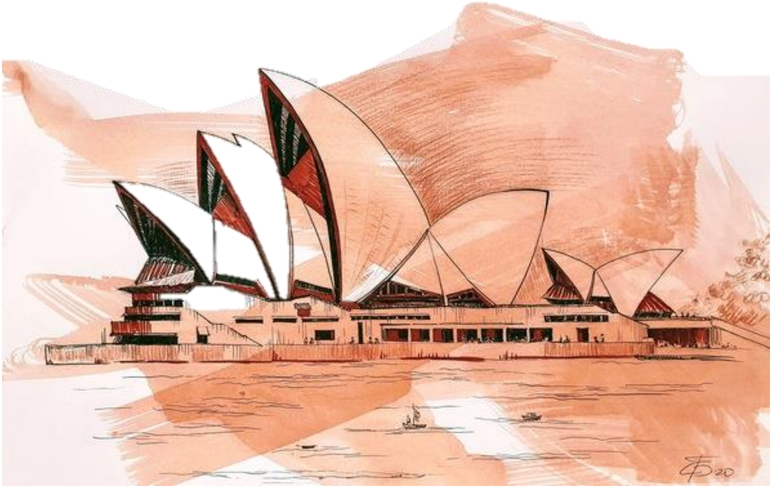
PROJECT MANAGEMENT

INFORMATION SYSTEM MANAGEMENT

Business case



COCA-COLA

The UNTOLD story of why NEW COKE failed (youtube.com)

SYDNEY OPERA HOUSE

Sydney Opera House Project Management Case Study - Lessons and Insights (5 Minutes) (youtube.com)

Discussion :

- What were the main reasons for the failure of the project?
- Can you identify the key stakeholders in the project?
- What were the key risks of the project?
- If you were in the role of a project manager, what would you do differently?

Learning Objectives

- What is project management, and what are the key elements of an effective project management process?
- What are knowledge areas?
- How can an effective project management process improve the likelihood of project success?

Learning Outcomes

You should be able to:

- discuss the importance of project management and its limitations
- identify the different project management areas and describe the importance of their integrations
- discuss the challenges that must be overcome to deploy an integrated project management approach
- master the PERT and CPM techniques
- describe the limitations of project management techniques for the
- coordination of complex IS projects.

Readings

Essential reading:

- Reynolds (2016) Chapter 3.
- Raymond, L. and F. Bergeron 'Project management information systems: an empirical study of their impact on project managers and project success', *International Journal of Project Management 26(2) 2008, pp.213–20*.
- Daniel, E.M., J.M. Ward and A. Franken 'A dynamic capabilities perspective of IS project portfolio management', *Journal of Strategic Information Systems 23(2) 2014, pp.95–111*.

Further reading:

- Portny, S.E. Project management for dummies. (Hoboken, NJ: Wiley, 2015)

Why Managers Must Understand Project Management

Projects are the way that much of an organization’s work gets done!

Project Management

- Recognized by many organizations as one of the core competencies
- Viewed by organizations as the ability to manage projects to:
  - Achieve an edge over competitors
  - Deliver greater value to shareholders and customers
- Involves spending considerable effort in:
  - Identifying potential project managers
  - Training and developing the personnel

What is a Project?

Project

- Temporary endeavor undertaken to create a unique product, service, or result
  - Attempts to achieve specific business objectives
  - Subject to certain constraints, such as total cost and completion date
- Is not repetitive

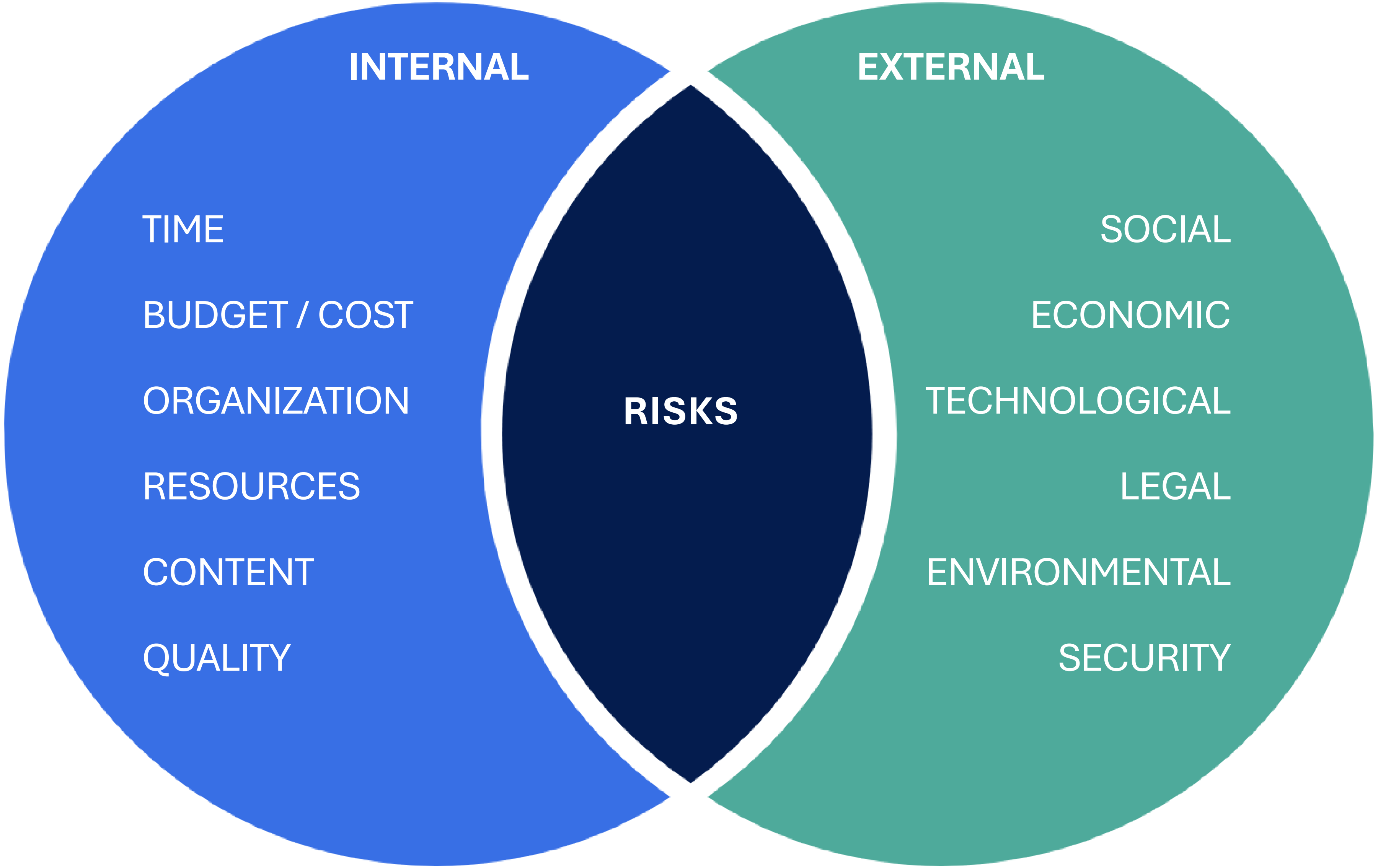
Project or a day-to-day activity?

