

# The Project Management Process Groups

COMP6204: Software Project  
Management and Secure Development

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October 21

# Overview

- Project Management Process Groups
- Process groups within project phases
- Mapping the Process Groups to the Knowledge Areas
- Developing an IT Project Management Methodology
- Initiating Process Summary
- Pre-initiation Tasks
  - Business Case for a Project
- Project Initiating
- Initiating Processes
  - Stakeholder register, Stakeholder management strategy, Project charter, Project Kick-Off Meeting

# Learning Objectives

- Describe the five project management process groups, the typical level of activity for each, and the interactions among them
- Relate the project management process groups to the project management knowledge areas
- Discuss how organisations develop information technology (IT) project management methodologies to meet their needs

# Learning Objectives

- Review a case study of an organisation applying the project management process groups to manage an IT project,
  - Describe outputs of each process group, and understand the contribution that effective initiating, planning, executing, monitoring and controlling, and closing make to project success
- Review a case study of the same project managed with an agile focus and compare the key differences between an agile approach and a predictive approach
- Describe several templates for creating documents for each process group

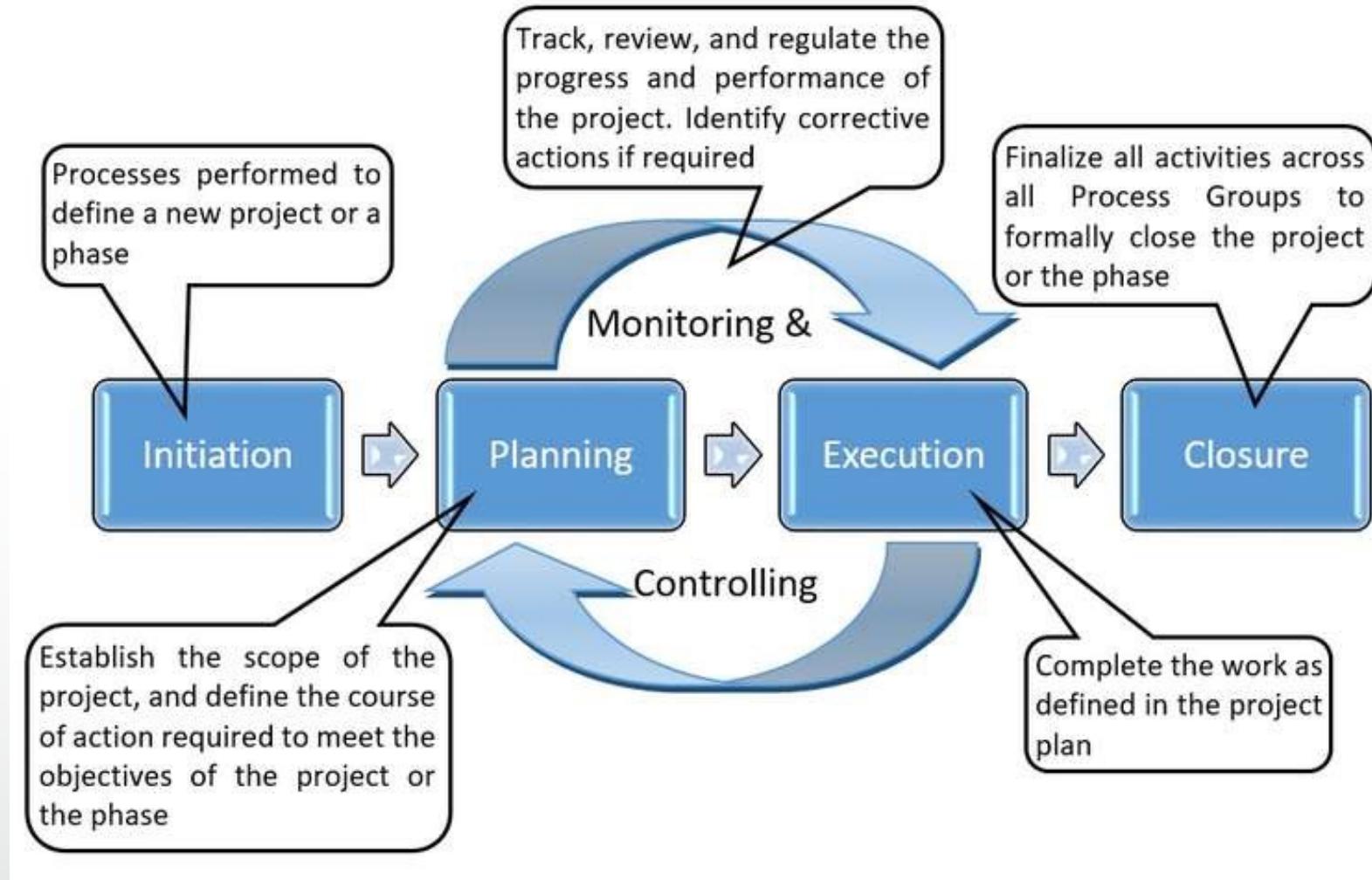
# Introduction

- Project management consists of **10 knowledge areas**
  - *Integration, scope, schedule, cost, quality, resource, communications, risk, procurement, and stakeholder management*
- Projects involve **five project management process groups**:
  - *Initiating, planning, executing, monitoring & controlling, and closing*
  - Tailoring these process groups to meet individual project needs increases the chance of success in managing projects

