freely and clearly, the project

team has a clear understanding of the project goals, outcomes, and tasks. Human Resources may be involved as part of the team and facilitate good communication styles, protocols and skill development through communication training.

Some considerations that Human Resources may discuss with team members are planning ahead what needs to be said (write it down), deliver the message about the facts (not feelings), send the message and be specific, send messages in a timely manner, be direct, and above all, learn to listen to others.

Human Resources may offer workshops to the Project Manager and team to develop relationships at the beginning of the project that might include:

- Social cues and body language
- Active listening
- Conflict Resolution
- Personality Assessments and how it relates to communication
- Challenges of effective communication
- Etiquette in the workplace
- How to avoid roadblocks to effective communication
- Avoid jargon and prejudices and bias

Human Resources can play a critical role in a project's team by improving innovation, trust between members, improving the performance of the team, and building a culture of teamwork.

8.3. TYPES OF COMMUNICATION

Team Communication

Completing a complex project successfully requires good communication among team members. If those team members work in the same building, they can arrange regular meetings, simply stop by each other's office space to get a quick answer, or even discuss a project informally at other office functions. Many projects are performed by teams that interact primarily through electronic communication and are, therefore, called virtual teams. To avoid miscommunication that can harm trust and to include team members in a project culture, the project team needs a plan for communicating reliably and in a timely manner. This planning begins with understanding two major categories of communication.

Synchronous Communications

When all parties are taking part in the communication exchange at the same time, the communication is synchronous. A telephone or Zoom conference call is an example of synchronous communication.

The following are examples of synchronous communications:

- **Live meeting:** Gathering of team members at the same location.
- **Conference call:** A telephone call in which several people participate.
- **Audio conference:** Like a conference call, but conducted online using software like Zoom or Microsoft Teams.
- **Computer-assisted conference:** Audio conference with a connection between computers that can display a document or spreadsheet that can be edited by both parties.
- **Video conference:** Similar to an audio conference but with live video of the participants. Some laptop computers have built-in cameras to facilitate video conferencing.
- **IM (instant messaging):** Exchange of text or voice messages using pop-up windows on the participants' computer screens.
- **Texting:** Exchange of text messages between mobile phones, pagers, or personal digital assistants (PDAs)—devices that hold a calendar, a contact list, a task list, and other

support programs.

Modern communication technologies make it possible to assemble project teams from anywhere in the world. Most people work during daylight hours, which can make synchronous meetings difficult if the participants are in different time zones. However, it can be an advantage in some circumstances; for example, if something must be done by the start of business tomorrow, team members in Asia can work on the problem during their normal work hours while team members in North America get some sleep.

Asynchronous Communications

Getting a team together at the same time can be a challenge—especially if they are spread out across time zones. Many types of communication do not require that the parties are present at the same time. This type of communication is asynchronous.

There following are several methods of asynchronous communications:

- **Mail and Package Delivery**
- **Fax**
- **Email**
- **Project Blog:** A blog is an online journal that can be private, shared by invitation, or made available to the world. Some project managers keep a journal in which they summarize the day's challenges and triumphs and the decisions they made. They return to this journal at a later date to review their decision-making process after the results of those decisions are known to see if they can learn from their mistakes. Many decisions in project management are made with incomplete knowledge; therefore, and reflecting on previous decisions to develop this decision-making skill is important to growth as a project manager.

8.4. WRITTEN COMMUNICATION: REQUESTS FOR PROPOSALS AND PROPOSALS

Requests for Proposals and Proposals

As a project manager, you might be responsible for writing **Requests for Proposals (RFPs)** for your organization's projects, or proposals in response to RFPs publicized by other organizations. You might also be responsible for drafting parts of a contract such as language describing the scope of work. At the very least, you will need to be conversant enough with contract terminology so that you can ensure that a contract proposed by your organization's legal department adequately translates the project requirements into legal obligations. Whatever form they take, to be useful, RFPs, proposals, and contracts must be specific enough to define expectations for the project, yet flexible enough to allow for the inevitable learning that occurs as the project unfolds in the uncertain, living order of the modern world. All three types of documents are forms of communication that express a shared understanding of project success, with the level of detail increasing from the RFP stage to the contract.

How To Write a Request for Proposal:

1. Explain the project (scope) and the needs and opportunities of the project
2. Write an introduction to the RFP
3. Define the Mission, Vision, Values of the company, supply a brief history of the organization
4. Define the requirements of the project
5. Discuss how the potential contractor is to respond to the request
6. Explain how the organization will go about selecting the winning candidate
7. Outline the timelines of the project
8. Edit and revise as necessary

Throughout the proposal and contract stages, it's essential to be clear about your *specific expectations* regarding:

- Deliverables
- Schedule
- Expected level of expertise
- Price
- Expected quality
- Capacity
- Expected length of relationship (short- or long-term)

Take care to spell out:

- Performance requirements
- Basis for payment
- Process for approving and pricing changes to the project plan
- Requirements for monitoring and reporting on the project's health

How to Write a Proposal

At minimum, a proposal should include:

Table of Contents:	Organized well for easy flow and easy access.
Executive Summary:	A brief summary of the project Who? What? When? Where? Why? Costs?
Business Objective:	The result that the proposal wishes to achieve, and/or the organization through the project
Business Need/ Opportunity:	What opportunities are there for the company? Why are you completing this project?
Product Description:	Describe the product/service that will be produced or completed
Scope:	At the proposal stage, assume you can only define about 80% of the scope. As you proceed through the project, you'll learn more about it and be better able to define the last 20%.
Schedule:	You don't necessarily need to commit to a specific number of days at the proposal stage, but you should convey a general understanding of the overall commitment, and whether the schedule is mission-critical. In many projects, the schedule can turn out to be somewhat arbitrary, or at least allow for more variability than you might be led to believe at first. You may use a Gantt Chart as a visual display of the scheduling; or a Network Diagram. The Gantt Chart would be a result of developing a Work Breakdown Structure first. Milestones would be included as well to show end dates of events.
Risk Management Plan:	To build confidence that if a risk event happens, you are well prepared to deal with it through a contingency plan.
Deliverables:	Make it clear that you have some sense of what you are committing to, but only provide as many details as necessary.
Cost/Resources/ Budget:	Again, make clear that you understand the general picture, and provide only as many specifics as are helpful at the proposal stage. This builds confidence in the approval process.
Terms:	Every proposal needs a set of payment terms, so it's clear when payments are due. Unless you include "net 30" or "net 60" to a proposal, you could find yourself in a situation in which customers refuse to part with their cash until the project is complete.
Clarifications and Exclusions:	No proposal is perfect, so every proposal needs something that speaks to the specific uncertainty associated with that particular proposal. Take care to write this part of a proposal in a customer-friendly way and avoid predatory clarifications and exclusions. For example, you might include something like this: "We've done our best to write a complete proposal, but we have incomplete knowledge of the project at this point. We anticipate working together to clarify the following issues"—and then conclude with a list of issues.
Roles and Responsibilities:	Define and explain the roles of team members and Project Manager. Outline briefly each role with a short job description.
Authorization:	Ensure there is a place for the Project Sponsor to sign with name and title for approval.

If you are on the receiving end of a proposal, remember a potential supplier probably has far more experience than you do in its particular line of business. Keep the lines of communication open and engage with suppliers to use their expertise to help refine deliverables and other project details.

Assessing New Communication Technologies

New technologies for communicating electronically appear with increasing frequency. Using a new technology that is unfamiliar to the team increases the technical complexity, which can cause delays and increase costs. To decide if a new technology should be included in a communications plan, seek answers to the following questions:

- Does the new communication technology provide a competitive advantage for the project by reducing cost, saving time, or preventing mistakes?
- Does the project team have the expertise to learn the new technology quickly?
- Does the company offer support such as a help desk and equipment service for new communication technology?
- What is the cost of training and implementation in terms of time as well as money?

Communication Plan Template

So how do you create a communication plan?

1. Identify your stakeholders (to whom).
2. Identify stakeholder expectations (why).
3. Identify communication necessary to satisfy stakeholder expectations and keep them informed (what).
4. Identify time-frame and/or frequency of communication messages (when).
5. Identify how the message will be communicated (the stakeholder's preferred method) (how).
6. Identify who will communicate each message (who).
7. Document items – templates, formats, or documents the project must use for communicating.

Table: Simple Communication Matrix

Title	Scope Statement	Work Breakdown Structure	Budget	Quality	Change Management Procedures	Change Approvals
Project Chartering Committee	Y					
Client Representative	Y	Y	Y	Y	Y	Y
Project Manager	Y	Y	Y		Y	Y
Technology Team		Y		Y		
Finance Team			Y		Y	
Schedule Coordination Team		Y		Y	Y	

Adapted from “[Simple Communication Matrix](#)” in [Project Management for Instructional Designers](#) by Wiley, et al. is licensed under [CC BY-NC-SA 4.0](#)

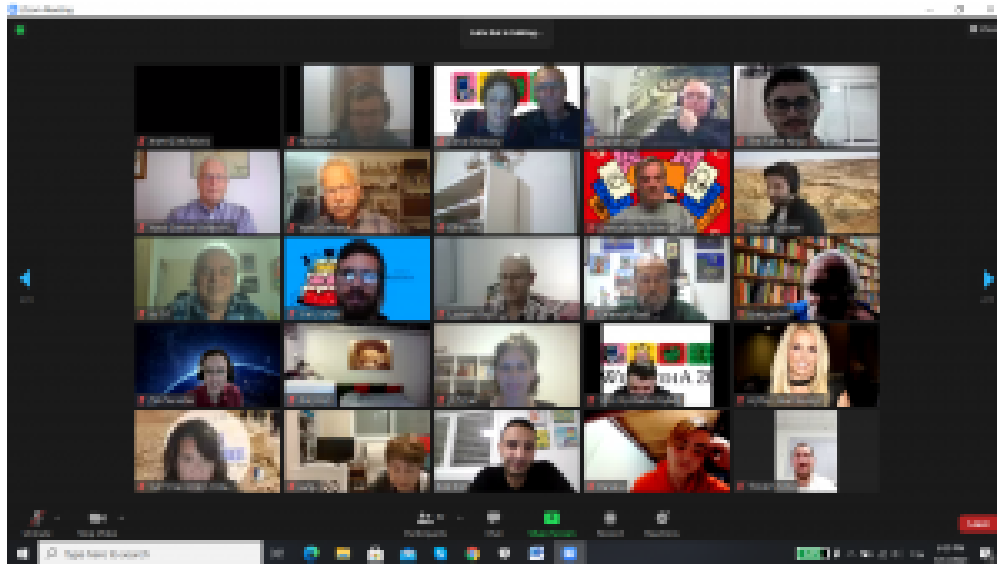
HR in Focus: Human Resources and RFP and Proposals

Human Resources Specialists may collaborate with Project Managers and other stakeholders prior to writing RFP and Proposals. If a background in writing, HR Specialist can share ideas and steps in writing. They would first work with or discuss the content of the RFP or Proposal to understand the content, vision, need and outcomes. HR may offer a workshop to facilitate the writing of the RFP or Proposal for the stakeholders to hone their understanding of the project, and be able to clearly communicate the worthiness of the RFP or Proposal. HR may polish the proposal by incorporating the content required, adding mission, vision and values of the organization, adding cover pages and logo, use colour, and check for grammar and spelling. Format and readability are important to a professional RFP or proposal.

As well, HR may offer courses to Project Managers on writing a RFP or Proposals. They could teach Project Managers how to align their outcomes with the client’s motivation for the project, provide

tools and resources on writing, brainstorm for ideas about projects, and write a RFP or Proposal that is competitive.

8.5. COMMUNICATION WITH VIRTUAL TEAMS



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Managing Virtual Teams

Managing a team of people who work side-by-side in the same office is difficult enough. But what about managing a virtual team—that is, a team whose members are dispersed at multiple geographical locations? In the worldwide marketplace, such teams are essential. Deborah L. Duarte and Nancy Tennant Snyder explain the trend in their helpful workbook, *Mastering Virtual Teams*:

Understanding how to work in or lead a virtual team is now a fundamental requirement for people in many organizations.... The fact is that leading a virtual team is not like leading a traditional team. People who lead and work on virtual teams need to have special skills, including an understanding of human dynamics and performance without the benefit of normal social cues, knowledge of how to manage across functional areas and national cultures, skill in managing their careers and others without the benefit of face-to-face interactions, and the ability to use leverage and electronic communication technology as their primary means of communicating and collaborating (Duarte & Tennant Snyder, 2006, p. 4).

When properly managed, collaboration over large distances can generate serious advantages. For one thing, the diversity of team members as per Siebdrat et al. (2009) “exposes members to heterogeneous sources of

work experience, feedback, and networking opportunities.” At the same time, the team’s diversity enhances the “overall problem-solving capacity of the group by bringing more vantage points to bear on a particular project” (Siebdrat et al., 2009, p. 65). Often, engaging with stakeholders via email allows for more intimacy and understanding than face-to-face conversations, which, depending on the personality types involved, can sometimes be awkward or ineffective.

However, research consistently underscores the difficulties in getting a dispersed team to work effectively. In a widely cited study of 70 virtual teams, Vijay Govindarajan and Anil K. Gupta (2001) found that “only 18% considered their performance ‘highly successful’ and the remaining 82% fell short of their intended goals. In fact, fully one-third of the teams ... rated their performance as largely unsuccessful”. Furthermore, research has consistently shown that virtual team members are “overwhelmingly unsatisfied” with the technology available for virtual communication and do not view it “as an adequate substitute for face-to-face communication” (Purvanova, 2014).

Given these challenges, what’s a virtual team manager to do? It helps to be realistic about the barriers to collaboration that arise when your team is scattered around the office park or around the globe.

The Challenges of Virtual Distance

Physical distance—the actual space between team members—can impose all sorts of difficulties. Some studies have shown that teams who are located in the same space, where members can build personal, collaborative relationships with one another, are usually more effective than teams that are dispersed across multiple geographical locations.