1. Construction of a garage as a separate part of the house.
   ☐ A ☐ P
2. Selling goods in the supermarket.
   ☐ A ☐ P
3. Preparing a cake for a wedding.
   ☐ A ☐ P
4. Watering the flowers twice a week.
   ☐ A ☐ P
5. Walk your dog twice a day.
   ☐ A ☐ P
6. Information system management classes.
   ☐ A ☐ P
7. Making a birdhouse.
   ☐ A ☐ P
8. Replace the air purifier filter every 6 months.
   ☐ A ☐ P
9. Production of toys on a conveyor belt.
   ☐ A ☐ P
10. Organization of a scientific conference at Faculty.
    ☐ A ☐ P
11. Working out three times a week.
    ☐ A ☐ P
12. Preparation of special student assignment.
    ☐ A ☐ P
13. Cleaning the house.
    ☐ A ☐ P
14. Editing, preparing and printing weekly newspapers.
    ☐ A ☐ P
15. Reading a book.
    ☐ A ☐ P
16. Renovation of the classroom.
    ☐ A ☐ P
17. Preparing a graduation party.
    ☐ A ☐ P
18. Knitting a scarf.
    ☐ A ☐ P

Project

- Varies in size and levels of complexity:
  - A senior executive led a project to integrate two organizations following a corporate merger.
  - Construction in real estate
  - A consumer goods company executed a project to launch a new product.
  - IT company produce new mobile game
  - A writer who is writing a new book

Project constraints



Project constraints

Time: Time refers to the deadlines of individual tasks and activities.

Budget: A budget contains all the costs of your project, including labor, materials, equipment, and more.

Content: The content of the project contains all the tasks/activities that need to be carried out in order for the project to be considered complete.

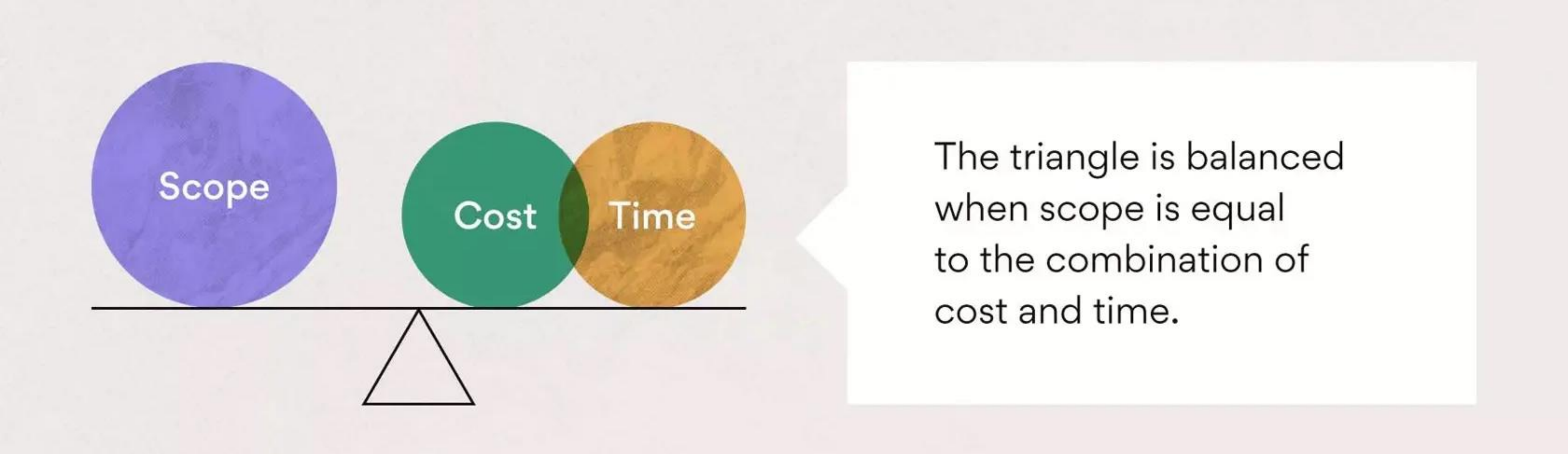
These first three constraints - time, budget, and content - form the triangle of the triple limit (the iron triangle) and are directly related. A change in one element will mean a change in the other two elements.

Quality: Quality refers to the level of achieved characteristics that need to be achieved for the satisfactory completion of a project. How you manage time, costs, and resources will have a direct impact on quality.