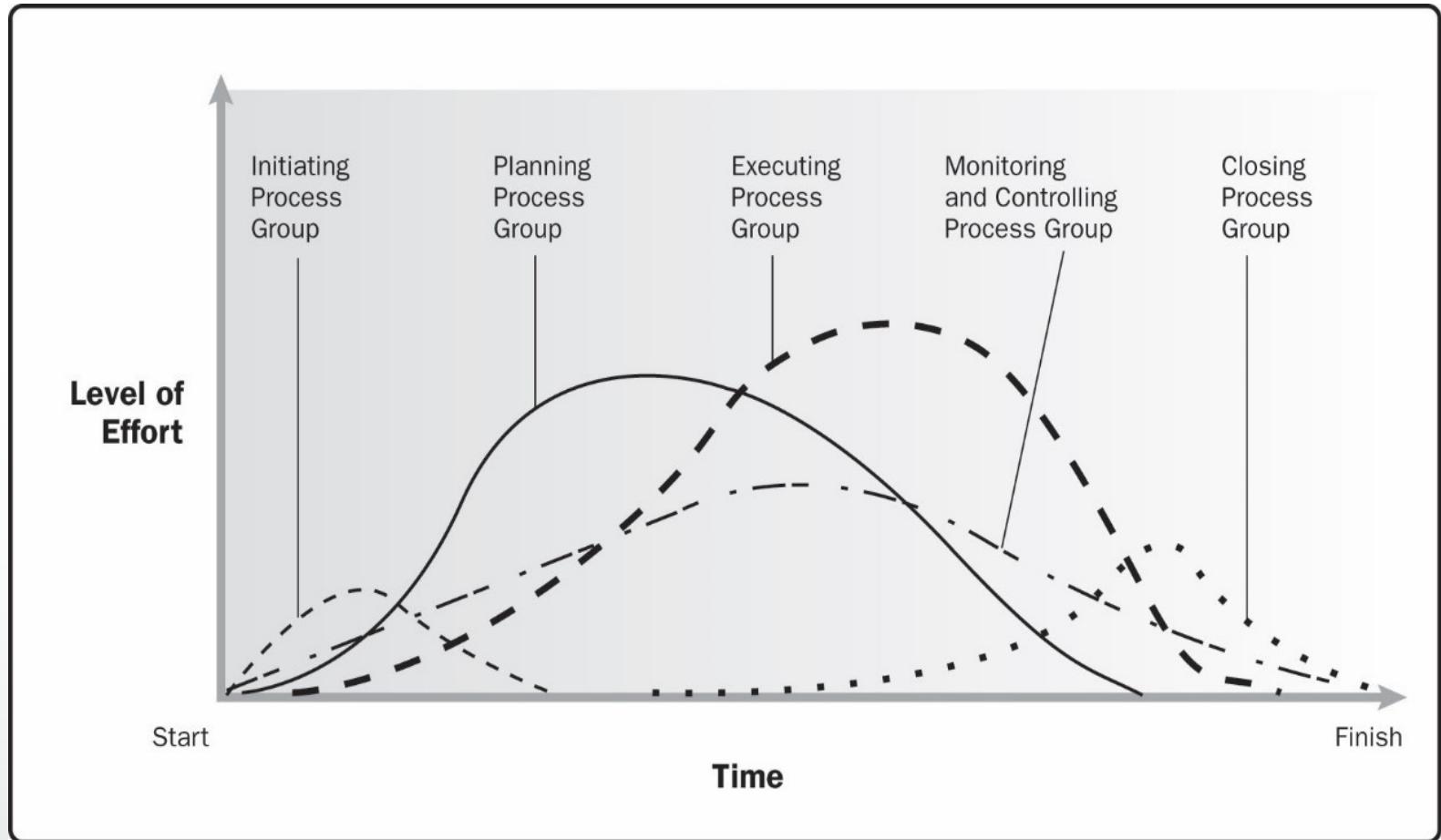
# Project Management Process Groups

- A *process* is a series of actions directed toward a particular result
    - Project management can be viewed as a number of related processes
  - Project management process groups
    - Initiating processes
    - Planning processes
    - Executing processes
    - Monitoring and controlling processes
    - Closing processes
- 
- The diagram illustrates the five project management process groups as a sequence of five arrows pointing to the right. The first four arrows are colored grey, green, blue, and orange respectively, while the fifth arrow is light blue. The labels for the first four groups (Initiating, Planning, Executing, Closing) are placed within their respective arrows. The label for the fifth group (Monitoring and controlling) is placed above the fifth arrow.