Potential issues include difficulties in communication and coordination, reduced trust, and an increased inability to establish a common ground.... Distance also brings with it other issues, such as team members having to negotiate multiple time zones and requiring them to reorganize their work days to accommodate others’ schedules. In such situations, frustration and confusion can ensue, especially if coworkers are regularly unavailable for discussion or clarification of task-related issues (Siebdrat, et. al., 2009, p. 64).

Even dispersing teams on multiple floors of the same building can decrease the team’s overall effectiveness, in part because team members “underestimate the barriers to collaboration deriving from, for instance, having to climb a flight of stairs to meet a teammate face-to-face.” Team members end up behaving as if they were scattered across the globe. As one team leader at a software company noted, teams spread out within the same building tend to “use electronic communication technologies such as e-mail, telephone, and voicemail just as much as globally dispersed teams do” (Siebdrat, et. al., 2009, p. 64).

Human Resources may help the Project Manager and team work through the challenges by providing supports and resources to the team.

Efficiently Managing a Virtual Team

Communication options like video conferences, text messages, and email can do wonders to bridge the gap. But you do need to make sure your communication technology is working seamlessly.

Patterns of communication are important for Project Managers and the team. Example: communicating facts is fine in an email. If there are issues with a team member, better to have a virtual meeting. Conference calling, intranets services within organizations, private chat rooms through intranet, telephone, videoconferencing, and social media platforms provide effective means to communicate between and among Project Managers and teams, and the organization.

Conference calls:	when the team is working with mutual documents, presentations, charts, etc.
Videoconferencing:	when the team need to “see” each other. It helps to develop relationships.
Email:	when the Project Manager, team or stakeholders need to communicate facts about the project, or one-to-one communication.

How to Enrich Execution of a Project

Develop a code of conduct: Have the team and Project Manager agree to what information needs share, when, and to whom it needs to be addressed. Establish authority rules as to who can make day-to-day decisions about their work and related to what activities, and what needs approval before moving forward.

Develop norms: Project Managers and team members cannot always see each other. They need to delve into the communication and ask many questions, and deepen the conversations. It is important to be clear, concise and countercheck that everyone understands instructions and other communication.

Get team to show their work: Do not rely on what is being said that is done. Ask for proof. Send a sample, send a picture, or have a video call.

Be flexible: Time zones differences and cultural differences can cause issues related to “showing up” for meetings. Be flexible with timing. Flex the time of meetings to meet other team member’s time zones.

Stay in touch: Ensure the Project Manager, team members and stakeholders are in regular communication through standard scheduling that is inclusive.

HR in Focus

Human Resources Specialists can provide training for the Project Manager and team in how to effectively self-manage, set up an efficient communication plan, and offer ongoing support by participating in meetings. If there are difficulties with communication, Human Resources may wish to be a “sounding board”, provide guidance and support to individual members, or the team as a whole. If struggles persists, Human Resources may offer external counselling services to help individuals.

The Special Role of Trust on a Virtual Team

So, what’s the secret to making virtual teams work for you? We’ve already discussed the importance of building trust on any team. But on virtual teams, building trust is a special concern. Erin Meyer describes the situation like this: “Trust takes on a whole new meaning in virtual teams. When you meet your workmates by the water cooler or photocopier every day, you know instinctively who you can and cannot trust. In a geographically distributed team, trust is measured almost exclusively in terms of reliability” (Meyer, 2010).

All sorts of problems can erode a sense of reliability on a virtual team, but most of them come down to a failure to communicate. Sometimes the problem is an actual, technical inability to communicate (for example, because of unreliable cell phone service at a remote factory); sometimes the problem is related to scheduling (for example, a manager in Japan being forced to hold phone meetings at midnight with colleagues in North America); and sometimes the problem is simply a failure to understand a message once it is received. Whatever the cause, communication failures have a way of eroding trust among team members as they begin to see each other as unreliable.

And as illustrated in Figure 8-1, communicating clearly will lead your team members to perceive you as a reliable person, which will then encourage them to trust you.

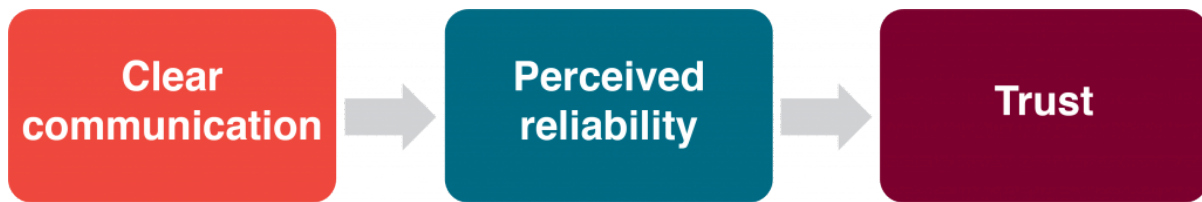


Figure 8-1: The benefits of clear communication

Leigh Thompson, a professor at Northwestern University's Kellogg School of Management, offers a number of practical suggestions for improving virtual team work, including the following:

- Verify that your communication technology works reliably, and that team members know how to use it.
- Take a few minutes before each virtual meeting to share some personal news, so that team members can get to know each other.
- Use video conferencing whenever possible, so everyone can see each other. The video image can go a long way toward humanizing your counterparts in distant locales. If video conferencing is not an option, try at least to keep a picture of the person you're talking to visible, perhaps on your computer. Studies have shown that even a thumbnail image can vastly improve your ability to reach an agreement with a remote team member (Thompson, 2015).

8.6. KNOWLEDGE CHECK

Question 1



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Question 2



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Question 3



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Question 4



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Question 5



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Question 6



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Question 9



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8.7. KEY TERMS

Business Need/Opportunity: What opportunities are there for the company? Why are you completing this project?[8.4](#)

Business Objective: The result that the proposal wishes to achieve, and/or the organization through the project.[8.4](#)

Communications Management: This is about keeping everybody in the loop. The communications planning process concerns defining the types of information you will deliver, who will receive it, the format for communicating it, and the timing of its release and distribution. [8.2](#)

Communications Requirements Analysis: The first step in defining your communication plan is figuring out what kind of communication your stakeholders need from the project so they can make good decisions. [8.2](#)

Executive Summary: A brief summary of the project Who? What? When? Where? Why? Costs? [8.4](#)

Product Description: Describe the product/service that will be produced or complete.[8.4](#)

Scope: At the proposal stage, assume you can only define about 80% of the scope. As you proceed through the project, you'll learn more about it and be better able to define the last 20%.[8.4](#)

CHAPTER 9 - PROJECT CLOSURE AND EVALUATION



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9.1. LEARNING OUTCOMES

Learning Outcomes

By the end of this chapter, you should be able to:

1. Discuss the importance of getting the fundamentals right and keeping them right throughout a project.
2. Explain the value of project reviews and audits.
3. Describe issues related to correcting course mid-project and decisions about terminating a project.
4. Discuss the project closure phase.
5. Recognize the importance of concluding a project with evaluations and lesson learned.

9.2. REASONS FOR CLOSING PROJECTS

Terminating Projects

If an audit reveals the painful truth that it's time to terminate a project, then it's important to realize that this is not necessarily a bad thing:

Canceling a project may seem like a failure, but for a project to be successful, it must provide value to all parties. The best value is to minimize the project's overall negative impact on all parties in terms of both time and money. If the only option is to proceed with a scaled-down project, one that delivers late, or one that costs significantly more, the result may be worse than canceling the project. It may be more prudent to invest the time and resources on an alternate endeavour or to reconstitute the project in the future using a different team and revised parameters (Williams, 2011).

Common Reasons for project Termination:

1. Low profitability and or lowered market potential
2. Competing projects become a higher priority
3. Severe delays to schedule
4. Change of market needs
5. Technical issues that can not be resolved
6. Low profitability and or lowered market potential
7. Increase in damaging cost
8. High uncertainty of technical success or commercial gain

When considering terminating a project, it's helpful to ask the following questions:

1. Has the project been made obsolete or less valuable by technical advances? For instance, this might be the case if you're developing a new cell phone and a competitor releases new technology that makes your product undesirable.
2. Given progress to date, updated costs to complete, and the expected value of the project's

output, is continuation still cost-effective? Calculations about a project's cost-effectiveness can change over time. What's true at the beginning of the project may not be true a few months later. This is often the case with IT projects, where final costs are often higher than expected.

3. Is it time to integrate the project into regular operations? For example, an IT project that involves rolling out a new network system will typically be integrated into regular operations once network users have transitioned to the new system.
4. Are there better alternative uses for the funds, time, and personnel devoted to the project? As you learned in project selection, the key to successful portfolio management is using scarce resources wisely. This involves making hard choices about the relative benefits of individual projects. This might be an especially important concern in the case of a merger, when an organization has to evaluate competing projects and determine which best serve the organization's larger goals.
5. Has a strategic inflection point, caused by a change in the market or regulatory requirements, altered the need for the project's output?
6. Does anything else about the project suggest the existence of a strategic inflection point—and therefore a need to reconsider the project's fundamental objectives?

Human Resources Specialists, through monitoring the project with the Project Team, could assist with the decision to terminate a project. Not in a direct manner, however, they can facilitate the process with the team and/or the stakeholders. The HR Specialists would want to know the history of the project. They would help the group reach a decision, plan a different outcome and ensure a process where everyone agrees and commits to a certain outcome. They would act as guides in this situation, rather than a participant by facilitating a workshop and getting answers to the above questions.

HR in Focus: Supporting Team through Termination of Projects

Determining whether to terminate a project can be a very difficult decision for people close to a project to make. Everyone's perspective on a project has a huge effect on your judgment of its overall success. That is why a review conducted by an objective, external auditor can be so illuminating. Human Resources Specialists need to be sensitive to the feelings of the group/team. The characteristics of the HR Specialist would be to listen, use verbal and nonverbal communication, show empathy, focus on the issues not feelings, and provide a structure and process that leads to a shared conclusion about the project.

The HR Specialists needs to control the flow of the meeting as it may be emotional, ask questions for clarity from all participating members, and may provide direct interventions. They need to remain neutral, use an encouraging tone, and de-escalate members who may be angry or just sad about the possibility of termination.

If the project is terminated as agreed to by stakeholders, at this point, HR Specialists may offer individual facilitation to resolve one-to-one issues about the termination. Perhaps, the individual wishes to set personal goals for themselves post project, simply debrief about the project, the process and their personal experience.

The HR Specialist wants to help create a culture of respect and teamwork going forward that aligns with strategic goals of the organization. One way to achieve this is to empower the employees to move forward with new goals.

9.3. CONTRACT CLOSING AND AUDITS

Project Closure

Just as a project comes to a close, contracts also come to a close. **Contract closure** is concerned with completing and settling the terms of the contracts set for the project. It supports the project completion process because the contract closure process determines if the work described in the contracts was completed accurately and satisfactorily. Keep in mind that not all projects are performed under contract, so not all projects require the contract closure process. Obviously, this process applies only to those phases, deliverables, or portions of the project that were performed under contract.

Contract closure updates the project records, detailing the final results of the work on the project. Contracts may have specific terms or conditions for completion. You should be aware of these terms or conditions so that project completion isn't held up because you missed an important detail. If you are administering the contract yourself, be sure to ask your procurement department if there are any special conditions that you should be aware of so that your project team doesn't inadvertently delay contract project closure.

One of the **purposes of the contract closure** process is to provide formal notice to the seller, usually in written form, that the deliverables are acceptable and satisfactory or have been rejected. If the product or service does not meet the expectations, the vendor will need to correct the problems before you issue a formal acceptance notice. Before the contract is closed, any minor items that need to be repaired or completed are placed on a punch list, which is a list of all the items found by the client or team or manager that still remain to be done.

Project Audits

A **project audit** is a formal review of the project that assesses the standards of the project management and ensures the standards were maintained throughout the project. They are carried out by the Project Manager and the team, Human Resources if they have been involved since the beginning, the Financial Department, and other invested stakeholders. Hopefully, quality audits have been performed during the course of the project, and the vendor was given the opportunity to make corrections earlier in the process than the closing phase. It's not a good idea to wait until the very end of the project and then spring all the problems and issues on the vendor at once. It's much more efficient to discuss problems with your vendor as the project progresses because it provides the opportunity for correction when the problems occur.

The project team will then work on all of the items on the **punch list** (list of issues/items that require immediate attention), and building a small schedule to complete the remaining work. If the number of items

on the punch list is too large or the amount of work is significant, the project team continues to work on the project. Once the punch list becomes smaller, the project manager begins closing down the project, maintaining only enough staff and equipment to support the team that is working on the punch list.

If the product or service does meet the project's expectations and is acceptable, formal written notice to the seller is required, indicating that the contract is complete. This is the formal acceptance and closure of the contract. It's your responsibility as the project manager to document the formal acceptance of the contract. Many times, the provisions for formalizing acceptance and closing the contract are spelled out in the contract itself.

If you have a procurement department handling the contract administration, they will expect you to inform them when the contract is complete and will in turn follow the formal procedures to let the seller know the contract is complete. However, you will still note the contract completion in your copy of the project records.

9.4. RELEASING THE RESOURCES



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Releasing the Project Team

Releasing project team members is an official process. However, it should be noted that at the conclusion of the project, the team is released from the project, and they will go back to their functional managers or get assigned to a new project. Human Resources could bring the team together to review how each members skills and experience impacted the project.

They may provide an opportunity for a celebration for the project members if the project was a success. This provides closure as a reward for a job well done. This could take many forms such as a party, brief vacations, or bonuses awarded. HR Specialists would facilitate a debriefing of the project and invited feedback about what worked, what did not work, and what would they do next time to improve. This helps planning for new projects.

The Project Manager will want to keep their managers, Human Resources, or other project managers, informed as they get closer to project completion, so that they have time to adequately plan for the return of their employees. Let them know a few months ahead of time what the schedule looks like and how soon

they can plan on using their employees on new projects or return to their prior positions. This gives Human Resources and the other managers the ability to start planning activities and scheduling activity dates.