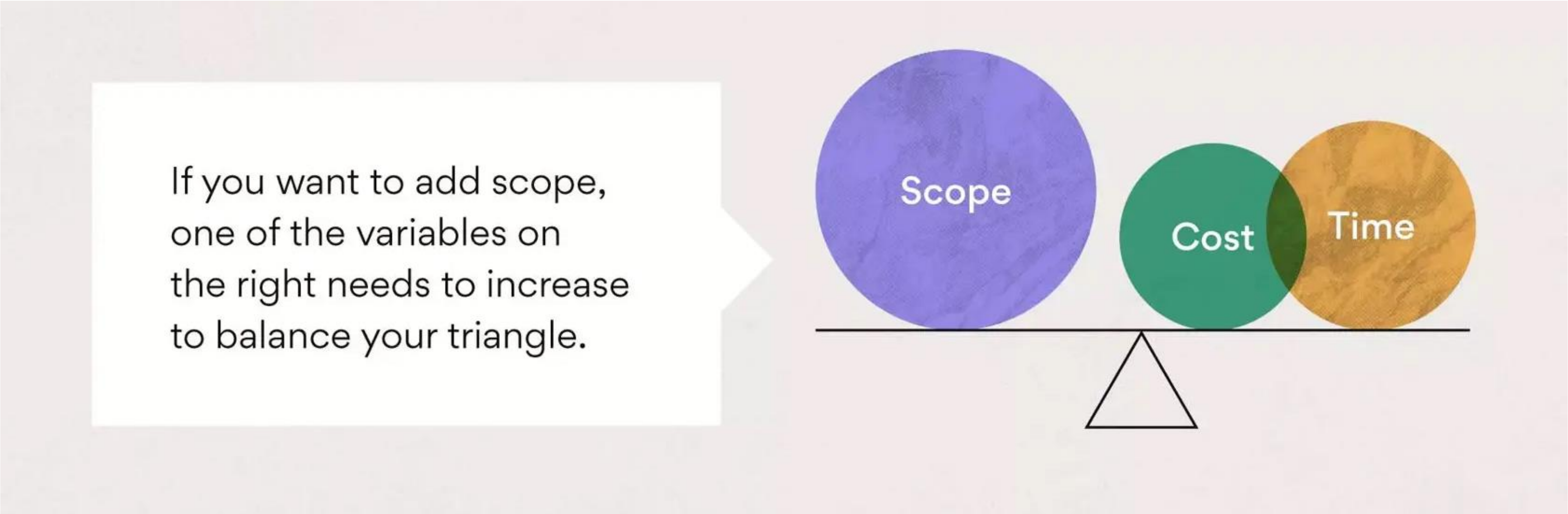
Resources: Resources refer to any resource that you need to complete a project. This includes those that you have at your disposal and those that you still need to acquire. Resources can be time, people, equipment, facilities, software, or anything else your project requires.

Risks: Risks refer to all possible circumstances that can affect your project, positively or negatively. Risks can be caused internally or externally.

Balancing constrains



Balancing constrains



Balancing constrains

Project Variables

- **Project scope**
  - Definition of tasks to be included and excluded in a project
  - Key determinant of the other project factors
  - In general, the larger the scope of the project, the more difficult it is to meet project objectives

Project Variables

- **Cost**
  - Capital and expenses
  - Capital is money spent to purchase assets that appear on the organization’s balance sheet and are depreciated over the life of the asset
  - Expense items are nondepreciable items that are consumed shortly after they are purchased

Project Variables

- **Time**
  - Projects needs to be completed by a certain date to meet business goals or a government mandate.
  - The timing of a project is frequently a critical constraint.

Project Variables

- **Quality**
  - Degree to which the project meets the needs of the users
  - IT-related system project quality is defined in terms of the system's functionality, features, system outputs, performance, reliability, and maintainability

Project Variables

- **User expectations**
  - Stakeholders' expectations about how the project will be conducted and how it will affect them
  - End users expect to participate in weekly project status meetings
  - Significant differences in expectations that can exist between stakeholders and project members. It is critical to a project's success to identify expectations of key stakeholders and team members; if there are differences, they must be resolved to avoid future problems and misunderstandings.

Project Management

Project constraints – DISSCUSION

A. The company didn't have enough money to invest in the project, so they had to hire people from other departments to work part-time to get the job done.

B. The team wanted to test the final result to find flaws, but the project manager dismissed it.

C. The project manager did not take into account the software licensing fees, which caused the budget to get out of control.

D. About halfway through the project, the project manager realized that costs were rising much faster than expected. The manager then reviewed the schedule of activities in the project and tried to find ways to push back the deadline.

E. The manager of the construction project assumed that the weather would be suitable by the time for the completion of the work, but sudden heavy downpours appeared that changed everything.

RISKS

TIME

QUALITY

RESOURCES

BUDGET

SCOPE

To think about

Lead an international project team on a project to improve online payments for a bank that operates around the world. Your office is located in Paris, and very often when you think about work, you are inspired by the view of the Champs de Mars and the Eiffel Tower.

Project team meetings are unavoidable to be able to coordinate activities and work on the project. You should set a day and time for your weekly online conference call.

- One member of the team is based in Belgrade.
- Two members of the team are in London.
- Numerous team members are in Mumbai
- An important member of the team is getting involved from the Emirates
- Occasionally you include a member from Tokyo
- The last member of the team is from New York

A member of the Tokyo team does not speak English

Project Management

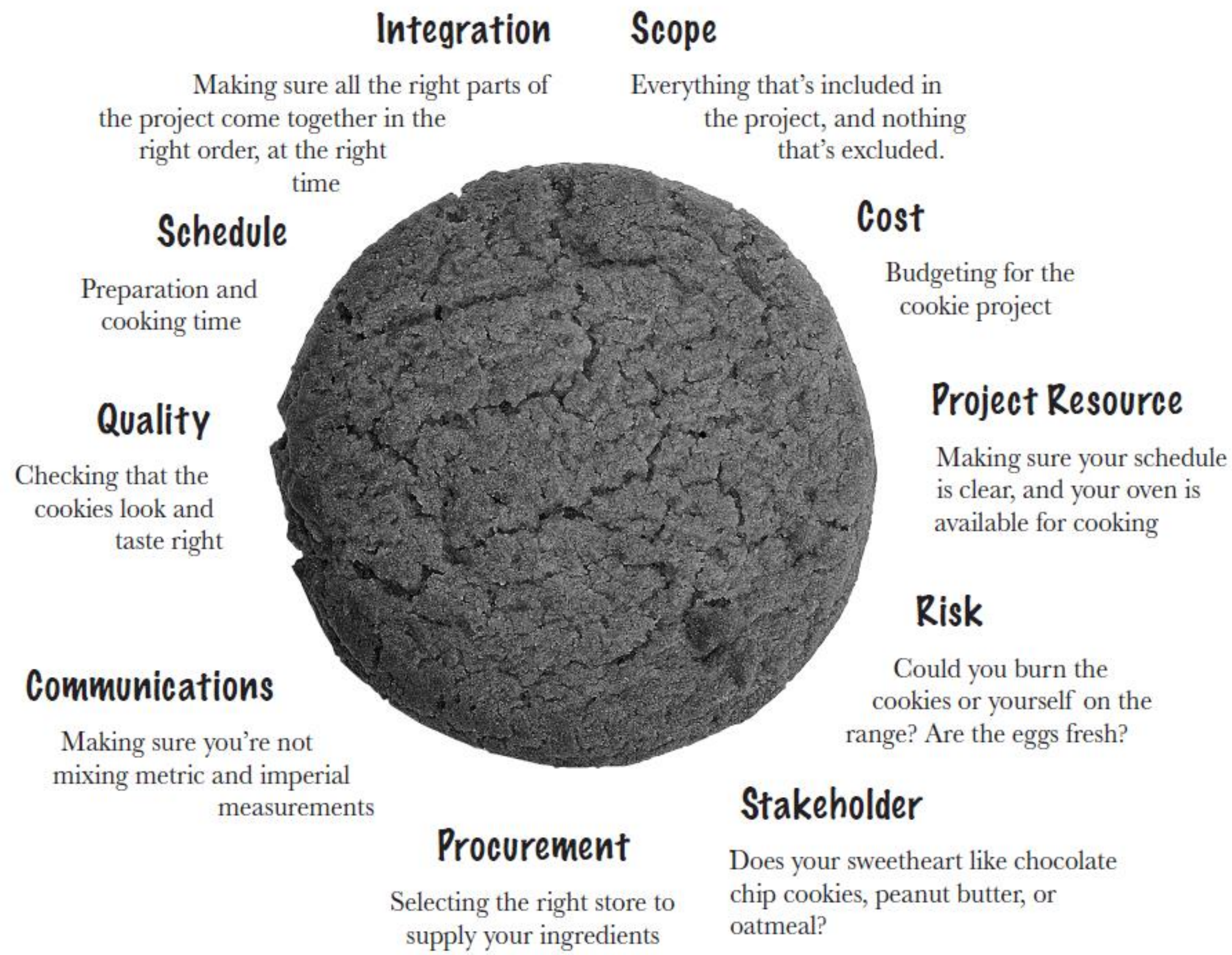
- Application of knowledge, skills, and techniques to project activities to meet project requirements
- Handled by managers by managing the expectations of the stakeholders
- Considered an art and a science
- **Project stakeholders**
  - People involved in the project or those affected by its outcome