# Project Management Process Groups



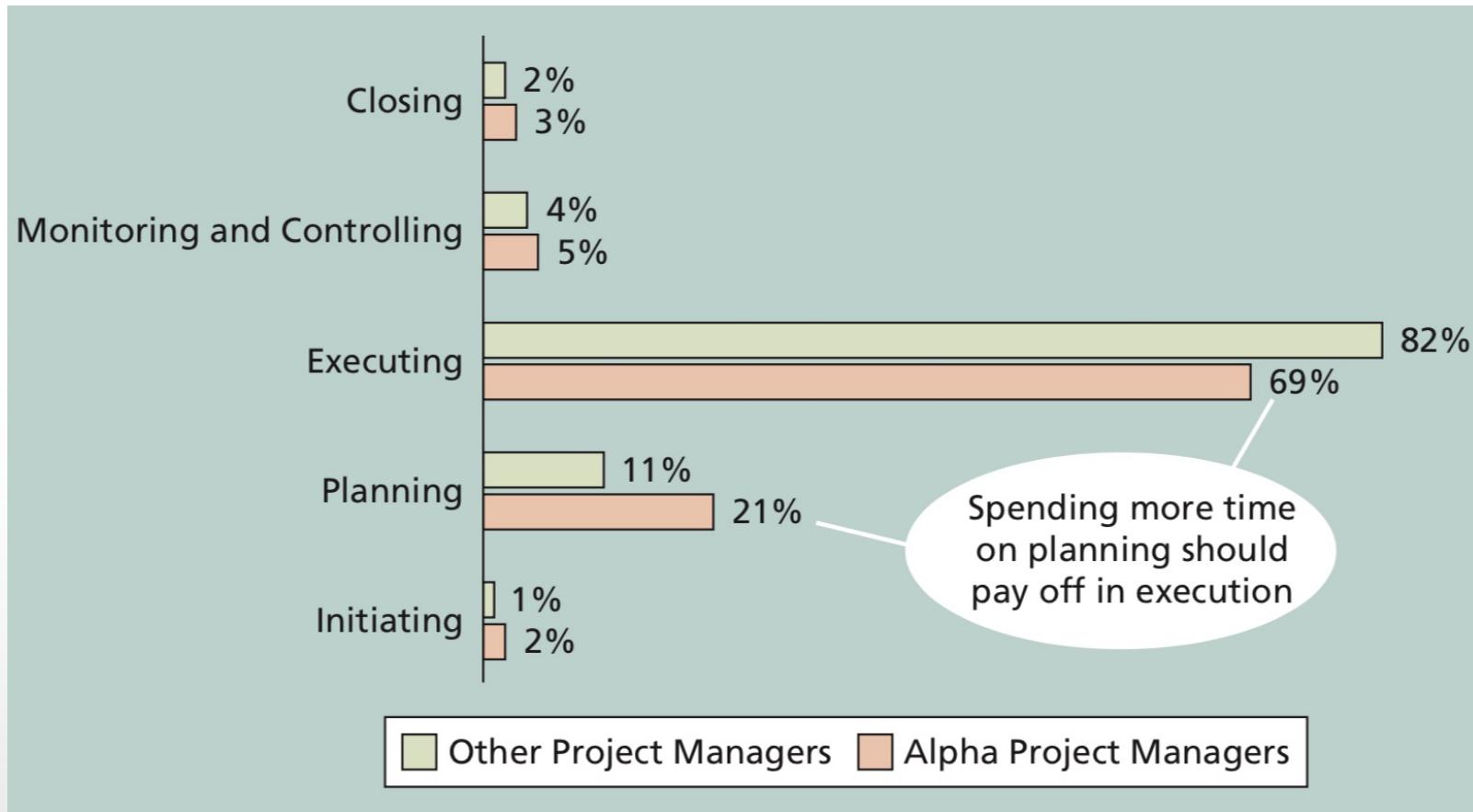
# Process groups within project phases



# Time Spent on Each Project Management Process Group

Process Group	Alpha PM	Average PM	Alpha Difference (%)
Initiating	2%	1%	100% more
Planning	21%	11%	91% more
Executing	69%	82%	16% less
Monitoring & Controlling	5%	4%	25% more
Closing	3%	2%	50% more
Total	100%	100%	

# Time Spent on Each Project Management Process Group – Cont.



# Characteristics of the Process Groups

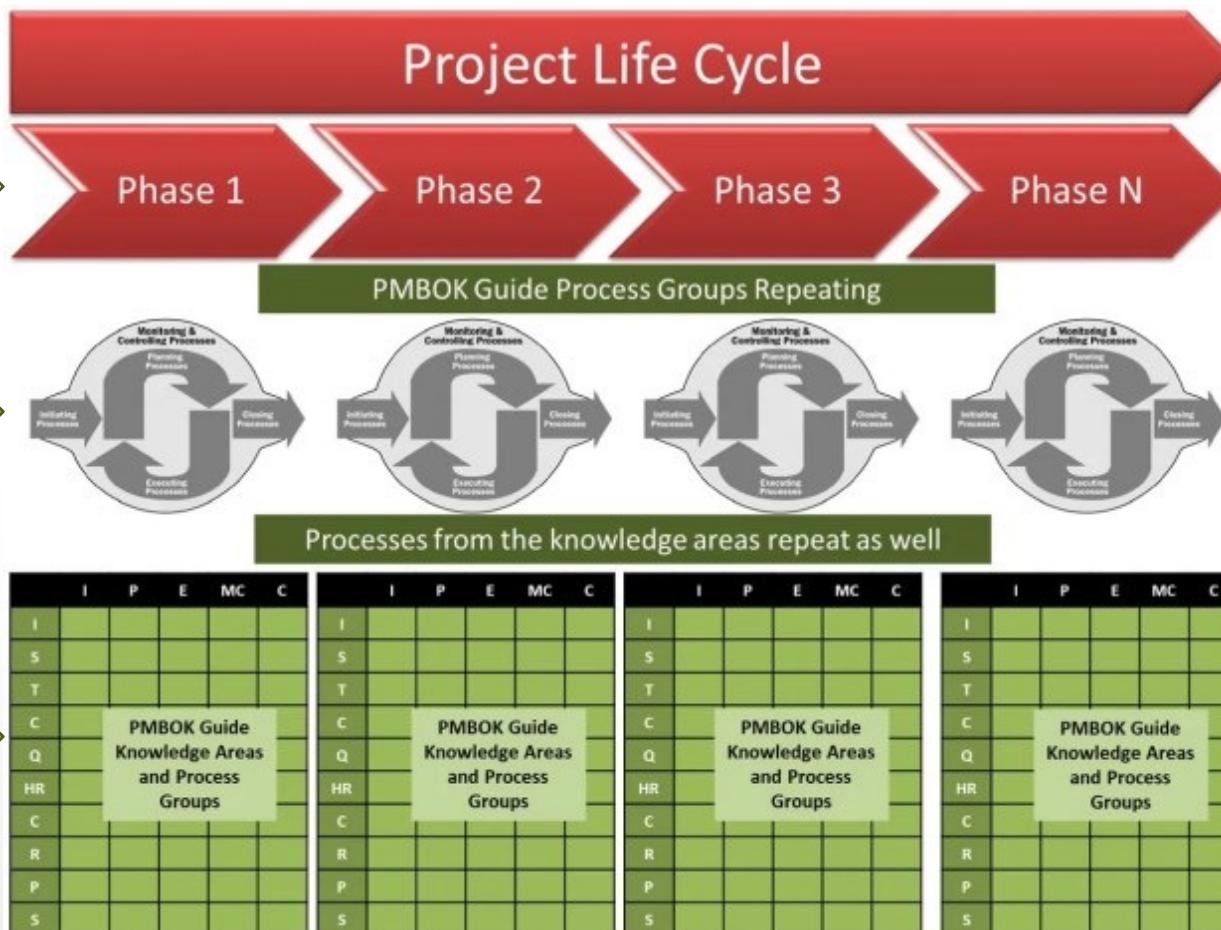
- The amount of resources and length of each process group varies for every project
  - Normally, executing tasks require the most resources and time, followed by planning tasks
  - Monitoring and controlling processes are done throughout the project's life span
  - Initiating and closing tasks are usually the shortest (at the beginning and end of a project or phase, respectively), and they require the least amount of resources and time
  - However, every project is unique, so there can be exceptions

# Process Groups vs. Project Phases

A phase is a distinct stage in project development

Process Groups

Knowledge Areas



Note that process groups apply to entire projects as well as to project phases

# Mapping the Process Groups to the Knowledge Areas

- You can map the main activities of each PM process group into the ten knowledge areas using the PMI
- The following Table provides a big-picture view of the relationships among the **49 project management activities**, the **process groups** in which they are typically completed, and the **knowledge areas** into which they fit