Human Resources Role for Re-Entry after Project Closure

Human Resources would work with the team prior to the closure of the project to ensure they return to their workplace roles within the company. This step is a final step in the original plan established for each team member prior to the project initiation. Each member may have a different outcome for return to work.

1. Meet with the Project Manager and team together to develop timelines for return to regular job, dependent on the closure date of the project.
2. Meet with each team member individually to discuss return to work plan.
3. Develop a return to work plan for each team member/Project Manager including the job they are return to, return date, salary/benefit discussion, set new goals with employee (some team members may return to their regular jobs, some team members may be assigned to new projects, some team members may be offered promotions).
4. Depending on the team and project success, team members may wish to have a reference for future. This can be completed by the Project Manager, with input from Human Resources if they have been directly involved with the project and the team.
5. Human Resources would inform the Functional Manager of the return date of the team members, advice them to prepare for the return, and ask the Functional Manager to set up a meeting with the team members to update them on any changes that have taken place in the department during the employees absence.
6. Documentation of the return to work plan is archived.
7. If the team member was hired externally, the contract is finalized. Human Resources would ensure the person is paid for all work completed. The individual is terminated.

These step address any anxiety team members may have about returning the workplace. This is an opportunity to build trust and provide reassurance. Communication is key, and with the right steps in place, employees will have a smooth transition back to their regular jobs.

Final Payments

The final payment is usually more than a simple percentage of the work that remains to be completed. Completing the project might involve fixing the most difficult problems that are disproportionately expensive to solve, so the final payment should be large enough to motivate the vendor to give the project a high priority so that the project can be completed on time.

If the supplier has met all the contractual obligations, including fixing problems and making repairs as noted on a punch list, the project team signs off on the contract and submits it to the accounting department for final payment. The supplier is notified that the last payment is final and completes the contractual agreement with the project.

Releasing Materials and Equipment

The Project Manager is responsible to ensure all materials not used and all equipment that has been borrowed, leased or rented is returned to the owner.

9.5. REPORTING

The Final Report provides a final summary of the project performance. The main goal is to improve on future projects. The report captures any changes and lessons learned from the finished project.

It could include the following:

- Summary of the project and deliverables
- Data on performance related to schedule, cost, and quality
- Summary of the final product, service, or project and how it supports the organization's business goals
- Risks encountered and how they were mitigated
- Recommendations
- Lessons learned
- Appendix

Exactly where your work falls in the project's life cycle depends on your perspective as to what constitutes "the project" in the first place. The designers and constructors of a building might consider the acceptance of the building by the owner as project closure. However, the results of the project—that is, the building—lives on. Another contractor might be hired later to modify the building or one of its systems, thus starting a new project limited to that work.

If project closure is done thoughtfully and systematically, it can help ensure a smooth transition to the next stage of the project's life cycle, or to subsequent related projects. A well-done project closure can also generate useful lessons learned that can have far-reaching ramifications for future projects and business sustainability. The closeout information at the end of a project should always form the basis of initial planning for any future, similar projects.

Although most project managers spend time and resources on planning for project start-up, they tend to neglect the proper planning required for project closure. The Lessons Learned from prior projects is important to be reviewed at the beginning of the next project, not when something goes wrong. This is a reason for involvement of Human Resources to deliberately ensure data is collected with specific information to be included in the Final Report, including the Lessons Learned. Ideally, project closure includes documentation of results, transferring responsibility, reassignment of personnel and other resources, closing out work orders,

preparing for financial payments, and evaluating customer satisfaction. Of course, less complicated projects will require a less complicated close-out procedure. As with project audits, the smooth unfolding of the project closure phase depends to a great degree on the manager's ability to handle personnel issues thoughtfully and sensitively. In large, on-going projects, the team may conduct phase closures at the end of significant phases in addition to a culminating project closure.

Project closure is traditionally considered the final phase of a project. It includes tasks such as

1. Transferring deliverables to the customer
2. Cancelling supplier contracts
3. Reassigning staff, equipment, and other resources
4. Finalizing project documentation by adding an analysis summarizing the project's ups and downs
5. Making the documentation accessible to other people in your organization as a reference for future projects
6. Holding a close-out meeting/lessons learned
7. Celebrating the completed project

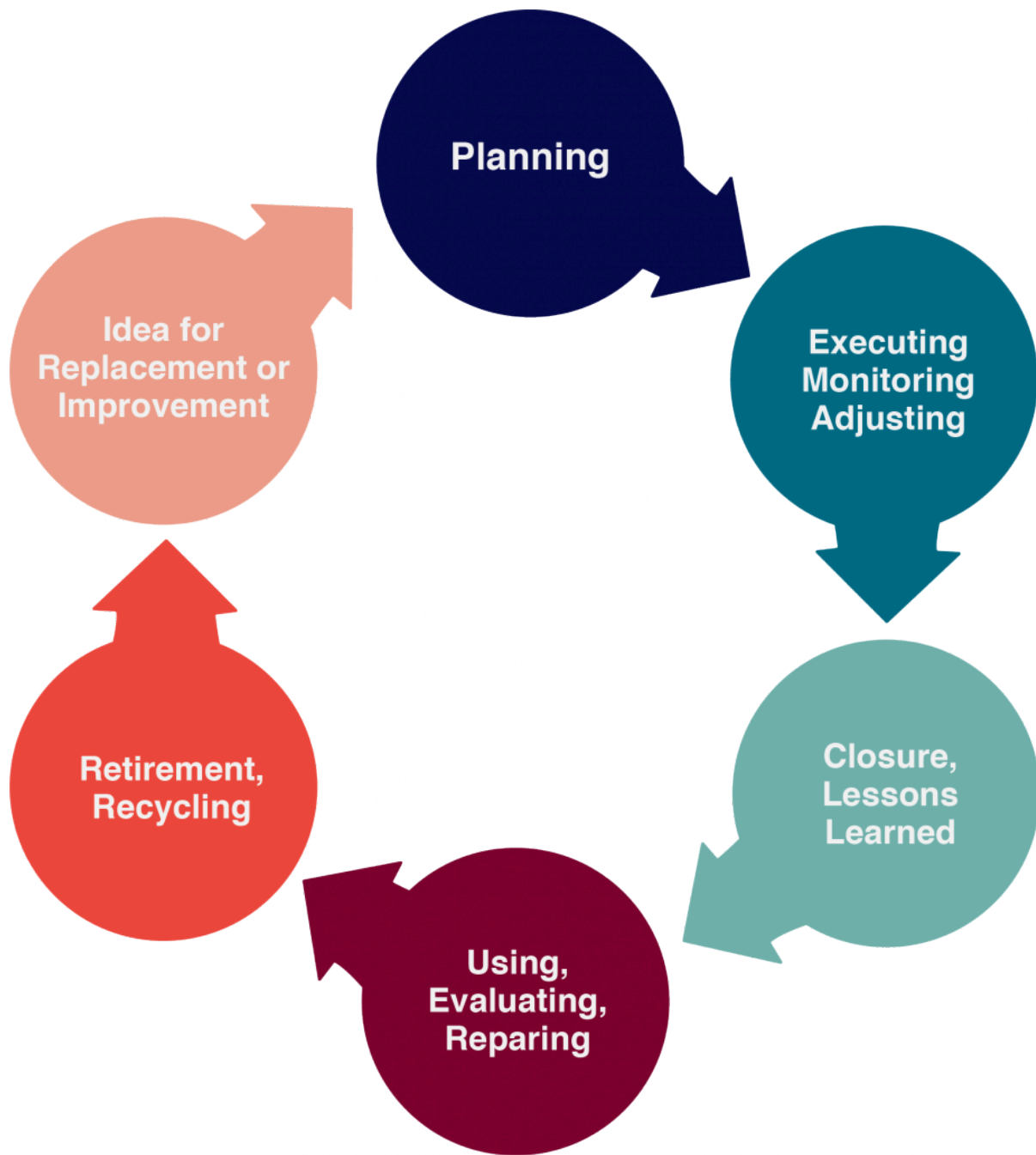


Figure 9-1: Seen from a living order perspective, closure is an extension of the learning and adjusting process that goes on throughout a project.

HR in Focus: HR and Lessons Learned

The Close-Out Workshop or Lessons Learned Workshop is an opportunity to end a project the way you started it—by getting the team together. Human Resources would be involved to assist in designing the meeting and facilitating the meeting. It is important that this meeting be not seen as recommendations, rather a time to ponder the project by looking back from the beginning to the end. During this important event, the team should review what went well, what didn't go well, and identify areas for improvement. All of this should be summarized in the final close-out report. This is a time of reflection for the team and other stakeholders. The team/stakeholders want to capture the successes over the entire life cycle of the project (selection, planning, execution, closure). The Human Resources Specialist would guide the team/stakeholders through a process that described what happened in the project, how each event impacted the project, and what might have happened differently to improve the project. This is essential information for future projects to clone successes and avoid mistakes.

A final close-out meeting with the customer is also essential. This allows the organization to formally complete the project and lay the groundwork for potential future work. The customer may be included in the stakeholder/team workshop, or another workshop is held with the Project Manager, major stakeholders and the customer. Attendance at these workshops would be determined prior to the workshops by the Human Resources Specialist and the Project Manager.

As new projects are beginning, it is important that the Lessons Learned be reviewed prior to the project start date. While the new project is being planned, the Lessons Learned can easily be review, and integrated into the new project goals.

9.6. RETROSPECTIVES

Retrospectives are fairly new to the closure of projects. They are a structured workshop/meeting which gives the team time to reflect on the entire project. Through the workshop they learn about their successes and failures that will help other project teams to improve on success. Many people, including Human Resources, believed that too much time and energy was spent on closure that only included deliverables and financial outcomes. Many argued a separate report would be beneficial to include lessons learned. The process mirrors the traditional audit process.

For retrospectives, Human Resources would be a neutral party who acts as a guide and facilitator. The Human Resources Specialist would lead the team through an analysis of all the projects tasks that went well, what went wrong, and how would we improve the next time. It also includes an action plan for the future with goals and recommendations.

Retrospectives Process

The retrospectives includes questionnaires. It may include the operational impacts, however, as important would be inclusion of the impact the project had on the culture of the organization. The Human Resources Specialist would send out the questionnaires. These are answered anonymously and confidentially by each person. The answers would be analyzed. Where there were issues that were identified in the questionnaire, the Human Resources Specialist would note them. Some examples of issues might be poor organization, inner team conflict, poor leadership by the project manager, time management issues, discrimination or harassment. Then, the HR Specialist would meet with the team individually, project manager and any other stakeholders one-to-one. The Human Resources Specialist is then able to delve deeper into the issues and the impact they had on the project. They would write a report on the findings.

Once this is completed, the information gathered, the Human Resources Specialist would facilitate a Retrospective Workshop. First, they would review the report and findings. They may ask the participants to add any important information that was deleted or missed. Next, the HR Specialist would ask the participants to prioritize the information (issues). They are often not called issues as it denotes negativity. Sometimes they are called lessons. Example: Lesson #1: Time management could have been improved (and include an example.) This promotes a more positive spin on the issue.

Next, each issue/lesson is designated to an owner of the issue/lesson. The participant can volunteer to own the issue/lesson because it interests them. The person must also have some familiarity with the issue/lesson. This designate serves as a contact person for anyone who wishes information about the issue/lesson. They may

provide a more detailed report, speak to other members of ongoing or future projects. The goal is to provide information that will benefit other existing or future projects that will improve the organization as a whole.

HR in Focus Retrospectives Process

These lessons learned would be archived and accessible for other project members. The Human Resources Specialist may build a repository that allows all employees to quickly find and sort through lessons learned. This way it is valued and utilized by employees of the organization. Examples of questions designed by HR:

The major questions:

1. What did we do well?
2. What did we do that was not done so well?
3. What did we learn?
4. What would we do differently the next time?
5. What still bewilders us?

Other Worthy Questions:

1. What assisted you in being a success as a team member?
2. What were your expectations from (team members) and (project manager)?
3. What processes/steps did you use that were useful?
4. What were the hindrances that held you back from doing good work?
5. If you could change something (a priority) what would it have been?
6. What caused you problems?
7. Was there anything that caused you stress?
8. What went well? What didn't?

Still Other Worthy Questions: (organizational)

1. Were you provided training at the beginning of the project? What training?
2. Did you feel supported by upper management at the beginning? during? the project?
3. Was Human Resources available to you at the beginning? during? the project?
4. Did Human Resources help you bring closure to the project?

5. Did Human Resources help you re-integrate back into the organization?
6. Were there enough staff on the project?
7. Did everyone have the right skills and experience to perform their jobs on the project?
8. Did your team have access to resources during the project? (people, materials, equipment, finances)
9. Did you feel the project was aligned with the vision, mission and values of the organization?

Not all questions need to be asked in every project. The Human Resources Specialist would pick the questions relevant to the project and the project team. Many of these questions could be used in a Retrospective Workshop.

Retrospectives can provide valuable information the project teams can use for future project work. They lead to improvements in the processes and outcomes. Future project teams can utilize best practices advancing the success of projects.

9.7. PERFORMANCE EVALUATION

Performance Evaluation

The purpose for the **performance evaluation** is to assess how the project manager and the project team performed during the project. It is a structured, in-depth process to gather information about the people involved, assess contributions to the project, and provide feedback to stakeholders on performance. The performance evaluation of a project team is similar to that of traditional performance evaluation for employees.

Steps in the Performance Evaluation Process

Step 1. Development of an evaluation form: The form needs to be fair and objective (standardized) that includes KSA (knowledge, skills, abilities), quality of work, work habits, work behaviours, quantity of work, .

Step 2. Identification of the performance measures: Standard performance measures that allows HR Specialists to evaluate performance objectively. Sometimes a job description allows as a measurement tool.

Step 3. Define the guidelines for feedback: This is the opportunity for a discussion about the strengths and weaknesses of the project member. As well, offering support for improvement is important. This is a time to acknowledge pride in the success and the contribution made by the team member. It is critical to the team member's esteem and confidence in moving forward in their traditional job or a new project. It is also a time for the team member to provide feedback on their performance. The Human Resources Specialist wants to ensure they encourage open dialogue, there is an exchange of information, and an opportunity to better understand each other's perspective of the work completed.