Project Management Knowledge Areas

Project Management Knowledge Areas

Knowledge Areas	Project Management Process Groups				
	Initiating	Planning	Executing	Monitoring & Controlling	Closing
Project Integration Management	Develop Project Charter	Develop Project Management Plan	Direct and Manage Project Execution	Monitor and Control Project Work Perform Integrated Change Control	Close Project or Phase
Project Scope Management		Collect Requirements Define Scope Create WBS		Verify Scope Control Scope	
Project Time Management		Define Activities Sequence Activities Estimate Activity Resources Estimate Activity Durations Develop Schedule		Control Schedule	
Project Cost Management		Estimate Costs Determine Budget		Control Costs	
Project Quality Management		Plan Quality	Perform Quality Assurance	Perform Quality Control	
Project Human Resource Management		Develop Human Resource Plan	Acquire Project Team Develop Project Team Manage Project Team		
Project Communications Management	Identify Stakeholders	Plan Communications	Distribute Information Manage Stakeholder Expectations	Report Performance	
Project Risk Management		Plan Risk Management Identify Risks Perform Qualitative Risk Analysis Perform Quantitative Risk Analysis Plan Risk Responses		Monitor and Control Risks	
Project Procurement Management		Plan Procurements	Conduct Procurements	Administer Procurements	Close Procurements

Knowledge areas - piece of cake



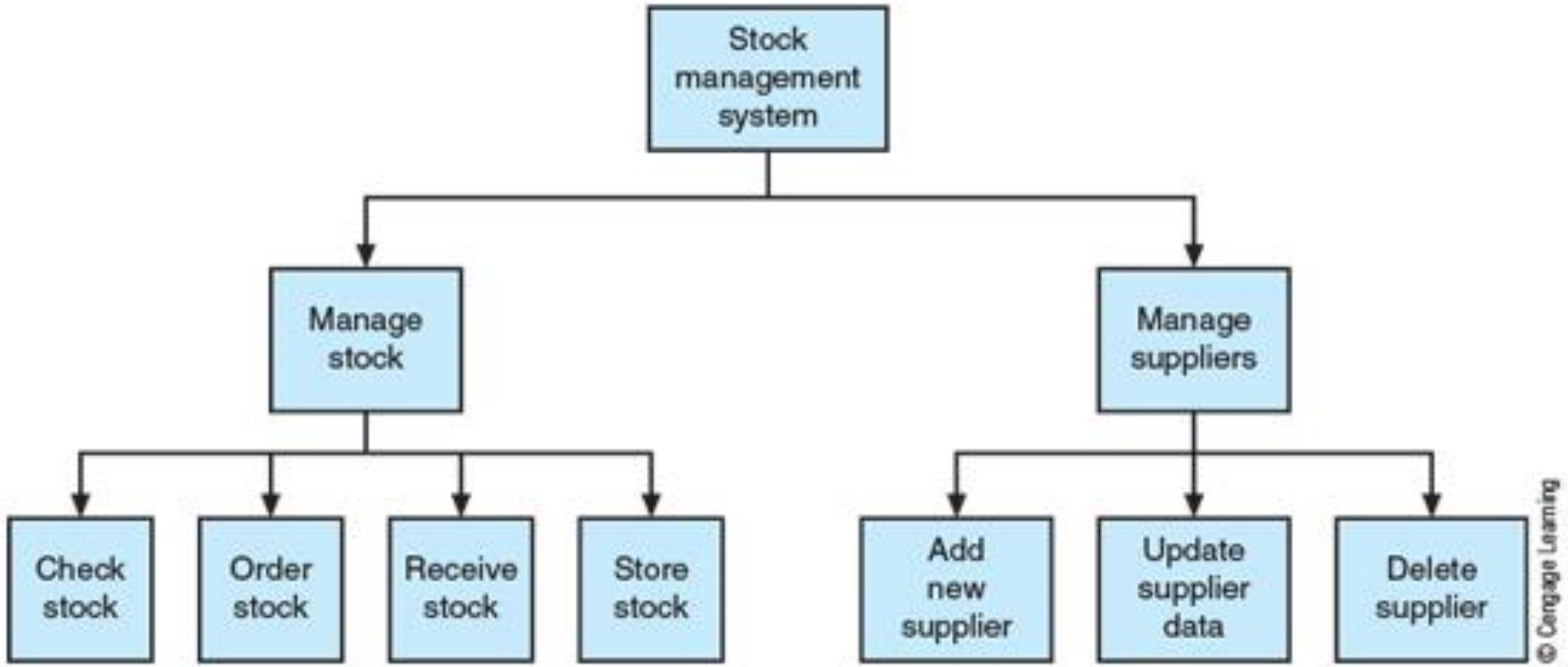
Scope Management

- Defining the work that must be done as part of the project
- Controlling the work to stay within the scope to which the team has agreed
- Key activities
  - Initiation, scope planning, scope definition, scope verification, and scope change control
- **Functional decomposition**: Defines the scope of an information system by identifying the business processes it will affect