# Project management process group and knowledge area mapping

Knowledge Area	Project Management Process Groups				
	Initiating Process Group	Planning Process Group	Executing Process Group	Monitoring and Controlling Process Group	Closing Process Group
<b>4. Project Integration Management</b>	4.1 Develop Project Charter	4.2 Develop Project Management Plan	4.3 Direct and Manage Project Work 4.4 Manage Project Knowledge	4.5 Monitor and Control Project Work 4.6 Perform Integrated Change Control	4.7 Close Project or Phase
<b>5. Project Scope Management</b>		5.1 Plan Scope Management 5.2 Collect Requirements 5.3 Define Scope 5.4 Create WBS		5.5 Validate Scope 5.6 Control Scope	
<b>6. Project Schedule Management</b>		6.1 Plan Schedule Management 6.2 Define Activities 6.3 Sequence Activities 6.4 Estimate Activity Durations 6.5 Develop Schedule		6.6 Control Schedule	
<b>7. Project Cost Management</b>		7.1 Plan Cost Management 7.2 Estimate Costs 7.3 Determine Budget		7.4 Control Costs	

# Project management process group and knowledge area mapping

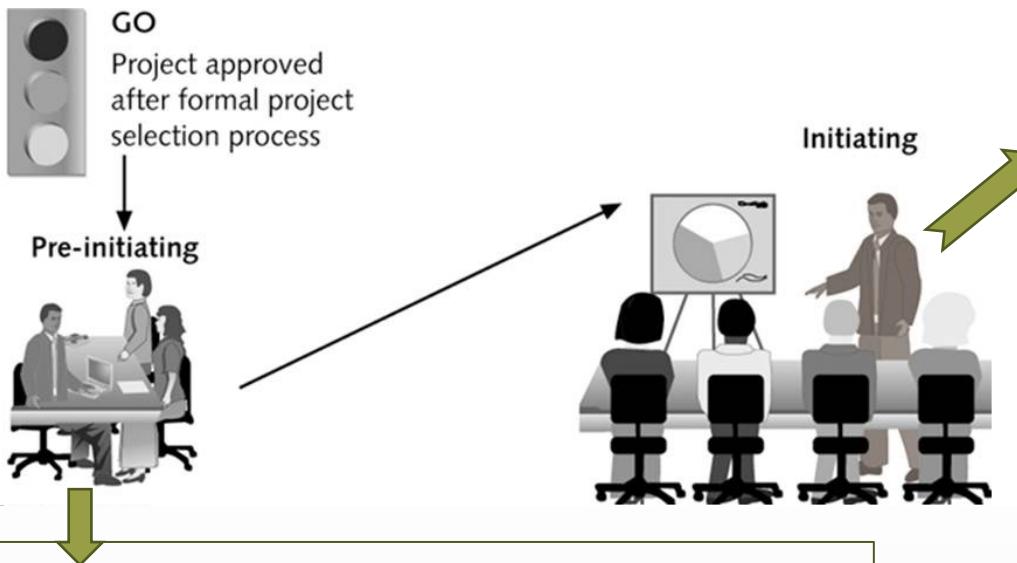
Knowledge Area	Project Management Process Groups				
	Initiating Process Group	Planning Process Group	Executing Process Group	Monitoring and Controlling Process Group	Closing Process Group
8. Project Quality Management		8.1 Plan Quality Management	8.2 Manage Quality	8.3 Control Quality	
9. Project Resource Management		9.1 Plan Resource Management 9.2 Estimate Activity Resources	9.3 Acquire Resources 9.4 Develop Team 9.5 Manage Team	9.6 Control Resources	
10. Project Communications Management		10.1 Plan Communications Management	10.2 Manage Communications	10.3 Monitor Communications	
11. Project Risk Management		11.1 Plan Risk Management 11.2 Identify Risks 11.3 Perform Qualitative Risk Analysis 11.4 Perform Quantitative Risk Analysis 11.5 Plan Risk Responses	11.6 Implement Risk Responses	11.7 Monitor Risks	
12. Project Procurement Management		12.1 Plan Procurement Management	12.2 Conduct Procurements	12.3 Control Procurements	
13. Project Stakeholder Management	13.1 Identify Stakeholders	13.2 Plan Stakeholder Engagement	13.3 Manage Stakeholder Engagement	13.4 Monitor Stakeholder Engagement	

Source: Project Management Institute, Inc., *A Guide to the Project Management Body of Knowledge (PMBOK® Guide) – Sixth Edition (2017)*.

# Developing an IT Project Management Methodology

- Many organisations develop their own internal IT project management methodologies
  - A methodology describes how things should be done
  - A standard describes what should be done
- Different project management methodologies
  - PRojects IN Controlled Environments (PRINCE 2)
  - Agile
  - Rational Unified Process (RUP)
  - Six Sigma

# Initiating Process Summary



Senior management work together to:

- Determine scope, time, and cost constraints
- Identify the project sponsor
- Select the project manager
- Develop a business case for the project
- Review processes/expectations
- Determine if the project should be divided into two or more smaller projects

Project managers lead efforts to:

- Identify and understand project stakeholders
- Create the project charter and assumption log
- Hold a kick-off meeting

# Pre-initiation Tasks

- It is good practice to lay the groundwork for a project before it officially starts
- Senior managers often perform several pre-initiation tasks
  - Determine the scope, time, and cost constraints for the project
  - Identify the project sponsor
  - Select the project manager
  - Develop a **business case** for a project
  - Meet with the project manager to review the process and expectations for managing the project
  - Determine if the project should be divided into two or more smaller projects

# Business Case for a Project

- A **business case** is a document that provides financial justification for investing in a project

# Business Case for a Project - Typical contents

- Introduction/Background
- Business Objective
- Current Situation and Problem/Opportunity Statement
- Critical Assumptions and Constraints
- Analysis of Options and Recommendations
- Preliminary Project Requirements
- Budget Estimate and Financial Analysis
- Schedule Estimate
- Potential Risks
- Exhibits

**Business Case****1.0 Introduction/ Background**

Global Construction employs 10,000 full-time employees in ten different countries and fifteen states in the U.S. They spend an average of \$1,000 per employee for training (not including tuition reimbursement), which is higher than the industry average. However, the productivity of workers, especially in the sales, purchasing, engineering, and information technology departments has not improved much in recent years. In the fast-paced, ever-changing construction market, training employees about new products, new technologies, and soft skills across a globally dispersed company with different populations is a challenge. By redesigning training, Global Construction can reduce training costs and improve productivity.