Step 4. Create reward and disciplinary steps: Often at closure of projects, there are bonuses for team members. This is the time to explain the bonus, and how and when it will be given. As well, Human Resources Specialists need to be prepared for handling team members who performed poorly. The discipline action would be discussed prior to the project beginning—a verbal warning, a written warning, if no improvement, termination. At the end of the project, if there were any disciplinary actions, they would be discussed with the team member, consequences that had been implemented, and any action that had been taken. Plans for improving performance would be reviewed too.

Step 5. Establish a schedule: It is a best practice to establish a performance schedule at the beginning of a project. Human Resources would establish the evaluation form, performance measurement, and guidelines for feedback prior to the team beginning the project. The performance evaluation would be explained to the team to allow them a reference point at the beginning to monitor their own performance. It is highly suggested that Human Resources schedule regular “check in” performance evaluations throughout the project. This

may dependent on the duration of the project. Short projects may only have a post performance evaluation. Longer projects may have 2-3 scheduled performance evaluations. The post evaluation then is a follow up that brings closure to the project.

The critical point is that the entire process needs to be a structured, formal, and fair approach that promotes growth and development, and acknowledges the contribution of the team members to the project.

9.8. PERFORMANCE APPRAISALS

Value of Performance Appraisals

Evaluation of the team including each member and the Project Manager post project is an important step in encouraging modifications in conduct of members, support the team member's career growth, and continue their benefit to the organization through continuous learning. Each member is measured, using specific criteria, that measures the goals of the projects against the criteria. Prior to the project, as indicated in 9.7, all the criteria, expectations, and standards are developed. The supports from the organization are put in place for success.

Performance Appraisals Can Fail

There is evidence to support that performance evaluation is not effective in many organizations. Mackenzie, Wehner and Correll's study (2019) in the Harvard Business Review reveals, "while we may strive to be as meritocratic as possible, our assessments are imperfect and all too often biased. As innocuous as the typical form [appraisal form] may seem, our research has found that it often allows for our implicit biases to creep in." The failures are attributed to ambiguous standards, bias of the raters, time consuming and wrong selection of the criteria. Sometimes, the performance appraisals are confusing as well as the process itself. Other reasons for failure are:

- The performance evaluation is left only to the Project Manager who lacks skills in evaluation,
- The evaluation may be carried out by the team member's direct supervisor who had nothing to do with the project,
- Projects are only measured on scope, costs, times and deliverables, and there is no focus on the performance of the team

HR in Focus: Human Resources & Performance Appraisals

Project success depends on the team performing at a quality level to satisfy the customer. It is Human Resources role in the organization to educate stakeholders on the importance of performance evaluation for all projects. As well, it is important that Human Resources be involved in all the steps of the Performance Evaluation, including the performance appraisal. Stakeholders need to understand the skills of the Human Resources Specialist, and be valued by the project stakeholders. Human Resources professional skills and involvement ensure all the criteria, standards and processes are in place prior to the project starting, during the project, and post project. They will guarantee the individual and team goals are aligned with the organizational goals, and that the implementation of the performance evaluation are met to satisfaction by all stakeholders.

There are key aspects of a project evaluation that need reviewed prior to the project. At this stage, Human Resources involvement is to meet with stakeholders and the team to find answers to specific questions.

Questions to Ask Prior to Project to Establish Expectations and Criteria:

1. Are the standards in place for measurement of performance?
2. Are the goals clear for the team members? (use SMART goals process: Specific, Measurable, Achievable, Realistic, Timely)
3. What are the challenges going into this project?
4. Does everyone understand their own roles and responsibilities? And, the standards they need to meet?
5. Does the team understand how to deal with stress management and conflict resolution?
6. Has this team worked together before? If so, what was the dynamic among the team members? If not, will they trust each other?
7. Do the team members understand what a high-performing team looks like? The characteristics? (high performing team: aligned with the purpose of the project, have clear roles, trusting, good communication skills, able to collaborate, encourage diverse thinking, manage conflict well, willing to learn, adaptable, flexible)

Answers to these questions helps the Human Resources Specialist build an evaluation plan, review process, and appraisals. As well, where there may be deficiencies, Human Resources can provide training and support to build a high-performing team (ie. Stress management training, trust building workshops, training in SMART goals, conflict resolution training)

Meeting this criteria, answering the above questions and developing the evaluation plan will support the teams and the success of the project. Progress of the team is measured through regular contact with Human Resources during the project. The final evaluation and appraisals are conducted post project.

Performance Appraisal Functions

Performance appraisals focus on the team member's strengths and weaknesses, and developing strategies for improvement. Also, the evaluation appraisal includes assessment of how well the team members performed on the project. Some projects attach performance appraisal to salary increases, promotions and bonuses. An accurate performance appraisal helps Human Resources determine a wage increase or decrease in wages, often referred to as **pay for performance**. Training and development can be identified during a post evaluation to further the team member's opportunities within the organization, or for future projects. The documentation from the appraisal supports future work assignments, any disciplinary action required, and promotions or terminations. They serve as recognition of work performed. This helps esteem and empower team members for future work.

Overall, performance reviews fulfill several purposes and help bring the team together and align with the organization. Human Resources wants to ensure a strong culture of working together for the good of the entire organization, and performance appraisals are one way to provide positive results of this strategic goal.

Individual Performance Reviews

The Human Resources Specialist and team member need to be prepared. It is the role of the HR Specialist to assist the team member with preparation. The Human Resources Specialist needs to gather all the information related to the employee while working on the project. As well, prepare any notes, set the agenda, schedule the time that is convenient for both parties, and set expectations for the review with the team member. The Human Resources Specialist may meet with the Project Manager prior to the individual appraisal. This may serve helpful in gathering information unknown to the HR Specialist. This meeting may also be a hindrance and set the tone for rater bias (positive or negative). The HR Specialist needs to consider the advantages and

the disadvantages of meeting with the Project Manager prior to the team member appraisal. Then, make an informed decision on how to proceed.

Human Resources Specialists are trained in asking the right questions. Some of these may include:

1. What accomplishments are you personally proud of while completing the project?
2. What obstacles stood in your way?
3. What impact did your contributions have on the team as a whole? On the project as a whole? On the organization?
4. How do you feel HR supported you throughout the project?
5. What development goals do you see for yourself going forward?
6. How can the organization support you with these goals? How can HR support you with these goals?

These types of questions are not judgmental. They do not make the team member feel uncomfortable. Rather, they are offered in a coaching manner to encourage the employee to answer. The team member feels they are having a conversation, contributing to the performance appraisal, and you are working together with them. Some Human Resources offer the specific questions ahead of the performance appraisal so the team member has time to contemplate the answers in advance. It may also make the team member feel more comfortable, and it speeds up the performance appraisal process.

However, it is important to write out the specific questions prior to the meeting. As well, they need to ensure they are being a good listener. The performance appraisal needs to end with an agreed upon next steps between the raters and the team member.

Along with providing the questions in advance to the team member, the Human Resources Specialist may ask the team member to complete a self-evaluation using a structured approach. This eliminates any surprises for the team member, allows for discussion if the HR Specialist and the team member have difference conclusions about the work performed, and the team member may feel it is more fair when they have input into the process.

During and at the end of the performance appraisal it is important that the HR Specialist offers praise as a motivator, tell the team member they are valued, and be supportive (show they care). A good technique for engaging the employee is to ask, “What can I do to help?” This shows the team member the organization wants to help them get what they want out of the next project, or the next role within the organization.

Team Performance Reviews

A team performance review is an extension of the individual performance review. In a team review, it is not always possible to separate an individual's contribution. However, a Human Resources Specialist may set up the review where individuals can offer their personal achievements and how it contributed to the success of the project as a whole. Team performance reviews assist in breaking down barriers between individual team members, and encourages a joint effort of the evaluation of work performed.

The Human Resources Specialist would set up a group workshop/meeting. Questions could be forwarded to all the team members prior to the meeting. These questions may be similar to the questions asked in an Individual Performance Review. Along with individual goals that were established prior to the project, the team may have established team goals. The HR Specialist would establish a direct correlation between the work individuals completed, and the outcome; as well, as the team goals. They must also be careful to ensure there is equal participation. Some team members tend to contribute more than others. Recognition of the team goals provides an equal playing field for those who may have contributed less. And, at the same time, the individual goals are recognized in the workshop for the extra effort.

Some typical team performance questions could include:

1. Where the deadlines met or exceeded?
2. Was the budget met? Increased? Reduced?
3. Was the customer satisfied with the product/service?
4. What did you enjoy most about working with your team?
5. Was there anything you did not enjoy working with your team?
6. Did the team communicate effectively? How? Or what were the issues?
7. How did you help each assist each other?
8. Were you able to ask your team for help when needed? What did you ask for?
9. How did you motivate each other?
10. Did you share ideas with each other? How were you valued and respected for your ideas?

Project Managers would be involved in the team performance review as a participant. This is sometimes difficult for team members as they may not “speak up” when the project manager is present. However, the HR Specialist needs to ensure to create a safe space for exchange of information. The important consideration by Human Resources is the design of the team performance review. It must be specific to the team goals, and the

individual goals. High performing team members need to be recognized, yet not at the expense of those who contributed less. All the moving parts need to work together to ensure all team members are recognized.

Project Manager Performance Review

Project Managers are often involved in performance reviews of the team members. When a Project Manager receives a traditional performance review other stakeholders may be involved. They may include a Regional Project Manager (someone who manages many projects at the senior level), executives of the organization who have a vested interest in the project, the customer, and Human Resources. The same best practices apply to a Project Manager's performance review. Human Resources would design the criteria and questions, set up the meeting, and invite all the participants. They usually would facilitate the meeting.

The differences between the team members' performance review and that of the Project Manager is leadership and management of the project. They are evaluated based on budgets, deadlines, process improvements, relationships and communication, risk management, and customer satisfaction. They could be asked all the same questions as the individual team members, plus questions related to leadership and management of the project.

A popular performance review process is multi-rater appraisal or **360-degree evaluation**. It includes several sources and combines the ratings. People see things from different perspectives. The customer sees the quality of the product. The finance department sees the project from a financial perspective and wants to ensure compliance, on-budget, and no overages. Human Resources views the project from a "people perspective." They want to ensure the team members were treated fairly and equitably, communication was efficient, and relationships were built with harmony. As the name suggests, 360-degree evaluation attempts to receive feedback from many angles. Others who may be included in the evaluation process are outside managers, peers, team members of the project.

Once Human Resources has designed the criteria and questions, the information is compiled into a document.

Human Resources want to ensure quality and acceptance by building in protections:

1. Ensure there is anonymity.
2. Make the appraisers accountable by following the rating scales appropriately.
3. Check for invalid responses. Some appraisers may discuss the evaluation with another appraiser, and give them a higher or lower rating (collusion).
4. Use weighted averages or combine all the evaluations.

5. Check for prejudices or preferences related to age, gender, ethnicity, or other group factors.

This approach is not without its faults. There are advantages and disadvantages.

Advantages:

1. It is a comprehensive model because the information is gathered from several sources.
2. There is less bias and prejudice because it does not come from one person's judgement.
3. The feedback from various perspectives helps improve self-development.

Disadvantages:

1. The model is complex (having to combine all the reviews).
2. The feedback can be intimidating because it comes from many sources (a feeling of being "ganged up" on by other employees).
3. Raters are not trained in the model.
4. Raters may give invalid ratings (lie, collude with others).

Human Resources needs to ensure everyone providing a rating understands the process and its importance to the Project Manager. All the raters need to remain objective when observing and providing feedback. Training will improve the process to ensure the responses accurately reflect the Project Manager's leadership and management skills. Once the raters are selected, trained and understand the process, Human Resources can move on to set up the performance review.

The document(s) is sent to the appraisers to be completed. No names are included on the documents. The information is then compiled and used as the tool for performance review. The performance review is conducted including all those with a vested interest. The information from the 360-degree evaluation is reviewed with the Project Manager. Other important information would be included from the Project Manager. This could include a self-evaluation where the Project Manager is asked to evaluate themselves on a pre-designed self-review document.

360-degree can be a valuable tool for performance reviews as long as the information is used fairly. Although there are many approaches to performance reviews, the important things to remember are to involve the person in the process from setting goals before the project begins, monitoring the team members success frequently throughout the project, and ask the team members for input on their perspective of the success of the project. This all leads to higher satisfaction, shows support and care for the team members, and establishes rewards for a project well done.

9.9. KNOWLEDGE CHECK

Question 1



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Question 11



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Question 13



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9.10. KEY TERMS

360-Degree Evaluation: Attempts to receive feedback from many angles. Others who may be included in the evaluation process are outside managers, peers, team members of the project.[2.8](#)

Contract Closure: Concerned with completing and settling the terms of the contracts let for the project. It supports the project completion process because the contract closure process determines if the work described in the contracts was completed accurately and satisfactorily [2.3](#)

Pay for Performance: An accurate performance appraisal helps Human Resources determine a wage increase or decrease in wages.[2.8](#)

Performance Evaluation: This is to assess the project manager, the project team performed during the project. [2.7](#)

Project Audit: A formal review of the project that assesses the standards of the project management and was maintained throughout the project.[2.3](#)

Punch List: List of issues/items that require immediate attention; and building a small schedule to complete the remaining work.[2.3](#)

Purposes of The Contract: The closure process is to provide formal notice to the seller, usually in written form, that the deliverables are acceptable and satisfactory or have been rejected.[2.3](#)

Retrospectives: Are fairly new to the closure of projects. They are a structured workshop/meeting which gives the team time to reflect on the entire project.[2.6](#)

The Close-Out Workshop or Lessons Learned Workshop: An opportunity to end a project the way you started it—by getting the team together.[2.5](#)

The Final Report: Provides a final summary of the project performance. The main goal is to improve on future projects. The report captures any changes and lessons learned from the finished project.[2.5](#)

CHAPTER 10 - INTERNATIONAL PROJECTS



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10.1. LEARNING OUTCOMES

Learning Outcomes

By the end of this chapter, you should be able to:

1. Apply the factors of the environment affecting project management at an international level through case studies.
2. Describe how organizations select international projects and teams.
3. Choose cross-cultural issues of international projects related to specific international projects.
4. Define cultural shock and how to manage it with international employees.
5. Explain how human resources helps employees get ready for international projects through training.