Scope Management

- **Process**: Set of logically related tasks performed to achieve a defined outcome
- Formal scope change process should be defined before the project begins in order to avoid problems

Figure 3.4 - Functional Decomposition Defining the Scope of a System



Time Management

- Involves:
  - Defining an achievable completion date
  - Developing a workable project schedule
  - Ensuring the timely completion of the project
- Efficiency requires:
  - Identifying and sequencing the tasks
  - Focusing on firm deadlines or task dependencies
  - Estimating the amount of resources required
  - Estimating the elapsed time to complete each task
  - Analyzing all the data to create a project schedule

Time Management

    - Controlling and managing changes to the project schedule

- **Project schedule**: Identifies project activities to be completed, expected start and end dates, and resources allocated to each task
- **Project milestone**: Critical date for completing a major part of the project

Time Management

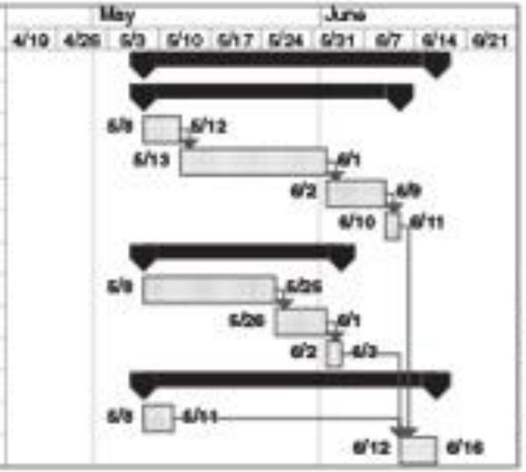
- **Project deadline**: Date of completing and operationalizing a project
- **Slack time**: Amount of time an activity can be delayed without delaying the entire project
- **Critical path**: Consists of all activities that, if delayed, would delay the entire project
- **Project Evaluation and Review Technique (PERT)**
  - Creates three time estimates for an activity

Time Management

- **Gnatt chart**: Graphical tool used for planning, monitoring, and coordinating projects
- **Work breakdown structure (WBS)**
  - Outline of the work to be done to complete the project
  - Allows one to look at the project in detail to recognize all the work that needs to be performed

Gantt Chart Depicting the Start and Finish of Project Tasks

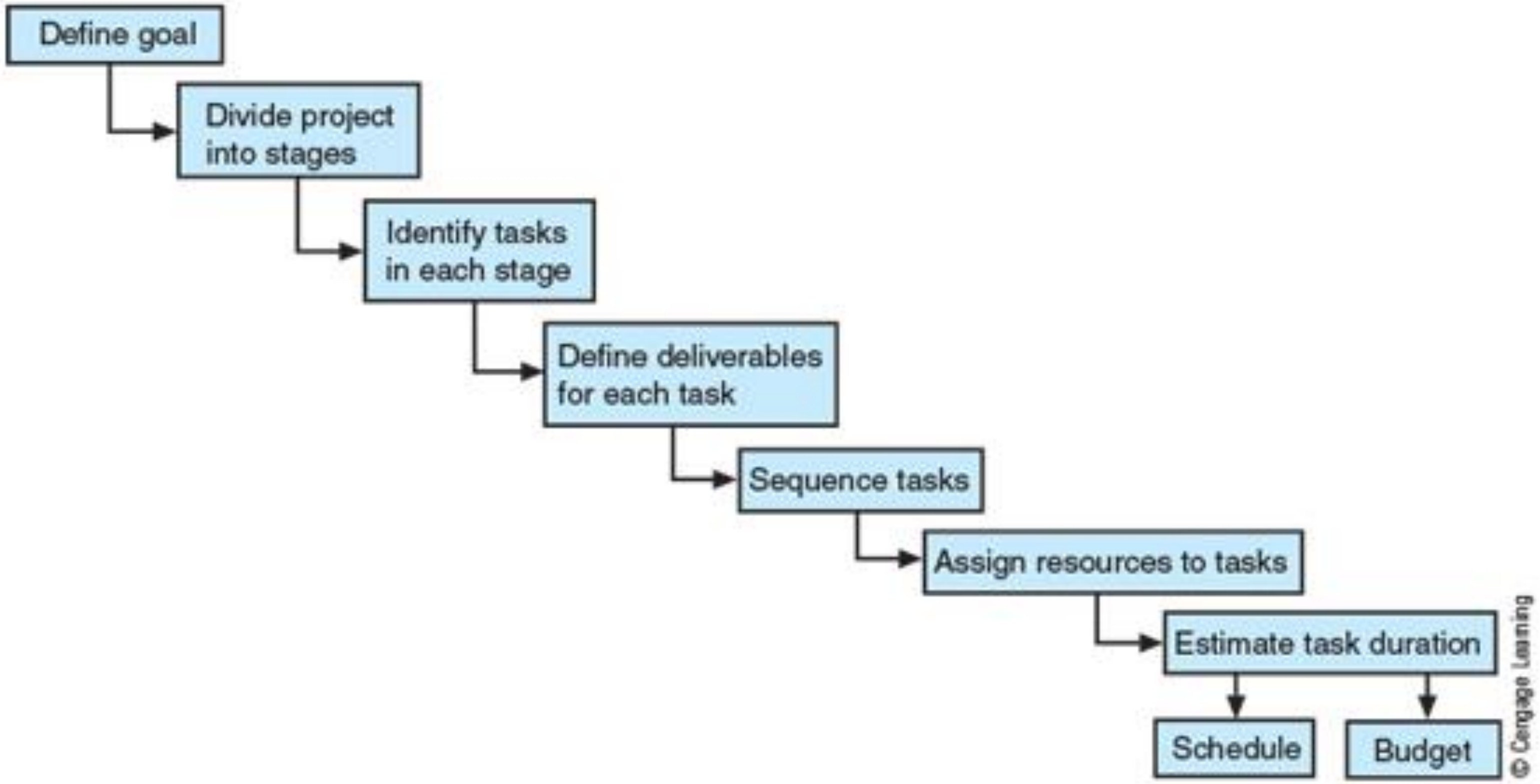
ID	Task Name	Duration	Start	Finish	Predecessors
1	**Implement Warehouse Network**	**28 days**	**Fri 5/6/16**	**Tue 6/14/16**	
2	**Define Warehouse Network**	**26 days**	**Fri 5/6/16**	**Thu 6/9/16**	
3	Conduct Survey	3 days	Fri 5/6/16	Tue 5/10/16	
4	Order RF Equipment	14 days	Wed 5/11/16	Mon 5/30/16	3
5	Install RF Equipment	6 days	Tue 5/31/16	Tue 6/7/16	4
6	Test RF Equipment	2 days	Mon 6/6/16	Tue 6/7/16	5
7	**Configure Forklift Trucks**	**19 days**	**Fri 5/6/16**	**Wed 6/1/16**	
8	Order RFID Scanners for Trucks	12 days	Fri 5/6/16	Mon 5/23/16	
9	Install RFID Scanners on Trucks	5 days	Tue 5/24/16	Mon 5/30/16	8
10	Test RFID Scanners	2 days	Tue 5/31/16	Wed 6/1/16	9
11	**Test Warehouse Network**	**28 days**	**Fri 5/6/16**	**Tue 6/14/16**	
12	Develop Test Plan	2 days	Fri 5/6/16	Mon 5/9/16	
13	Conduct Test	3 days	Fri 6/10/16	Tue 6/14/16	6, 10, 12