**2.0 Business Objective**

Global Construction's strategic goals include continuing growth and profitability. They must have a highly skilled workforce to continue to compete in a global environment. Current training programs, however, are expensive and outdated. They can reduce costs by providing more targeted and timely training to their employees and by taking advantage of new technologies and business partnerships. Global Construction can also increase profits by improving productivity, especially by improving supplier management and negotiation skills.

**3.0 Current Situation and Problem/Opportunity Statement**

Global Construction has not updated its training approach or course offerings in the past five years. Most training is provided on-site during business hours and uses a traditional instructor-led approach with little or no technology involved. Department managers often request slots for various courses, but then they send whoever is available to the course since the department has already paid for it. Therefore, there is often a mismatch between skills needed by employees and the skills taught in a course. The current training is expensive and ineffective. Many employees would like training in key subjects that are currently not provided and that would use more modern approaches and technologies. If the training is directly related to their jobs or interests, employees are willing to take it on their own time, if needed. Survey results indicated that employees are most in need of training in supplier management, negotiating skills, project management, Six Sigma (a quality management methodology) and software applications (i.e., spreadsheet and Web development tools).

**4.0 Critical Assumptions and Constraints**

This project requires strong participation and cooperation from a wide variety of people. A project steering committee will be formed to provide close oversight and guidance. Some of the requested training will be outsourced, as will development of unique courses. The project will include investigating and taking advantage of new training technologies, such as multimedia and Web-based

courses that workers could take on their own time. Employees will also be able to contact instructors and internal experts via the Internet for guidance in performing current work tasks as part of this project.

#### **5.0 Analysis of Options and Recommendation**

There are three options for addressing this opportunity:

1. Do nothing. The business is doing well, Global Construction can continue to conduct training as they have done in the past.
2. Instead of providing any internal training, give each employee up to \$1,000 to spend on outside training as approved by his/her supervisor. Require employees to stay with the company for one year after using training funds or return the money.
3. Design and implement a new training program as part of this project.

Based on the financial analysis and discussions with key stakeholders, option 3 is the best option.

#### **6.0 Preliminary Project Requirements**

The main requirements of this project include the following:

1. Based on survey results, the only current training that does not need to change is the Six Sigma training. No changes will be made in that area. The tuition reimbursement program will continue as is.
2. Training for improving supplier management and negotiating skills, especially international negotiations, have the highest priority since they are most important to the business today and in the next few years. Internal staff will work with outside firms to develop a customized approach to this training that takes advantage of internal experts and new technologies.
3. Demand is also high for training in project management and software applications. The project team will analyze several approaches for this training, including in-house courses, courses offered by local colleges/universities, and computer-based/online courses. They will develop and implement the best combination of approaches for these courses.
4. The project will include updating the corporate Intranet site to explain the new training program, to allow employees to sign up for and evaluate courses, and to track training demand and expenses.
5. The project team will develop an approach for measuring the effect of training on productivity on an annual basis.

#### **7.0 Budget Estimate and Financial Analysis**

A preliminary estimate of costs for the entire project is \$1,000,000. Half of the cost is for internal labor, \$250,000 is for outsourced labor, and \$250,000 is for outsourced training programs. These are preliminary estimates that will be revised, as more details become known. Projected benefits are estimated very conservatively. Since the average amount spent on training last year was \$1,000/employee, only a 10% or \$100/employee reduction was assumed, and no benefits are included for improved productivity. Exhibit A summarizes the projected costs and benefits and shows the estimated net present value (NPV), return on investment (ROI), and the year in which payback occurs. It also lists assumptions made in performing this preliminary financial analysis. All of the financial estimates are very encouraging. The estimated payback is in the second year after implementing the new training program. The NPV is \$505,795, and the discounted ROI based on a three-year implementation is 27 percent.

#### **8.0 Schedule Estimate**

The sponsor would like to see the entire project completed within one year. Courses will be provided as soon as they are available. The impact of training on productivity will be assessed one year after training is completed and annually thereafter.

#### **9.0 Potential Risks**

There are several risks involved with this project. The foremost risk is a lack of interest in the new training program. Employee inputs are crucial for developing the improved training and realizing its potential benefits on improving productivity. There are some technical risks in developing courses using advanced technologies. There are also risks related to outsourcing much of the labor and actual

course materials/instruction. The main business risk is investing the time and money into this project and not realizing the projected benefits.

## 10.0 Exhibits Exhibit A: Financial Analysis

Discount rate	8%				
Assume the project is completed in Year 1					
	1	2	3	4	Year
Costs	1,000,000	400,000	400,000	400,000	
Discount factor	0.93	0.86	0.79	0.74	
<b>Discounted costs</b>	<b>925,926</b>	<b>342,936</b>	<b>317,533</b>	<b>294,012</b>	<b>1,880,406</b>
Benefits	-	1,000,000	1,000,000	1,000,000	
Discount factor (rounded to two decimal places)	0.93	0.86	0.79	0.74	
<b>Discounted benefits</b>	<b>-</b>	<b>860,000</b>	<b>790,000</b>	<b>740,000</b>	<b>2,390,000</b>
Discounted benefits - costs	(925,926)	517,064	472,467	445,988	509,594
Cumulative benefits - costs	(925,926)	(408,861)	63,606	509,594	
					NPV ←
ROI →	27%				↑ Payback in Year 3
Assumptions					
Costs for the project are based on the following:					
Internal labor costs: \$500,000					
Outsourced labor costs: \$250,000					
Outsourced training programs: \$250,000					
After implementation, maintenance costs are estimated at 40% of total development cost					
Benefits are estimated based on the following:					
\$100/employee/year X 10,000 employees					
No benefits are included for increased productivity					

# Project Initiation

- Initiating includes recognising and starting a new project
  - Right kinds of projects for the right reasons
- Strategic planning should serve as the foundation for deciding which projects to pursue
  - Expresses the vision, mission, goals, objectives, and strategies of the organisation
  - Provides the basis for IT project planning

# Initiating Processes

- Develop project charter
  - Project charter
  - Assumption log
- Identifying project stakeholders
  - Stakeholder register
- Holding a kick-off meeting

# Initiating Processes and Outputs

Knowledge area	Initiating process	Outputs
<b>Project integration management</b>	Develop project charter	<b>Project charter</b> <b>Assumption log</b>
<b>Project stakeholder management</b>	Identify stakeholders	<b>Stakeholder register</b> Change requests Project management plan updates Project documents updates