10.2. ENVIRONMENTAL FACTORS IN PROJECTS

Overview of International Projects

International projects are different from domestic projects because of the cultural, regulatory, social, geographical, reporting, and infrastructural diversity. Project Managers need to understand the best practices for international projects. There are critical issues to think about related to communication, legal and political factors. As well, most Project Managers managing international projects have special skills and competencies.

These project managers have a different set of expectations than domestic project managers. They need to leave their homes, leave their families and friends, learn and speak a foreign language, abide by a different culture and laws, and experience extensive travel.

Defining the Countries

- **Home Country and Home Country Nationals:** Country where the corporate headquarters is located. The project manager and team would leave the home country for an international project. Example: The corporation is in Canada. The project team leaves the Canadian company and country.
- **Host Country and Host Country Nationals:** Refers to a foreign country where the corporation invests. The project manager and team relocate to the host country (foreign country) to complete the project. Host country nationals are project employees who are native to the country, and work and live in their home country. Example: Project team go to India from Canada to work and live. A host country national would be a project team member who is native to India.
- **Third Country National:** Project manager and team who are not from the home country or the host country. However, work for the corporation. Example: Saudi Arabian manager working for a New Zealand subsidiary of a Chinese owned corporation.

HR in Focus: International Human Resources Management (IHRM) and Project Management

Human Resources works closely with international projects and the Project Managers. The complexities of international projects include more activities and responsibilities than domestic projects.

Expatriates are the employees who have been hired to work temporarily in a foreign country. They are also called international assignees. The Project Manager and the team members are considered expatriates, sometimes called “expats” for short.

Differences between Domestic and International Human Resources Involvement:

Domestic Human Resources	International Human Resources
HR Planning	HR Planning
Recruitment and Selection	Recruitment and Selection
Performance Management	Performance Management
Training and Development	Training and Development
Compensation	Compensation
Industrial/Employee Relations	Industrial/Employee Relations
	A broader perspective of the world
	More involvement in the employee's lives
	Risks for the employees
	Change in attitude about expatriates (home country workers) and local workers
	Taxes at an international level for compensation
	International relocation and orientation
	Foreign country human relations
	Language translation and training
	Administration for expatriates
	Arranging training (pre, during, post assignment)
	Help with immigration and travel

Human Resources Specialists work with the organization at the strategic level for international projects. It is important that everyone involved in an international project understand the environmental factors.

Environmental Factors Affecting International Projects

- **Legal and Political:** Expatriates need to work within the laws and regulations of the host country. The political stability of the country affects how a project would be carried out.
- **Economic:** The gross national product (GDP) of a country tells the organization the level of development of a country. Financial stability is important to project success. When there are risks for the project, a strong risk management plan needs to be in place.
- **Security:** International acts of terror are a reality today. Crime is another issue. Risk management plays an important role here as well when a project is being implemented in a foreign country. Sometimes project managers experience ethical issues related to security. Two most frequent ethical issues are bribery and corruption. Security precautions need to be in place to keep employees safe.
- **Geography:** The planning of the project in a different country needs to take into consideration the geography of the country. The organization needs to look at the weather (rain, freezing temperatures, very hot temperatures, jungles, deserts). Sleep issues can arise for employees with too much daylight, or not enough daylight. Extreme weather can play havoc with equipment as well.
- **Culture:** All project employees visiting another country must respect the values, customs, traditions, social standards, and beliefs of the people of the foreign country. If these are not observed by the team, there is a likelihood of failure. Language differences can become a problem. If a project manager and team do not speak the foreign language, it is difficult to communicate; and words get lost in translation. Sometimes, project managers will work with people from the foreign country. Language and cultural skills are necessary for success. Culture affects all human resources areas including recruitment and selection, training, and compensation.
- **Infrastructure:** This pertains to the foreign country's capacity to supply the services that are necessary for the project. Some of these could include telecommunication, power, technology, transportation systems, and education facilities.

HR in Focus: Human Resources and Environmental Factors

Given the challenges with international projects, it is important to ensure the employees are well prepared for the assignment. Human Resources would be involved at the strategic level along with stakeholders to review the environmental factors before a project was selected. Stakeholders are the people involved in the project and have a stake in the outcome of the project. They have authority and influence over the project. They include Presidents, executive teams, financial personnel, project manager, project team members, customer, resource managers, and human resources. They may provide training for the stakeholders in the environmental factors before the selection is made. When the project team is hired, again, the Human Resources Specialists need to convey (generally through training) the environmental factors that will affect the foreign assignment of the project.

10.3. SELECTION OF PROJECTS

Project Selection

Stakeholders need to weigh the environmental factors when considering the selection of a project. If the Project Manager and team are already hired, they would be involved in this process.

The environmental factors are the criteria for the project. Each criterion is weighted based on the risk factor. The scores are assigned values. The organization would decide of low, medium, high risk. Example: Total Risk Rating: 10 = low risk, 20 = medium risk, 30+ = high risk. Once the risk rating is calculated, the stakeholders decide to go forward with the project or terminate it.

Example: Risk Matrix For Selection of Foreign Project

Risk Matrix for Selection of Foreign Project (2 examples of projects are compared). Corporate office is in Canada.

	Political	Cultural Differences	Education	Technology	Risk Rating
Philippines	4	5	4	4	320
Iceland	2	1	1	1	2

Risk Rating Scale: 1-very low, 2-low, 3-adequate, 4-high, 5-extremely high.

The stakeholders would choose not to complete the project in the Philippines. They would be forward with the project in Iceland.

10.4. SELECTION OF EMPLOYEES (EXPATRIATES)

If Project Managers and the team are not selected with the skills and experience necessary for an international project, the costs are high. The project, itself, can experience problems, and the reputation of the organization can suffer. Human Resources develops special screening processes to ensure a successful project, and ensure the team are successful. The term **expatriates** is used for employees leaving their home country to work in a host country. They are sometimes called **expats** for short.

HR in Focus: Selection of Expatriates

HR looks at a group of characteristics that each team member needs to possess for a foreign country assignment. Sometimes, employees are selected that have prior experience with foreign country projects, prior overseas travel, are in good health (emotionally, mentally, physically), speak or understand the foreign country's language, or even have a connection through heritage. However, often, the best people for the project are highly skilled, competent, experienced employees with none of the above characteristics.

The Human Resources Specialists would first identify the criteria for the staffing of the project. Several factors are considered:

- **Technical:** Technical and managerial skills are critical.
- **Soft skills:** Skills that include psychological readiness, international experience, language of the foreign country, ability to provide training to others.
- **Competence:** Cross-cultural abilities that help the person adapt in new surroundings. In other words, can perform successfully in a different culture. Some of these may include empathy, diplomacy, language ability, good attitude, adaptable, flexible. They must also have emotional stability, and an open mind about different cultures.
- **Ability to adjust to foreign country:** Ability to adapt and transition to different cultures.

There are 4 phases: (sometimes called culture shock or culture adjustment). This is discussed later in the chapter.

It is important that Human Resources understand the 4 phases of Culture Shock; and support people through the stages. Understanding culture shock helps ensure they have an enriched experience while working on the international project.

Family Moving with Project Team

Sometimes, for longer term projects, the family moves with the expatriate. The family, especially the spouse or partner, carry a heavy weight with the move. They, too, will leave family and friends. If they work outside the home, they will need to leave their job and their colleagues. Children's education gets interrupted. The family is a significant factor when considering an expatriate assignment to a project in a different country.

It is important for Human Resources to work with the Project Manager and team, as well as the family. Human Resources supports the family unit by helping the spouse or partner find a new job, find housing comparable to the one they left, assist in finding appropriate schools for the children, and providing transportation. This is a time-consuming task for Human Resources as they not only work with the Project Manager and the team, but the entire family unit. However, it is a critical step in guaranteeing a successful project.

10.5. A LOOK AT CROSS-CULTURAL CONDITIONS AND HUMAN RESOURCES



Women pray during the Hindu festival of Karva Chauth inside a temple in the northern Indian city of Chandigarh by [Ajay Verma](#) CC-BY-NC-SA

It is important to take a closer look at cross-cultural conditions as it relates to projects and how it aligns with human resources. **Culture** affects all aspects of life within a specific population of people including beliefs, values, the norms of the society, and its people's customs. It even relates to how a society dresses, the manners used by its people, their rituals, religions, and the language spoken and written. A culture may be an entire country, a region within the country, ethnic groups, and religious groups. Culture is without borders.

Examples of Cultural Differences

Canadian culture advocates equality between men and women, peace and safety for its citizens, being polite and friendly, and the love of hockey. Canada is a widely diverse country with many ethnic groups. It is a country of dual nationality, French Canada and English Canada, which dominates political and societal issues. It is a constitutional monarchy which means the British Monarch is the head of state, although the Monarchy has limited powers. Maple syrup and pancakes are some of the Canadian's favourite foods (Commisceo, 2022).

Indian culture: where its people value religion, joint family structures (entire family through generations live together), marriage and arranged marriage, symbols such as fasting, and festivals for every season. Architecture is important as symbols of culture and religion. They have a relaxed approach to timekeeping and punctuality. People remove their shoes before entering a home. Indian food many not require utensils. Southern food tends to be spicier than food from the North. Indian clothing made with colourful silks are worn that has origins of Ancient India (Zimmermann, K.A. & Gordon, J. ,2022).

Swedish culture: is very egalitarian meaning all people are equal regardless of gender, race, religion, or age. They have one of the best rights for children in the world and offer dual parental leave from work for 18 months. They are humble and believe boasting is not acceptable. They are great listeners, they speak softly and calmly, do not show emotions publicly, are not excessive or “flashy”, and competition is not encouraged (Commisceo, 2022).

Italian culture enjoy patriotism. In other words, people remain a geographic expression. This means they identify with their own home region, rather than to the country. Being an old country, they have assimilated many other cultures into their own such as French, Austrian, Greeks, Arabs, Albanians, and Africans. Food is important and maintains ties among friends and family members. There are social classes, and big differences between the rich and poor. There are class boundaries in what people eat, what they wear, and the amount of leisure time spent. Prestige is important. Soccer is important to everyone. They tend to show outward emotion in public. They like to embrace and kiss when greeting people (Commisceo, 2022).

THINK!

If you were leaving your home country to work/live in a host country, what do you think would be the most challenging thing for you? Why? How would you overcome this?

National cultures provide a keystone for helping human resources to understand different values, habits,

customs, and etiquette. Project teams need to not only be aware of different cultural aspects, but they also need to adjust to them when working abroad.

While working on multicultural projects, project managers can have difficulties with ethics of certain cultures. Human resources can serve as a sounding board to work through these ethical dilemmas. It is important that human resources specialists' study international cultures to gain a deeper understanding and provide support the project managers and the team. Cultural diversity is important to more productive and higher performance. Also, it offers an opportunity for personal and professional growth.

Preparing expatriates for assignments abroad is no easy task. It is almost impossible to understand all the differences in all the countries in the world. Still, the effort needs to be made to bridge the gap between cultures.

Human Resources may offer cultural briefings with project managers and teams. They may provide cross-cultural training, bring in trainers to teach the team who have or do live in the foreign country, and send the team to the foreign country for visits prior to the project starting. Regardless, the project team and the project need to be carried out in a way that honours the foreign country's customs, traditions, and values.

10.6. CULTURE SHOCK AND COPING

Culture shock is a feeling of uncertainty and being disoriented when a person is in an unfamiliar way of life in a different culture than their own culture. It is caused by a number of things. These could include a greeting (hand shake versus bowing), different food, language differences, finding their way around in a new city/town, or not following the local customs. Often a person may feel a sense of frustration, anxiety and be confused. Many people are homesick.

The 4 phases of Culture Shock

The 4 phases of culture shock are:

Honeymoon: The person(s) feels overwhelmed and positive. They are excited about the new challenge in a different culture. They want to experience all the new things: food, the people, the language. The person(s) feels this has been a great decision and a great adventure. Each person is different in their response. However, everyone is affected to some degree.

Frustration: The person(s) feel fatigue because they do not understand the signs, gestures, language, and communication styles. It may be difficult to order food, shop for food, not be able to follow the transportation system. Some people begin to feel homesick and become depressed.

Adjustment: Over time, the person(s) begins to become familiar with their surroundings. They are more comfortable with the people, culture, language, and food.

Acceptance: After some weeks or months of dealing with frustration and emotional struggles, the person(s) begins to adapt and accept their new culture. They may not understand everything about the culture, however, function within it in a healthy way. They find and use resources to cope. They feel more at ease and accepted by the new community.