Cost Management

- Developing and managing the project budget
- Involves resource planning, cost estimating, cost budgeting, and cost control
- Separate budget needs to be established for each type of cost
  - Capital, expense, and internal cross-charge
- Use WBS to estimate all costs

Figure 3.6 - Development of a WBS Leads to Creation of a Schedule and Budget



Quality Management

- Ensures that the project will meet the needs for which it was undertaken
- **Quality planning**: Determining relevant quality standards for the project and ways to meet them
- **Quality assurance**: Evaluating the progress of the project to ensure that identified quality standards are met
- **Quality control**: Checking project results to ensure that they meet identified quality standards

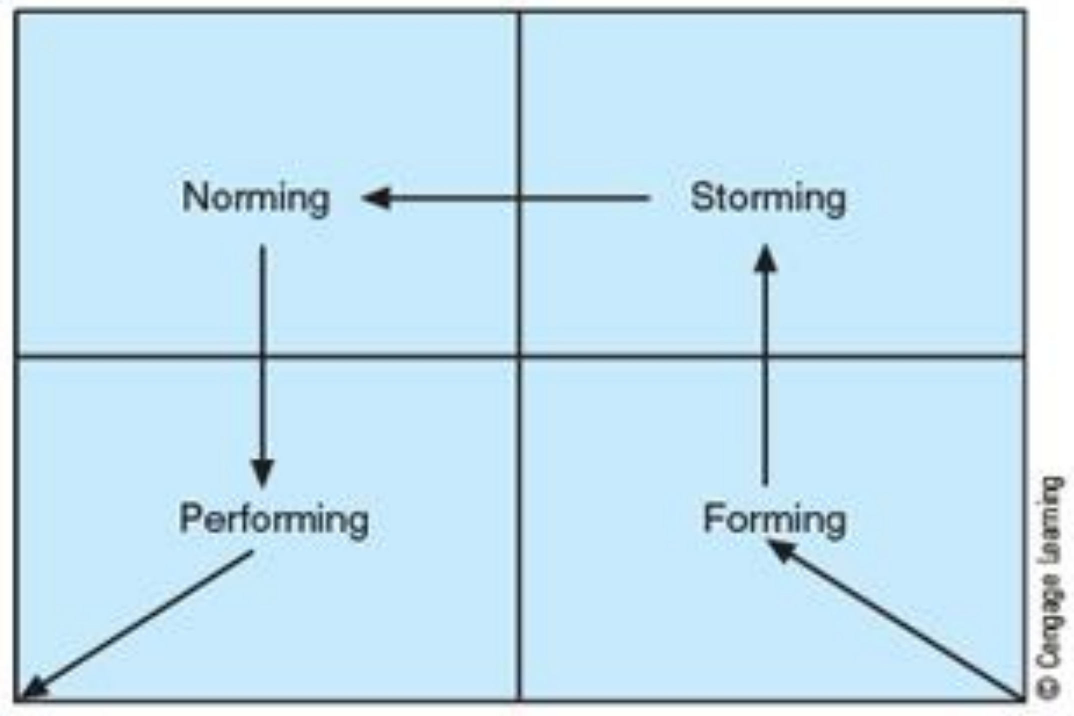
Human Resource Management

- Making optimum use of the people involved with the project
- Includes organizational planning, staff acquisition, and team development
- Requires a project manager to:
  - Build a project team staffed with people with the right mix of skills and experience
  - Train, develop, coach, and motivate the team to perform effectively on the project

Human Resource Management

- **Forming-storming-norming-performing model**
  - Describes how teams develop and evolve
  - Forming stage - Team learns about the project, agrees on basic goals, and begins to work on tasks
  - Storming stage - Team recognizes differences of opinion among the members and allows the ideas to compete for consideration
  - Norming and performing stage - Team is competent, motivated, and knowledgeable about all aspects of the project

Figure 3.7 - Tuckman's Forming-Storming-Norming-Performing Model



Human Resource Management

- **Project steering team**: Consists of senior managers representing the business and IT organizations
  - Provide guidance and support to the project
  - Key members of the team include:
    - **Project champion**
    - **Project sponsor**
    - **IT manager**