# Identifying Stakeholders

- **Project stakeholders** are the people involved in or affected by project activities
  - *Internal project stakeholders* generally include the project sponsor, project team, support staff, and internal customers for the project. Other internal stakeholders include top management, other functional managers, and other project managers
  - *External project stakeholders* include the project's customers (if they are external to the organization), competitors, suppliers, and other external groups that are potentially involved in or affected by the project, such as government officials and concerned citizens

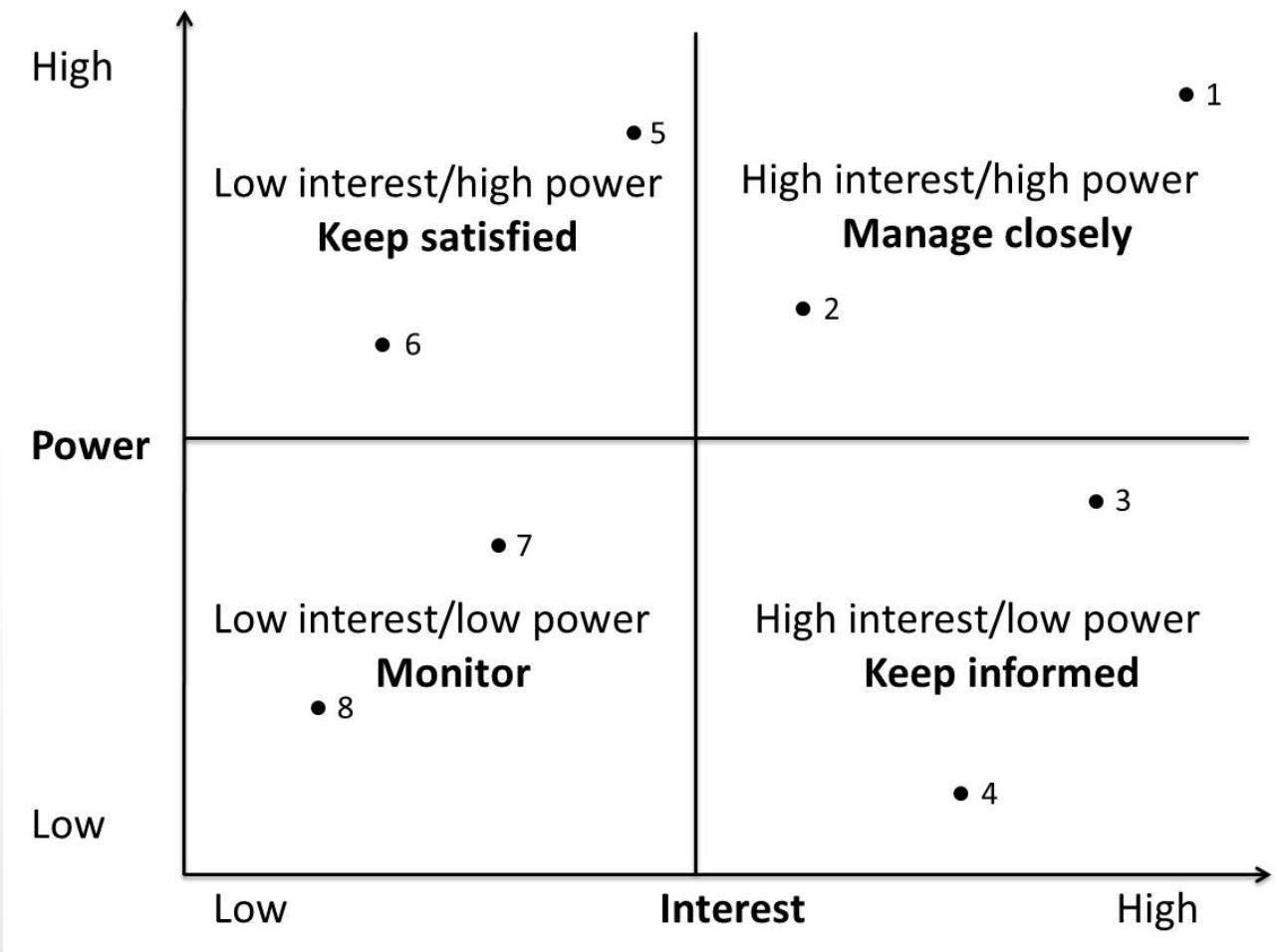
# Stakeholder Register and Stakeholder Analysis

- A **stakeholder register** is a document that includes details related to the identified project stakeholders -usually available to many people, so it should not include sensitive information
- A **stakeholder analysis** is a technique for analyzing information to determine which stakeholders' interests to focus on and how to increase stakeholder support throughout the project

# Sample Stakeholder Register

Name	Position	Internal/ External	Project Role	Contact Information
<b>Mike Sundby</b>	VP of HR	Internal	Project champion	msundy@globalconstruction.com
<b>Lucy Camerena</b>	Training Director	Internal	Project sponsor	lcamerena@globalconstruction.com
<b>Ron Ryan</b>	Senior HR staff member	Internal	Led the Phase I project	rryan@globalconstruction.com

# Sample Stakeholder Analysis Power/Interest Grid



# Initiating – Stakeholder management strategy

Name	Level of Interest	Level of Influence	Potential Management Strategies
Joe Fleming	High	High	Joe likes to stay on top of key projects and make money. Have a lot of short, face-to-face meetings and focus on achieving the financial benefits of the project.
Louise Mills	Low	High	Louise has a lot of things on her plate, and she does not seem excited about this project. She may be looking at other job opportunities. Show her how this project will help the company and her resume.