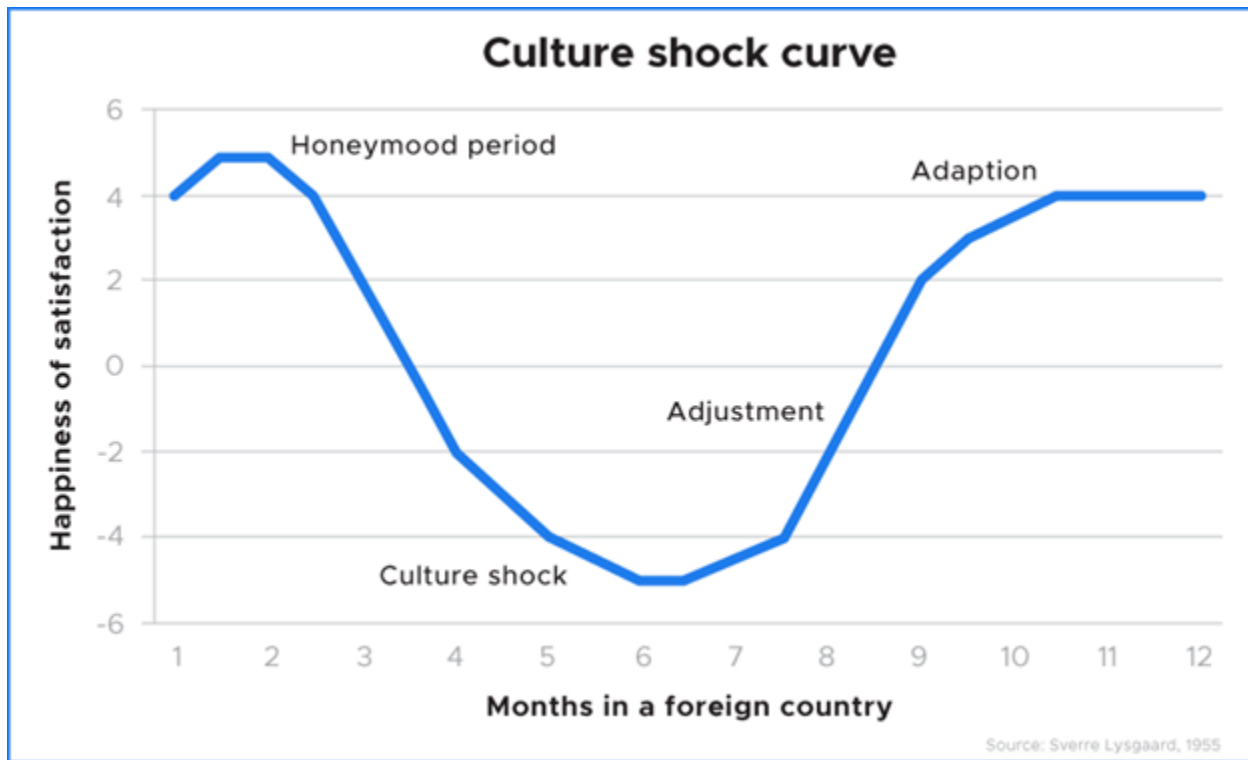


Figure 10.1: Culture Shock Curve (Lysgarrd, 1955)

Some would suggest there is a fifth stage called re-entry shock. This happens to people when they return to their home country. They need to re-adjust again.

Dealing with Culture Shock

Human Resources is engaged in many different coping strategies when dealing with the project team abroad. Success depends on the individual and the specific situation. Human Resources may help the team set goals including getting physical exercise, practicing meditation, and writing in a journal. They may develop a plan with the team to immerse themselves in the culture for a while, and then draw back to create stability with things that are familiar to them. Examples for Canadians in Mexico might be going to a movie theater where only Spanish is spoken a few times, and then visit an English-speaking theater a few times. Eat in authentic Mexican restaurants, and then find a restaurant that cooks Canadian food.

The first step Human Resources wants to impart to the project team is that they need to acknowledge that they will experience culture shock. Then, they help them modify their behaviours accordingly. Also, they may provide support to lower the team's expectations of "fitting into" the culture too soon. They encourage the team to focus their attention on the priorities first and reward themselves with small achievements. Over time, most people start to live a more normal life in the foreign country. Most people move to the adjustment phase and then to acceptance.

Other considerations are to instill in the team that while they are abroad, initially, they may not perform as efficiently. Therefore, good stress management techniques are important for the project team. They want to assure the team they are not alone; and the entire team is experiencing the same emotions. Human Resources could work with the entire project team to manage their stress through group workshops, individually, or both.

In these situations, and over time, if a person is still not reaching the adjustment or acceptance phase, this becomes more serious for the team member and the project. If a person is still experiencing stress from the move to a foreign country, they may need professional counselling. Human Resources can arrange counselling through wellness programs. It is important that Human Resources be aware of the person's emotional health and watch for severe signs such as drug abuse, emotional breakdowns, and increased alcohol use. Constant contact with the project team is a way to observe the changes. Regular chats and meetings with the project team allow Human Resources to monitor the team's progress in adjustment and acceptance to the new environment.

Some people experience the same culture shock when they return to their home country. Human Resources needs to ensure a healthy and stable return to the team's previous jobs. Some team members may have less responsibility upon return, others might become bored, or some may not have a job to return to when returning. Perhaps the organization has changed since their departure, and the team find it difficult to adapt to the organizational changes. While others often receive financial perks for accepting assignments abroad, and those perks disappear upon their return. The team may need to adjust to a lower standard of living. Regardless of the return experience, human resources need to work with the project team until they feel effective in their job upon return.

Think!

As a Human Resources Specialist, what do you think the first thing is that you would want to address with an expat once they have been hired for an international assignment? Why would you choose this?

10.7. TRAINING INTERNATIONAL PROJECT TEAMS

When a project team fails abroad, it is a huge cost to the organization. Training international project teams is important to the overall health of the team, and the success of the project. The training provided by Human Resources covers a wide range depending on the length of the project.

This type of training could be called **cultural fluency** which is the degree of understanding and interaction required with people from different cultures and backgrounds. The longer the project team is in the foreign country, the longer and more in-depth the training will be. The length of the project is not the only consideration. The training depth could be more extensive if the foreign country is more diverse than the home country. Example: A Canadian would require less cultural fluency to complete a project in Australia than in China.

Types of Training for International Project Teams

Pre-departure training helps the project team adjust to the new demands of working and living in a foreign country. At minimum, it needs to include understanding of the host country's eating habits, family life, etiquette, equality standards, education, religion, dress codes, and holidays. Human Resources would provide mini-workshops that cover the topics of importance to provide an essential understanding.

The Project Manager may need to perform training in the foreign country to other company representatives. In this case, Human Resources would offer train-the-trainer for the Project Manager before the assignment. The Project Manager then becomes a person who can transfer knowledge to other people.

Longer term international projects would require further training. Human Resources may provide the training or hire consultants to provide training in the history and culture of the foreign country, language training, and cross-cultural training. Human Resources may arrange for the team to visit the foreign country and stay with host families, or at the very least in hotels where they are able to immerse themselves in the local community.

Language training for short and long term projects is important. Project teams need to be able to speak, write and listen in basic terms to the foreign language. This is considered respectful. In some situations, translators could be hired to help with communication. In either case, Human Resources would be responsible to contract out or hire the translators to teach the basic language skills or provide translation at the host country. For longer term projects, the team would complete more extensive language training to be able to speak semi fluently.

- **During the assignment**, human resources need to provide ongoing supports for individual development, and team development. This project team is generally a high-performing group of employees who are selected for specialized projects to increase or enhance some type of international operation. This team needs to be guided, supported and be in constant communication with human resources to assure their performance and well-being are being sustained. Ongoing communication between the organization's employee and human resources requires regular and routine check ins, either formal or informal.
- **Re-entry or returning** from the foreign country has its own set of challenges. Often called repatriates, people returning to their home country from a foreign country, experience culture shock or sometimes referred to as re-entry shock. It is similar to culture shock only in the reverse. The project team will prepare to return to the home country with help from the human resources team. However, adjustment can be difficult. Repatriation is the final step in the international project management assignment. A well-planned repatriation plan affects the successful closure of a project. Human Resources plans an orientation for the returning project team. This may include a reflection of the experience, re-introduction to the organization and discussing changes, and chatting about next steps.

Some organizations offer individual counselling as well as group counselling either provided by human resources, or contract out the service to consultant's skilled in repatriation. In this case, human resources would facilitate the process. These steps would be considered **debriefing sessions**. This enables the project team to debrief and have reality checks with 'where they are at in their return', financially, emotionally, mentally, and physically.

Other fundamental logistics are put in place for the project team that include:

1. Relocation to home, or a new home
2. Financial and tax assistance (loss of bonuses, perks, tax changes)
3. Support to form or re-establish social and professional networks
4. Career counselling
5. Reverse culture shock (re-entry shock) for project team (and families)
6. Assistance with finding schools for children
7. Workshops to discuss organization changes
8. Stress management training

All the above would be set up and delivered or contracted to specialists to support the repatriation of the team.

Some project teams are part of multinational project teams and will move on to a different country. In this case, the training begins all over again.

Training and development play a crucial role in retaining high-performing individual team members, and International Project Managers. Regardless of its complexity, all training for these employees ensures a highly trained project team to meet the increasing need of international projects.

10.8. KNOWLEDGE CHECK

Question 1



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Question 9



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Question 10



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10.9. KEY TERMS

Ability to Adjust to Foreign Country: Ability to adapt and transition to different cultures. There are 4 phases: (sometimes called culture shock or culture adjustment).[10.4](#)

Acceptance: After some weeks or months of dealing with frustration and emotional struggles, the person(s) begins to adapt and accept their new culture. They may not understand everything about the culture, however, function within it in a healthy way. They find and use resources to cope. They feel more at ease and accepted by the new community.[10.6](#)

Adjustment: Over time, the person(s) begins to become familiar with their surroundings. They are more comfortable with the people, culture, language, and food.[10.6](#)

Competence: Cross-cultural abilities that help the person adapt to new surroundings. In other words, can perform successfully in a different culture. Some of these may include empathy, diplomacy, language ability, good attitude, adaptability, flexible. They must also have emotional stability and an open mind about different cultures.[10.4](#)

Cultural Fluency: The degree of understanding and interaction required with people from different cultures and backgrounds.[10.7](#)

Culture shock is a feeling of uncertainty and being disoriented when a person is in an unfamiliar way of life in a different culture than their own culture. It is caused by a number of things. [10.6](#)

Debriefing Sessions: This enables the project team to debrief and have reality checks with “where they are at in their return”, financially, emotionally, mentally, and physically.[10.7](#)

During The Assignment: Human resources need to provide ongoing support for individual development, and team development.[10.7](#)

Expatriates: These are employees who have been hired to work temporarily in a foreign country. They are also called international assignees.[10.2](#)

Expatriates or Expats: Is used for employees leaving their home country to work in a host country. [10.4](#)

Frustration: The person(s) feel fatigued because they do not understand the signs, gestures, language, and communication styles. It may be difficult to order food, shop for food, not be able to follow the transportation system. Some people begin to feel homesick and become depressed.[10.6](#)

Home Country and Home Country Nationals: Country where the corporate headquarters is located. The project manager and team would leave the home country for an international project.[10.2](#)

Honeymoon: The person(s) feels overwhelmed and positive. They are excited about the new challenge in a different culture. They want to experience all the new things: food, the people, the language. The person(s) feels this has been a great decision and a great adventure. Each person is different in their response. However, everyone is affected to some degree.[10.6](#)

Host Country and Host Country Nationals: Refers to a foreign country where the corporation invests. The project manager and team relocate to the host country (foreign country) to complete the project. Host country nationals are project employees who are native to the country, and work and live in their home country.[10.2](#)

International Projects: These are different from domestic projects because of the cultural, regulatory, social, geographical, reporting, and infrastructural diversity.[10.2](#)

Pre-Departure Training: Helps the project team adjust to the new demands of working and living in a foreign country.[10.7](#)

Re-Entry or Returning: From the foreign country has its own set of challenges. Often called repatriates, people returning to their home country from a foreign country, experience culture shock or are sometimes referred to as re-entry shock.[10.7](#)

Soft Skills: Skills that include psychological readiness, international experience, the language of the foreign country, ability to provide training to others.[10.4](#)

Technical: Technical and managerial skills are critical.[10.4](#)

Third Country National: Project manager and team who are not from the home country or the host country. However, work for the corporation.[10.2](#)

CHAPTER 11 – AGILE PM



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11.1. LEARNING OUTCOMES

Learning Outcomes

By the end of this chapter, you should be able to:

1. Explain the difference between traditional and Agile project management.
2. Explain fundamentals of Agile software development, including sprints and product stories.
3. Explain Agile project scope.
4. Discuss issues related to sustainable procurement in Agile projects.
5. Explain the role of self-organizing teams in Agile.
6. Describe challenges related to resource allocation in Agile.

11.2. DEFINITION

As described in chapter 1, **Agile Project Management** is **iterative (repetitive)** short processes focused on customer feedback and satisfaction. In such processes, the customer is allowed to verify that the features are being developed as they want, and suggest improvements. It also offers the customer the opportunity to release the product/service or software earlier than originally planned if the version presented at the end of a cycle is deemed good enough.

This is one of the many reasons Agile is favoured for software development or projects or exploratory projects. Agile products/services can be brought to market quickly. Then, continuously improved with subsequent updates. For many years, some “traditional” and Agile project managers viewed each other with a certain amount of skepticism about the value of each other’s methods. However, in recent years, project managers have seen the value of the techniques used in both of these two “camps” of project management. As a result, it is not unusual to see the design of a building using Agile techniques, and software development projects conducting a traditional risk analysis.

In the world of software development, a related methodology, Agile, is becoming increasingly popular. Although Agile had its roots in software development, companies have also expanded its use into a variety of project types, including product development, capital projects, and service projects.