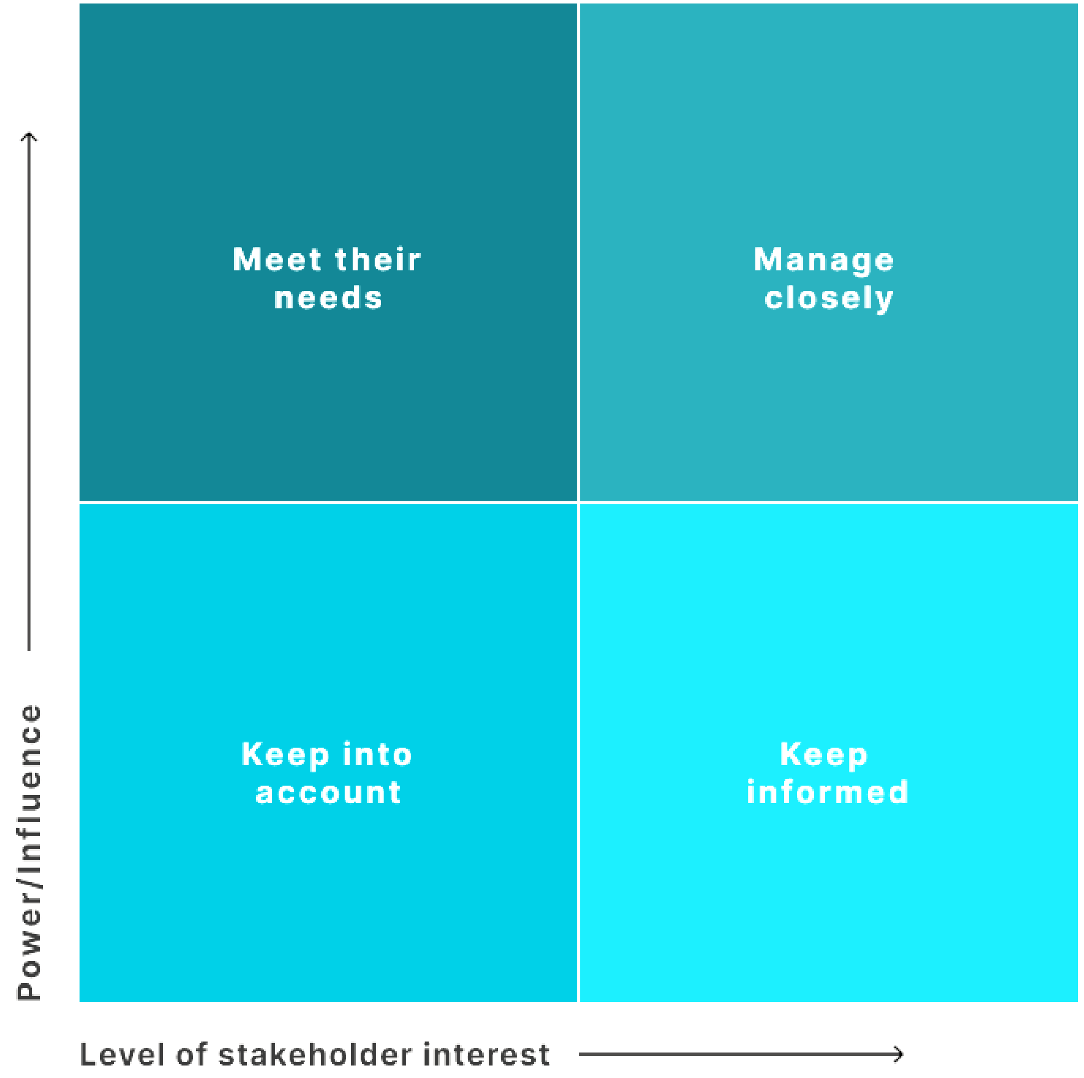
Communications Management

- Generation, collection, dissemination, and storage of project information in a timely and effective manner
- Includes communications planning, information distribution, performance reporting, and managing communications

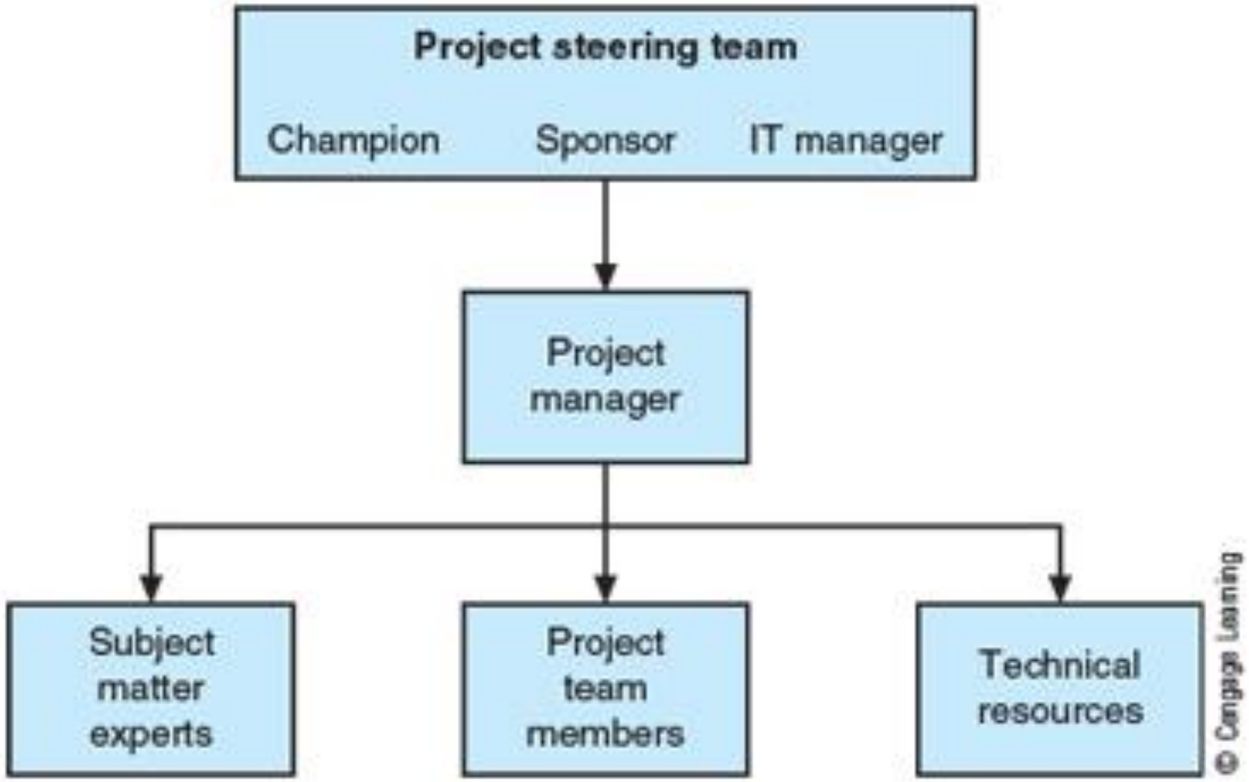
Communications Management

- Key stakeholders
  - Project steering team
  - The team itself
  - End users
  - Others who may be affected by the project
- Stakeholder analysis matrix
  - Identifies the interest of the stakeholders, their information needs, and important facts

Stakeholder matrix (Mendel matrix)



Project Steering Team



Risk Management

- Identifying, analyzing, and managing project risks
- **Project risk**: Uncertain event that, if it occurs, has a positive or a negative effect on a project objective
- Known risks - Identified and analyzed risks
- Unknown risks cannot be managed directly

Stakeholder Roles - Disscusion

Executes the project plan to implement the content or result of the project.