# Categorising Engagement Levels of Stakeholders

- *Unaware*: Unaware of the project and its potential impacts on them
- *Resistant*: Aware of the project yet resistant to change
- *Neutral*: Aware of the project yet neither supportive nor resistant
- *Supportive*: Aware of the project and supportive of change
- *Leading*: Aware of the project and its potential impacts and actively engaged in helping it succeed

# Initiating Processes and Outputs

Knowledge area	Initiating process	Outputs
<b>Project integration management</b>	Develop project charter	Project charter Assumption log
<b>Project stakeholder management</b>	Identify stakeholders	Stakeholder register Change requests Project management plan updates Project documents updates

# Creating a Project Charter

- A *project charter* is a document that formally recognises the existence of a project and provides a **summary** of the project's **objectives** and management
- It *authorises* the project manager to use organisational **resources** to complete the project
- Ideally, the project manager will play a major role in developing the project charter
- Instead of project charters, some organisations initiate projects using a simple **letter of agreement** or **formal contracts**
- *A crucial part of the project charter is the sign-off section*

# Contents of a Project Charter

- The project's **title** and **date** of authorisation
- The project **manager's name** and contact information
- A **summary schedule** or **timeline**, including the **planned start** and **finish dates**; if a **summary milestone** schedule is available, it should also be included or referenced
- A summary of the project's **estimated cost** and budget allocation
- A brief description of the **project objectives**, including the **business need** or other justification for authorising the project
- Project **success criteria** or approval requirements, including project **approval requirements** and who **signs off** on the project

# Contents of a Project Charter (continued)

- A summary of the **planned approach** for managing the project, which should describe stakeholder needs and expectations, overall project risk, important assumptions and constraints, and should refer to related documents, such as a communications management plan, as available
- A roles and responsibilities matrix
- A sign-off section for signatures of key project stakeholders
- A comments section in which stakeholders can provide important comments related to the project

# Case Study: JWD Consulting's Project Management Intranet Site (Predictive Approach)

- This case study provides an example of what's involved in initiating, planning, executing, controlling, and closing an IT project
- Note: this case study provides a big picture view of managing a project
  - Later chapters provide detailed information on each knowledge area

# Project Charter

**Project Title:** Project Management Intranet Site Project

**Project Start Date:** May 2

**Projected Finish Date:** November 4

**Budget Information:** The firm has allocated \$140,000 for this project. The majority of costs for this project will be internal labor. An initial estimate provides a total of 80 hours per week.

**Project Manager:** Erica Bell, (310) 555-5896, erica\_bell@jwdconsulting.com

**Project Objectives:** Develop a new capability accessible on JWD Consulting's intranet site to help internal consultants and external customers manage projects more effectively. The intranet site will include several templates and tools that users can download, examples of completed templates and related project management documents used on real projects, important articles related to recent project management topics, an article retrieval service, links to other sites with useful information, and an Ask the Expert feature, where users can post questions about their projects and receive advice from experts in the field. Some parts of the intranet site will be accessible free to the public, other parts will only be accessible to current customers and internal consultants, and other parts will be accessible for a fee.

**Main Project Success Criterion:** The project should pay for itself within one year of completion.

# Project Charter

**Approach:**

- Develop a survey to determine critical features of the new intranet site and solicit input from consultants and customers.
- Review internal and external templates and examples of project management documents.
- Research software to provide security, manage user inputs, and facilitate the article retrieval and Ask the Expert features.
- Develop the intranet site using an iterative approach, soliciting a great deal of user feedback.
- Develop a way to measure the value of the intranet site in terms of reduced costs and new revenues, both during the project and one year after project completion.

**ROLES AND RESPONSIBILITIES (PARTIAL LIST)**

Name	Role	Position	Contact Information
Joe Fleming	Sponsor	JWD Consulting, CEO	joe_fleming@jwdeconsulting.com
Erica Bell	Project Manager	JWD Consulting, manager	erica_bell@jwdeconsulting.com
Michael Chen	Team Member	JWD Consulting, senior consultant	michael_chen@jwdeconsulting.com
Jessie Faue	Team Member	JWD Consulting, consultant	jessie_faue@jwdconsulting.com
Kevin Dodge	Team Member	JWD Consulting, IT department	kevin_dodge@jwdconsulting.com
Cindy Dawson	Team Member	JWD Consulting, IT department	cindy_dawson@jwdconsulting.com
Kim Phuong	Advisor	Client representative	kim_phuong@client1.com
Page Miller	Advisor	Client representative	page_miller@client2.com

**Sign-Off:** (Signatures of all the above stakeholders)**Comments:** (Handwritten or typed comments from above stakeholders, if applicable)

*"I will support this project as time allows, but I believe my client projects take priority. I will have one of my assistants support the project as needed." — Michael Chen*

*"We need to be extremely careful testing this new system especially the security in giving access to parts of the intranet site to the public and clients." — Kevin Dodge and Cindy Dawson*

# Contents of An Assumptions Log

- An *assumption log* is a document used to record and track assumptions and constraints throughout the project life cycle.
- It aids in communicating information to key stakeholders and avoids potential confusion.
- Most projects include several assumptions that affect the scope, time, cost, risk, and other knowledge areas.
- It is important to document and validate these assumptions.

# Sample Assumptions Log

ID	Assumption Description	Category	Owner	Due Date	Status	Actions
108	Shipping of materials will only take 2 days	Time	Kristin	Sep. 1	Closed	Require 2-day shipping
122	Employees will take some of the training during non-work hours	Human resources	Lucy	Nov. 1	Open	Meet with dept. heads to discuss

# Holding a Project Kick-off Meeting

- Experienced project managers know that it is crucial to get projects off to a great start.
- A **kick-off meeting** is a meeting held at the beginning of a project so that stakeholders can meet each other, review the goals of the project, and discuss future plans.
  - Note that *the PMBOK® Guide – Sixth Edition*, suggests that the kick-off meeting be held during the end of the planning or start of the executing process group. In the author's experience, it is best hold it earlier.
- The project champion should speak first and introduce the project sponsor and project manager
- Good preparation is essential for the meeting to be a success.