The many flavours of Agile include:

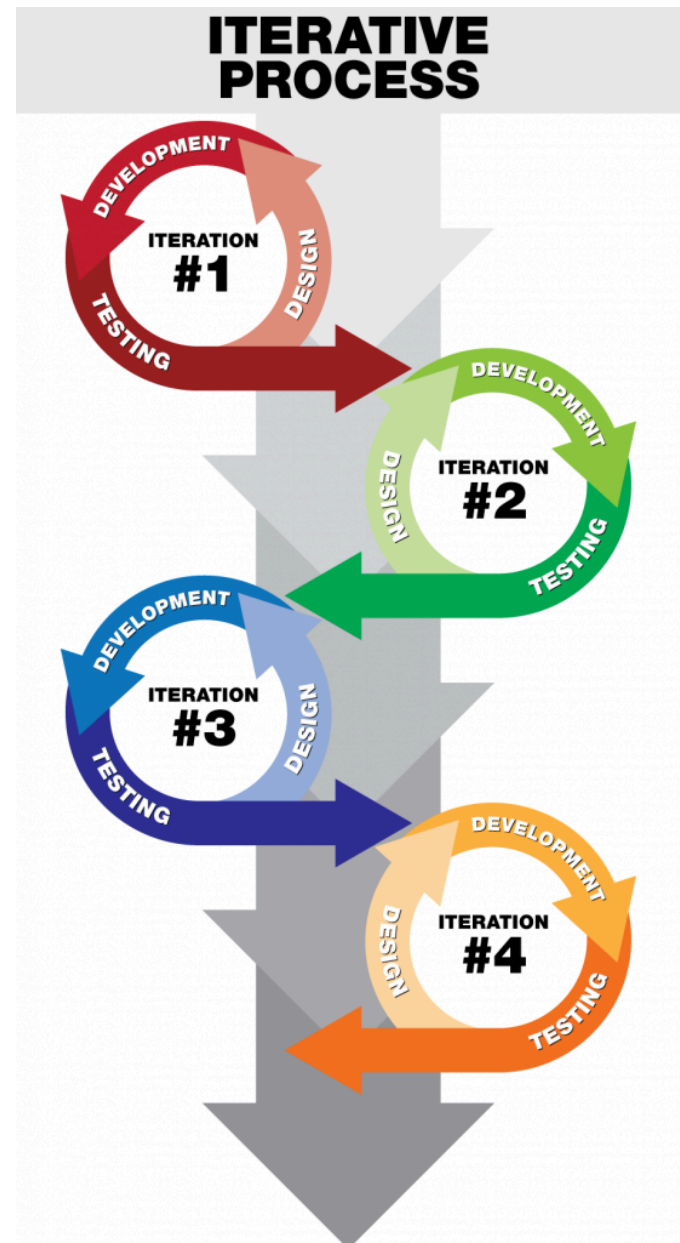


Figure 11-1: Iterative Process

- **Agile Scrum:** Designed for completing complex projects, as described on [ScrumGuides](#), Scrum is the most widely used form of Agile. When people talk about Agile, they are usually talking about Scrum.
- **Extreme Programming:** Emphasizes short development cycles with frequent releases of software for evaluation, after which a new development cycle begins. You can read more about extreme programming at “[Extreme Programming: A Gentle Introduction](#)“
- **Rapid Product Development:** Emphasizes “simultaneous, coordinated activities by multi-functional teams, striving for smooth transitions between phases for the most rapid time-to-market” (ORC International: Expert Advisory Services, n.d.).

All forms of Agile emphasize an iterative approach (*figure 11-1*) to product development, with the project specifications evolving along with the customer’s notion of the software requirements. A project starts with a conversation between the developer and the product owner about what the customer wants the software or product/service to do. In Scrum terminology, the customer is the product owner, and the features that the product owner wants are known as product stories.

With a description of the product stories in hand, the Agile developer gets to work, creating pieces of the project that address individual product stories. After a one- to two-week cycle of development (known in Scrum as a sprint) the developer hands off the new software/piece of the project to the product owner. They can try it out and make suggestions for improvement.

Anyone who has owned a cell phone knows that updates that come out are often full of “bugs.” Some things just do not work. The customer is relied upon to send messages to the Troubleshooting blogs or customer service with issues. The company relies on these customers to share the issues. They, then, go back to development and attempt to fix the “bugs.” This is called agile project management. There are new features added to the phone. Customers complain about issues. The development team goes back to a scrum, identifies the issues and fixes them.

The developer then begins another sprint, incorporating those suggestions into a new iteration. After every sprint, the product owner has the chance to redirect the team to new product stories, or to revise the team’s understanding of the existing product stories. Through these repeated interactions, which provide fast, focused feedback, the developer and the product owner zero in on an application that does what the product owner needs it to do. If time and money are tight, as they often are, the product owner has regular opportunities to make choices about which product stories are the most important, and which can be dispensed with if necessary.

Agile development is essentially a learning process through which the developer and the product owner create a shared understanding of how many features they can create, given the allotted time and money. It’s very much a living order approach to project management, in that the early stages involve some ambiguity and many unknowns. According to Robert Merrill (2017), a Senior Business Analyst at the University of Wisconsin-Madison, and an Agile coach, “Agile is a way to manage projects in the face of unpredictability and

constraints—often very rigid time and budget constraints. The fast feedback allows the team to create the best possible software within the given constraints” (Merrill, 2017).

11.3. SCOPE IN AGILE

Robert Merrill (2017), a Senior Business Analyst at the University of Wisconsin-Madison, and an Agile coach, advises taking a three-part approach to scope on Agile projects, determining the following:

1. **Minimum viable features**—If we can't deliver this much within schedule and budget constraints, the project should be cancelled.
2. **Features we can't think about now**—Although these might be featuring the client wants, they are not something we can create, and so we can't waste time and mental energy thinking about them.
3. **Everything else**—This is our unpredictability buffer, which we maintain to protect schedule and budget.

Note that these categories are not frozen; they can be changed during each iteration planning cycle. Scope in an Agile project is variable, but carefully and visibly managed.

The Agile Perspective on Scope Creep

Agile welcomes changes to product requirements even late in the development process. Indeed, the founders of Agile made an openness to late-breaking changes, which is one of their [Principles Behind the Agile Manifesto](#).

In this environment of constant iterations and revisions, Agile developers have a different perspective on scope creep (product owner changes the requirements, and something new gets added). A blog post for OptiSol (2015) spells out some ways to identify what is and isn't scope creep in Agile. Making changes “before the team has started to think about the details” would not be considered scope creep in Agile, nor would replacing one feature with another, as long as the new feature doesn't add new work for the team. However, swapping a new feature for a feature that is already complete is definitely a form of scope creep, because it creates new work. The same is true of replacing a small feature with something more complex (OptiSol, 2015).

11.4. AGILE PROCUREMENT

Agile procurement is a collaborative approach that focuses on outcomes. The government and organizations work together to design procurements in an iterative approach to get results. Changes are welcomed, the product is delivered frequently, and people work together throughout the project. It is a new approach that is dynamic in nature. Bottom line is that it is collaborative, less strict than traditional project management, and is less conforming to the rules.

Robert Merrill points out that “many procurement processes naturally follow or even mandate a negotiation-based approach that is directly at odds with the kind of living order thinking found in the Agile Manifesto, which emphasizes ‘collaboration over contract negotiation’” (pers. comm., June 15, 2018). Nevertheless, some organizations and governments are beginning to rethink their procurement processes in hopes of making them more Agile and, as a result, less costly.

Example of Agile Management

One interesting example is an on-going overhaul of the State of Mississippi’s child welfare information system. After some initial missteps, the state decided to emphasize identifying and contracting with many qualified vendors on portions of the project, rather than attempting to hire a single entity to create the entire information system. A blog post by Cohn and Boone (2016) for 18F, an arm of the U.S. government’s General Services Administration, which provided guidance on the project, describes Mississippi’s new approach to an age-old software development dilemma:

- Mississippi’s initial response to solving this problem was a classic waterfall approach: Spend several years gathering requirements then hire a single vendor to design and develop an entirely new system and wait several more years for them to deliver a new complete solution. According to the project team at Mississippi’s Department of Child Protection Services (2016), this “sounds like a good option, but it takes so long to get any new functionality into the hands of our users. And our caseworkers are clamoring for new functionality.” Instead, they’re taking this opportunity to build the first Agile, modular software project taken on within Mississippi state government, and they’re starting with

how they award the contracts to build it.

- Once this pool of vendors is selected, instead of awarding the entire contract to a single company, Mississippi will release many smaller contracts over time for different sections of the system. This is great for Mississippi. Inspired by the Agile approach, they'll only need to define what needs to be built next, rather than defining the entire system all up front.
- This is also great for vendors. Smaller contracts mean smaller vendors can compete. Small businesses can't manage or deliver on large multimillion-dollar software development contracts, and so are often precluded from competing. But with this approach, many contracts could end up in the single-digit millions (or less!). Smaller contracts mean more small businesses can compete and deliver work, resulting in a larger and more diverse pool of vendors winning contracts and helping the state.
- Approaching the project in a modular, Agile fashion can be more cost effective and less risky than a monolithic undertaking. To do it, they plan to take an approach called the "encasement strategy," under which they will replace the system slowly over time while leaving the legacy system in place. It will work like this: The old database will have an API layered on top of it and then a new interface will be built, one component at a time, without risking the loss of data or major disruptions to their workflow. Each module will be standalone with an API interface to interact with the data and the other modules. If they decide to replace a module five years from now, it won't really impact any of the others.

11.5. AGILE TEAMS

Agile software development, as an example, was founded as a way to help team members work together more efficiently and companionably. In fact, three of the twelve founding principles of the methodology focus on building better teams:

- It was believed the most efficient and effective method of conveying information to and within a development team is face-to-face conversation. However, there is a trend to using virtual Agile team which is equally effective.
- The best architectures, requirements, and designs emerge from self-organizing teams.
- At regular intervals, the team reflects on how to become more effective, then tunes and adjusts its behaviour accordingly (Beck et al., 2001).

Self-Organizing Teams

The term “self-organizing teams” is especially important to Agile. Nitin Mittal (2013), writing for Scrum Alliance, describes a **self-organizing team** as a “group of motivated individuals, who work together toward a goal, have the ability and authority to take decisions, and readily adapt to changing demands”.

But that doesn't mean Agile teams have no leaders. On the contrary, the Agile development process relies on the team leader (known as the ScrumMaster in Scrum) to guide the team, ideally by achieving “a subtle balance between command and influence” (Cohn, 2010). Sometimes that means moving problematic team members to new roles, where they can be more effective, or possibly adding a new team member who has the right personality to interact with the problematic team member. In a blog for Mountain Goat Software, Mike Cohn (2010) puts it like this:

There is more to leading a self-organizing team than buying pizza and getting out of the way. Leaders influence teams in subtle and indirect ways. It is impossible for a leader to accurately predict how a team will respond to a change, whether that change is a different team composition, new standards of performance, a vicarious selection system, or so on. Leaders do not have all the answers. What they do have is the ability to agitate teams (and the organization itself) toward becoming more agile.

Human Resources and Self-Organizing Teams

Self-organizing teams tend to make decisions among themselves who will do what on the project. This team has cross functional skills. There are typically no designated roles or job titles. The team takes on different

tasks as needed and the nature of the work. They are all responsible for the outcome of the project. So, how would HR fit in?

Despite the structure of the organization, what the team is proposing to complete, HR is still responsible, along with the Project Manager to recruit and select the team based on the skill sets required for the project. There are still questions that need answered to help the team organize. Human Resources Specialists could be involved in a meeting/workshop to help the team self-organize.

Questions to be answered by the Self-Organizing Team:

1. Who is going to be responsible for getting feedback, and for giving feedback?
2. Who is responsible to ensure the team is learning and growing?
3. Who is responsible to ensure the team is following a learning culture?
4. Is it necessary to have HR involved in the team? At the beginning of the project? During the project? At Closure of the project?
5. How will the self-organizing team handle feedback all on their own?

HR in Focus: Self-Organizing Teams

Depending on how the questions above are answered, the team may choose to involve Human Resources related to some of the functions:

1. Help the team learn about their own strengths and weaknesses through assessments and personality tests.
2. Be a champion of the project and assist in motivation of the team; and train the team in how to motivate each other.
3. Help the team identify gaps in the team or their weak points, and how they can improve.
4. Train the team in how to provide feedback through small talk, team events, fun activities, listening to each other, conduct retrospectives.
5. Support the team in providing 360 degree feedback and peer reviews, or teach them to use

these tools for themselves.

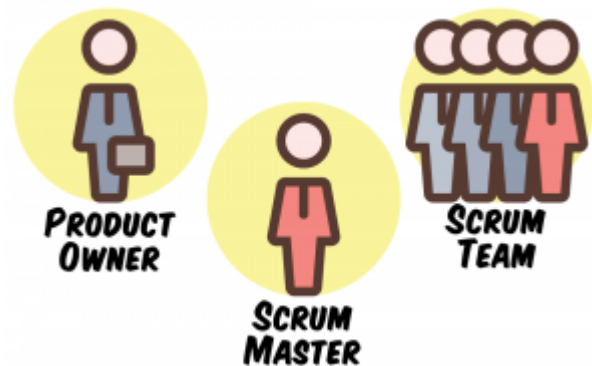
The self-organizing team can move forward with skills and learning and decide who will perform each function. Moving into the project, HR remains an important part of the project in a hands off manner by encouraging and supporting a culture of feedback. At any time, the team needs more support, Human Resources steps in to help with communication, re-training, or to help the team make constructive changes. In some cases, an Human Resources Specialist may become part of the self-organizing team.

11.6.ROLES AND RESPONSIBILITIES

Although self-organizing teams decide who will do what work, there are specific roles in the scrum process.

Roles and Responsibilities in the Scrum Process

Product Owner: Represents the customer and acts on behalf of the customer. This person could be a manager from within the company, or a manager from the customer's company. Their role is typical of any manager which is to ensure the outcome of the project is successful. The manager may work with the team to make lists of the features required. They develop the goals. They have the authority to make changes and set priorities at the end of each sprint. They can accept or reject any of the changes. As well, they make the decision when the project is complete.



Development Team: A group of people who work together to deliver the product/service. They have cross functional skills and are the group who accomplishes the sprint goals. They build the product, or design the service. All the necessary expertise is within the team to complete the scrum. They have a high degree of accountability, and at the same time a high level of autonomy. They are self-organizing and usually small. There is a collective responsibility of developing, testing and finishing the project. They do not choose a lead because all the decisions are collectively made by the team.

Scrum Master: A person who helps the team learn and apply the Scrum process. They do whatever they can to help the team meet their goals. They also are invested in the Product Owner, and ensure this person is kept up to date and involved. The Scrum Master may or may not be a manager. They serve the team. They remove obstacles and protect the team from any outside interference. They guide the team with the Scrum process. Their role is to coach, guide and educate. They help to motivate and encourage the team.

HR in Focus: Human Resources and Scrum in Motion

The Human Resources Specialist would design a roles and responsibilities document (similar to a job description, however, must less detailed). They would be involved in the recruitment and selection of the Scrum Master and the Development Team. They would assist the team by training them in the Scrum Development Process. Once the team is training, HR may remove themselves from the project. Or, if the team chooses, may ask the HR Specialist to be involved where they believe they may be of value.

11.7. SCRUM PROCESS AND MEETINGS



We live in a fast-paced world. It is highly competitive in the world economy. Organizations need to move with speed and be flexible. Hence the need to shift away, somewhat, from traditional project management. The scrum process is considered a holistic approach, similar to the game of rugby. It is a faster way to develop new products and services. It tends to be creative and market driven. Traditional project management is sequential. In the scrum approach the steps are segmented where the customer is highly involved, and several people are involved with varying skills at different times.

The hand-picked team, decided by Human Resources and other stakeholders, is a multidisciplinary team. This team, self-organized, holds a series of meetings to work through the project. The project goes through several phases. The phases may even overlap sometimes. The team can stay in close touch and respond quickly. The project is a continual trial and error process through meetings and development.

HR in Focus: Human Resources and Training in Scrum Meetings

With the new approach being popular, Human Resources would be training project managers and team members in the foundations of Agile Management and the Scrum process. One of the best ways to train Scrum Meetings is through lectures of the process, videos “mirroring” a Scrum Meeting; and role plays where the team can participate in a mock Scrum Meeting.

Scrum Meetings

Release Meeting: Establish the goals and broad plan for the project. The team decides how the project will be completed and the expectations. The meeting may include risks, features to be developed and **backlog**. A backlog is the amount of work a member commits in a certain amount of time before the next sprint. It is a list of everything that needs completed that is distributed to the team.

Sprint Planning: At the beginning of each sprint, the Product Owner and the team negotiate where to start, which features are most important to least important, and who is responsible for each component. They also decide on how long it will take to complete the sprint. The team works with the team to break down the pieces of the project. Everything is recorded. The goals cannot be changed once the sprint is over.

Daily Scrum: This is the core of Agile project management. There are daily meetings which are called “scrum.” Every day, at the same time, in the same place, the team meets (usually standing and sometimes in a circle) and take turns answering important questions:

1. What happened since we last met?
2. What are we going to be doing between now and the next Scrum?
3. Are there any obstacles, and if so, what are they?

These meetings only last 15-20 minutes. Everything is written down on a whiteboard, and recorded later. Meetings must start on time, it is limited in time, and only the core questions are answered. After the meeting, some of the members may meet to work out the obstacles. The purpose of the daily scrum meetings is to quickly find out what everyone has done since yesterday, what you are going to be doing between today and

tomorrow, and what could stop you from doing what you are doing. The team decides what they will do, not the Scrum Manager. The Scrum Master ensures the logistics of the meeting are handled.

Sprint Review: At the end of the scrum meeting, if there is a sample of the product/service to “show and tell”, the members show their specific work. They ask and receive feedback related to changes, improvements; and are praised for their work to date by the team. The product owner may approve work done to date.

Sprint Retrospective: The team reflect on how well they think the last sprint went and set up an action plan to improve, if necessary. The Scrum Master facilitates the meeting. The team is always working toward continuous improvement of the project.

11.8. ESTIMATING RESOURCES

Example of Estimating Resources in a Software Agile Management Project

In theory, resource management in Agile should be simple. After all, in Agile, resources and time are usually fixed. The team has a fixed budget, a fixed number of programmers (if software), and a fixed amount of time to create working software. The variable in all this is the software itself. Throughout the cycle of sprints—as the customer tries out new software, and requests alterations—the software features can change dramatically. When the budget is exhausted, the project ends. However, because Agile developers create working software bit-by-bit, the customer is assured of having at least some usable features by that point.

So again, resource management in Agile should be simple—in theory. But in reality, the key resource in software development is the people who create the software. In addition, where people are concerned, things rarely go as planned. Some programmers work faster than others, and individuals can vary tremendously in their output from one week to the next, especially when dealing with personal problems, like illness or family conflict. Robert Merrill (2017), a Senior Business Analyst at the University of Wisconsin-Madison, and an Agile coach, puts it like this:

Agile is more about people than computers. People are not interchangeable; they have good days and bad days. They get along or they don't. Cognitive abilities vary tremendously. If you aren't successful in helping teams' gel and stay focused, you're going to spend lots of extra money, or the project may blow up. You need to get the teams right (Merrill, 2017).

As Gareth Saunders (2015) explains in a thoughtful blog post on the topic, this is all complicated by the amount of “business as usual” tasks that developers typically have to fit into their schedules on top of their work on specific Agile projects. This includes tasks like “admin, team communications, support, mentoring, meetings, and consultancy—offering our input on projects managed by other teams” (Saunders, 2015). As a result, as a project manager, Saunders (2015) struggles to answer the following questions:

1. How do we know how much time each team member has to work on projects?
2. When we're planning the next sprint, how do we track how much work has been assigned to a team member, so that they have neither too little nor too much work? (Saunders, 2015)

In theory, answering these questions should not be difficult. For instance, if you have, “five developers, each with 6 hours available for work each day”. That gives us 30 hours per day, and assuming 9 days of project work

(with one full day set aside for retrospective and planning) then within each two-week sprint we should be able to dedicate 270 hours to development work” (Saunders, 2015). In reality, however, business as usual tasks can eat up 40% of a programmer’s working week, with that percentage varying from week to week or month to month.

Difficulties in estimating a team member’s capacity for work on a project is something every project manager faces. But in Agile, estimating capacity can be especially difficult. In Agile, project managers (or Scrum Masters) ideally exert minimal direct influence on day-to-day work, because teams are supposedly self-organizing—that is, free to manage their work as a group, and pull work when they are ready for it. This means Agile project managers need to take the long view on resource management by practicing good resource capacity management, which involves “planning your workforce and building a skill inventory in exact proportion to the demand you foresee. It lets you optimize productivity and as a concept perfectly complements the Agile methodology” (Gupta, 2017).

Interested in learning more about managing resources in Agile? Start with these links:

- You can read more about resource capacity management from [Project Management.com](#).
- Gareth Saunders’ blog post, and the accompanying comments, walk you through some of the challenges of [Agile resource management](#).

11.9. KNOWLEDGE CHECK

Question 1



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<https://ecampusontario.pressbooks.pub/hrstrategicprojectmanagement/?p=286#h5p-101>

Question 2



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<https://ecampusontario.pressbooks.pub/hrstrategicprojectmanagement/?p=286#h5p-102>

Question 3



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Question 4



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Question 5



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Question 6



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Question 7



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11.10. KEY TERMS

Agile Development: Essentially a learning process through which the developer and the product owner create a shared understanding of how many features they can create, given the allotted time and money.[11.2](#)

Agile Procurement: A collaborative approach that focuses on outcomes. [11.4](#)

Agile Project Management is Iterative (Repetitive): Short processes focused on customer feedback and satisfaction. In such processes, the customer is allowed to verify that the features are being developed as they want, and suggest improvements [11.2](#)

Agile Scrum: Designed for completing complex projects, as described on ScrumGuides, Scrum is the most widely used form of Agile. When people talk about Agile, they are usually talking about Scrum.[11.2](#)

Backlog. A backlog is the amount of work a member commits in a certain amount of time before the next sprint. It is a list of everything that needs to be completed that is distributed to the team.[11.7](#)

Daily Scrum: This is the core of Agile project management. There are daily meetings which are called “scrum.” Every day, at the same time, in the same place, the team meets (usually standing and sometimes in a circle) and take turns answering important questions:[11.7](#)

Development Team: A group of people who work together to deliver the product/service. They have cross-functional skills and are the group that accomplishes the sprint goals. They build the product or design the service.[11.6](#)

Extreme Programming: Emphasizes short development cycles with frequent releases of software for evaluation, after which a new development cycle begins. You can read more about extreme programming at “Extreme Programming: A Gentle Introduction” [11.2](#)

Human Resources Specialist and Scrum in Motion: would design a roles and responsibilities document (similar to a job description, however, must be less detailed). They would be involved in the recruitment and selection of the Scrum Master and the Development Team.[11.6](#)

Product Owner: Represents the customer and acts on behalf of the customer. This person could be a manager from within the company or a manager from the customer’s company.[11.6](#)

Rapid Product Development: Emphasizes “simultaneous, coordinated activities by multi-functional teams, striving for smooth transitions between phases for the most rapid time-to-market” (ORC International: Expert Advisory Services). You can read more about Rapid Product Development in this “Introduction to Rapid Product Development.”[11.2](#)

Release Meeting: Establish the goals and broad plan for the project. The team decides how the project will be completed the expectations.[11.7](#)

Scrum Master: A person who helps the team learn and apply the Scrum process. They do whatever they

can to help the team meet their goals. They also are invested in the Product Owner, and ensure this person is kept up to date and involved.[11.6](#)

Self-Organizing Team: As a “group of motivated individuals, who work together toward a goal, have the ability and authority to make decisions, and readily adapt to changing demands” (Mittal, 2013). [11.5](#)

Sprint Planning: At the beginning of each sprint, the Product Owner and the team negotiate where to start, which features are most important to least important, and who is responsible for each component. They also decide on how long it will take to complete the sprint. The team works with the team to break down the pieces of the project. Everything is recorded. The goals cannot be changed once the sprint is over.[11.7](#)

Sprint Retrospective: The team reflects on how well they think the last sprint went and set up an action plan to improve, if necessary. The Scrum Master facilitates the meeting. The team is always working toward continuous improvement of the project. [11.7](#)

Sprint Review: At the end of the scrum meeting, if there is a sample of the product/service to “show and tell”, the members show their specific work. They ask and receive feedback related to changes, improvements; and are praised for their work to date by the team. The product owner may approve work done to date.[11.7](#)

STUDENT RESOURCES

VIDEOS

Transcripts for videos can be found on YouTube.

Chapter 1: Introduction to Project Management for Human Resources

- [What is Project Management?](#) by the Association for Project Management [2:18 minutes]
- [What is PMP? Project Management Professional](#) by Knowledge Hut [5:50 minutes]
- [How to Write a Project Management Charter](#) by Project Manager Videos [4:55 minutes]

Chapter 2: Culture and Structures of Organizations

- [Culture vs. Strategy \(Ben Kobulnicky\)](#) [7:21 minutes]
- [Project Identification and Selection \(Leading Edge Group1\)](#) [5:52 minutes]
- [5 Organization structure Influence project management | Functional Matrix Projectized organization: Kavin Kumar](#) [4:13 minutes]
- [What is Organizational Culture? \(Denison Consulting\):](#) [4:24 minutes]

Chapter 3: Project Manager as a Leader

- [What is Project Manager? And Project Manager Roles and Responsibilities \(AIMS Education, UK\)](#) [2:06 minutes]

Chapter 4: Working with Teams

- [How to Build a Project Team \(Project Management Videos\)](#) [4:05 minutes]
- [Characteristics of a High-Performance Team \(MBC Development\)](#) [7:41 minutes] *Transcript unavailable*
- [Managing Virtual Teams: Management and Leadership \(Litmos heroes\)](#) [1:05 minutes]

Chapter 5: Project Life Cycle, Scope, Charters, Proposals

- [Project Management Overview: Defining a project | Lynda.com \(LinkedIn Learning\)](#) [2:39 minutes]
- [What is Project Scope? Project Management in Under 5: \(Online PM Courses-Mike Clayton\)](#) [3:30 minutes]
- [How To Manage Your Project Priorities-Project Management \(Project Management Videos\)](#) [4:18 minutes]
- [Project Management: What is a Work Breakdown Structure? \(Project Management Videos\)](#) [4:43 minutes]
- [Project 2016 Tutorial Using WBS Codes Microsoft Training \(TeachUComp\)](#) [4:23 minutes]

Chapter 5: Estimating Project Times and Costs

- [How to Estimate Your Project \(Project Management Videos\)](#) [3:28 minutes]
- [Project management, top-down, bottom-up, BAC, PERT. Estimating tools \(Laure Abourachid\)](#) [3:12 minutes]
- [Outsourcing: Is it good or bad? \(daraddicted\)](#) [5:06 minutes]

Chapter 6: Managing Risk

- [RiskX: The risk management process \(RiskX: Risk Management for Projects\)](#) [7:18 minutes]

Chapter 7: Scheduling Resources and Budgets

- [What are Project Constraints? \(Online PM Courses, Mike Clayton\)](#) [3:41 minutes]
- [Resource Allocation, Resource Levelling, Resource Smoothing in Project Management \(All about civil engineering by Pracin Mane\)](#) [8:48 minutes]

Chapter 9: Project Closure and Evaluation

- [How and Why to Close a Project-Project Management Training \(Project Management Videos\)](#) [3:43 minutes]
- [The Impact of Project Audits on Organizational Effectiveness \(michaelstanleigh\)](#) [5:45 minutes]
- [What is change control? Project Management in Under 5 \(Online PM Courses-Mike Clayton\)](#) [5:09 minutes]

- [Steps in the Control Process \(EduNote\)](#) [3:05 minutes]
- [What is Project Management? \(Association for Project Management\)](#) [2:18 minutes]

Chapter 10: International Projects

- [International Project Management-RITX](#) [1:28 minutes]
- [What is a Multinational Company?](#) [2:39 minutes]
- [China Super Railway Projects In Other Countries That Shock The World](#) [11:27 minutes]

Chapter 11: An Introduction to Agile Management

- [Agile Project Management Tutorial-What Is Agile Project Management? Simplilearn](#) [9:18 minutes]
- [Scrum in under 5 minutes](#) [4:31 minutes]

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VERSIONING HISTORY

This page provides a record of edits and changes made to this book since its initial publication. Whenever edits or updates are made in the text, we provide a record and description of those changes here. If the change is minor, the version number increases by 0.1. If the edits involve a number of changes, the version number increases to the next full number.

The files posted alongside this book always reflect the most recent version.

Version	Date	Change	Affected Web Page
1.0	01 May 2022	First Publication	N/A