# Initiating – Holding a Project Kick-Off Meeting

## Kick-Off Meeting [Date of Meeting]

**Project Name:** Project Management Intranet Site Project

**Meeting Objective:** Get the project off to an effective start by introducing key stakeholders, reviewing project goals, and discussing future plans

**Agenda:**

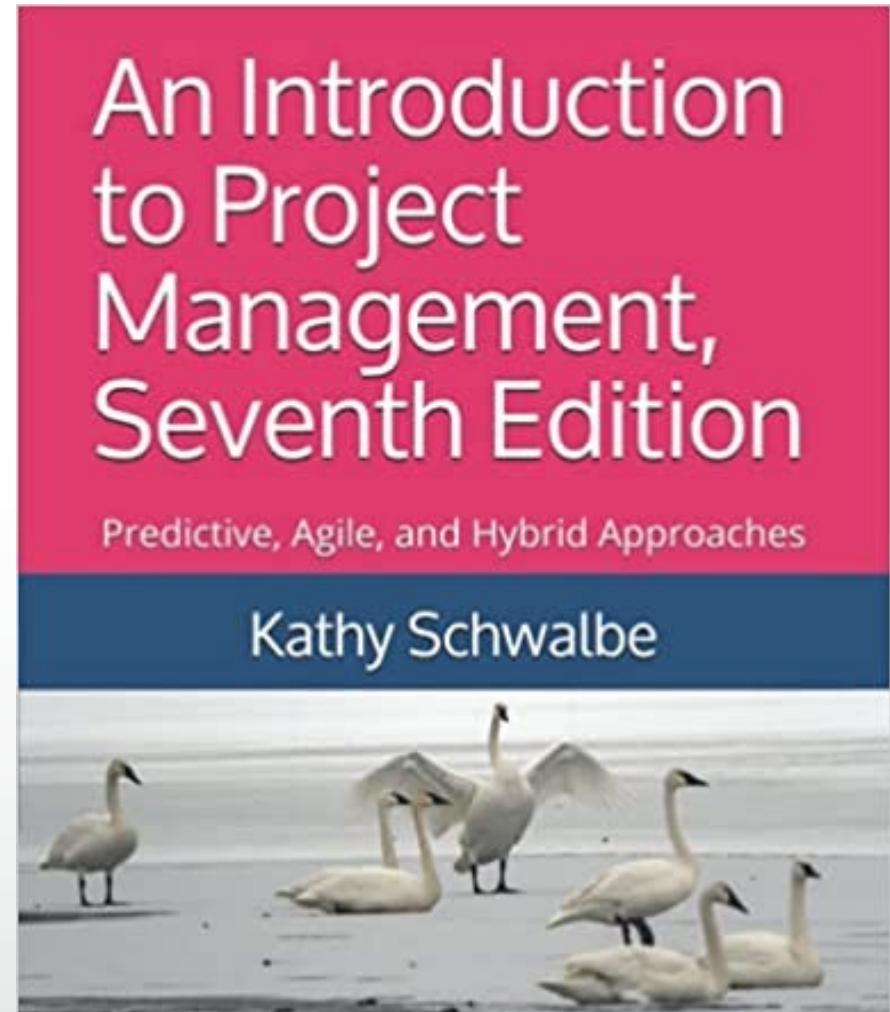
- Introductions of attendees
- Review of the project background
- Review of project-related documents (business case and project charter)
- Discussion of project organizational structure
- Discussion of project scope, time, and cost goals
- Discussion of other important topics
- List of action items from meeting

Action Item	Assigned To	Due Date

**Date and time of next meeting:**

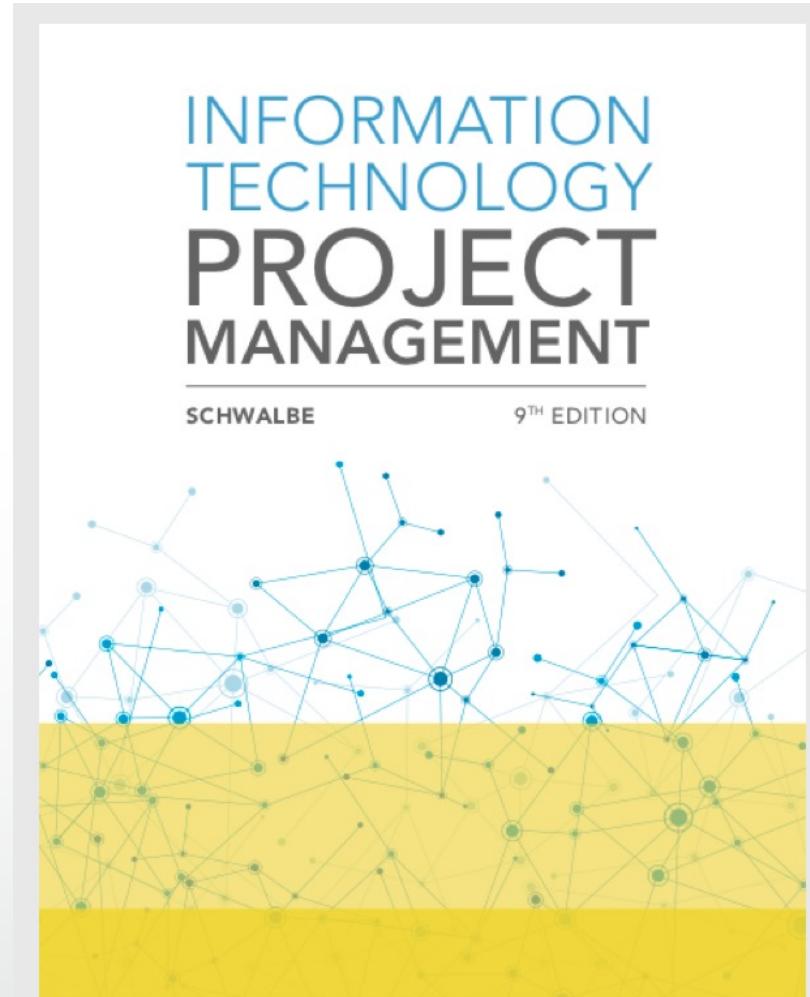
# Reference

- **An Introduction to Project Management, Seventh Edition: Predictive, Agile, and Hybrid Approaches**
- **Chapter 3**



# Reference

- **Chapter 3**
- *The Project Management Process Groups*



# Global Issues

- In 2018 PMI published their tenth annual global project management survey (Pulse of the Profession®)
  - 47 percent of projects completed in organisations in the past year used a predictive approach, 23 percent used agile, 23 percent used a hybrid of predictive and agile, and seven percent used other approaches
- A 2017 global survey conducted by Version. One found that 94 percent of respondents said their organisations practiced agile, but 60 percent of their teams were not yet practicing it
  - The top three benefits of agile listed were the ability to manage changing priorities, increased team productivity, and improved project visibility

# What Went Right?

- Organisations that excel in project management complete 89 percent of their projects successfully compared to only 36 percent of organisations that do not have good project management processes
- PMI estimates that poor project performance costs over \$109 million for every \$1 billion invested in projects and programs