Prioritize projects and define a project budget.

He uses metrics to identify variances and trends in project work and is responsible for analyzing the impact of those variances and trends.

In some organizations, it has jurisdiction over the use of resources.

Provides feedback and accepts or rejects parts of the presented parts of the project that have been completed by then.

PROJECT TEAM

PROJECT MANAGER

PROJECT SPONSOR

STAKEHOLSERS

BUSINESS FUNCTION MANAGER

Project: Survival on the Moon

You have been selected as a member of the space crew, which is to spend 6 weeks on the moon, replacing the existing crew at the base located on the bright side of the moon.

However, due to technical problems, your aircraft made an emergency landing about 200 kilometers away from the meeting point with the existing crew. Much of the aircraft's equipment was damaged in the crash. Since survival depends on getting to the lunar base, you need to choose the essentials for the 200-kilometer journey to the base.

You have 15 objects that remained intact and undamaged after landing. Your task is to rank them according to their importance to the crew in order to be able to reach the lunar base. Put the number 1 next to the most important item, the number 2 next to the second most important item, and so on, all the way up to the number 15 for the least important item.

Since you have limited supplies, you need to make a list as soon as possible and go to the base. You only have 15 minutes!

Rank	Object
	Matchbox
	Food concentrate
	50 Meters nylon rope
	Parachute silk
	Portable heating unit
	Two .45 caliber pistols.
	One packet of dehydrated milk
	Two oxygen tanks
	Star map
	Self-inflating life raft
	Magnetic compass
	20 liters of water
	Signal flares
	First aid kit
	Solar powered FM radio transmitter

Risk Management

- People who can participate in identifying the risks
  - Experienced project managers
  - Members of the organization’s risk management department
- Classify the risk by:
  - Probability that it will occur
  - Impact on the project if the risk does occur

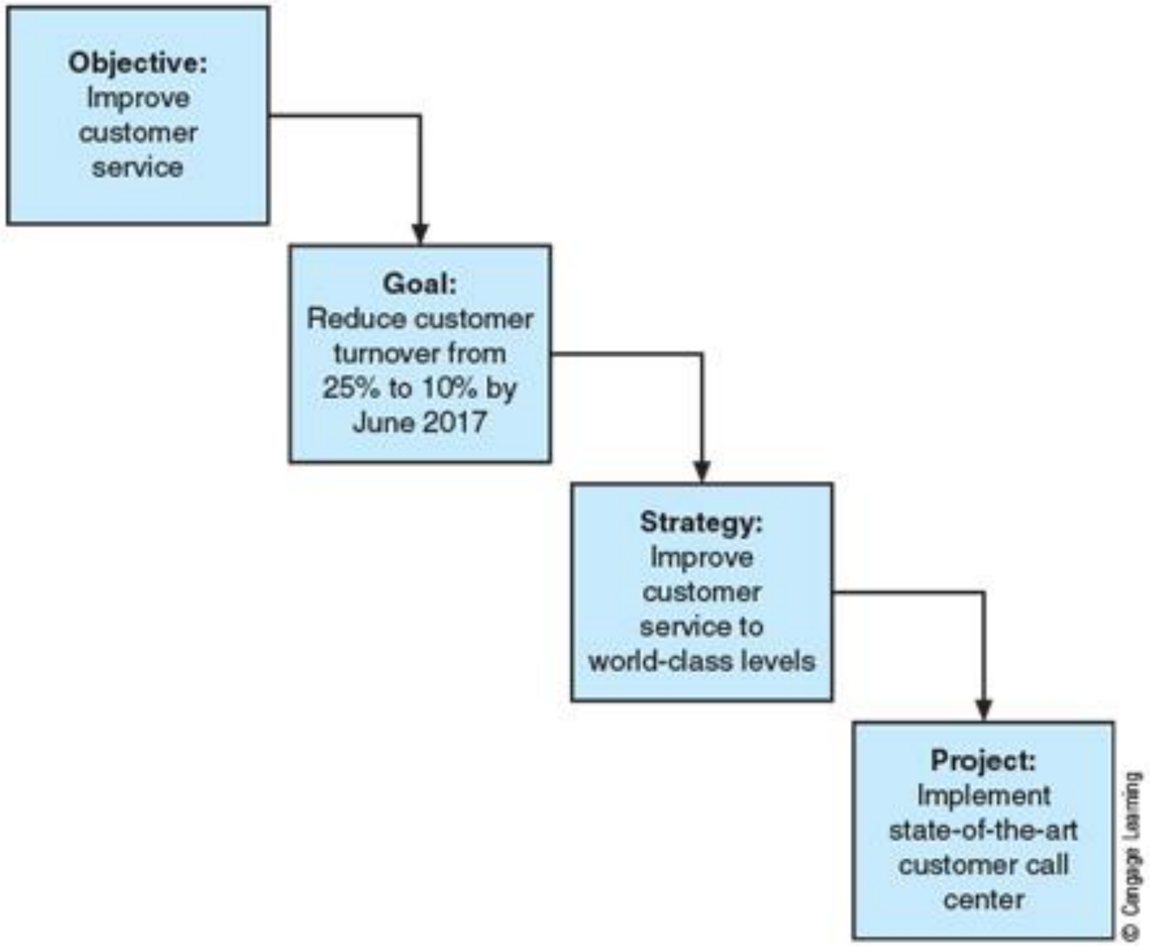
Risk Management

- Requires considering which risks need to be addressed with risk management plan
- Allows ignoring risks with a low probability of occurrence and low potential impact
- **Risk owner**: Responsible for developing a risk management strategy and monitoring the project

Table 3.8 - Risk Management Plan

Risk	Description	Risk Owner	Risk Strategy	Current Status
R2	Business pressures make key end users unavailable to develop the user acceptance test by the deadline.	Jon Andersen, manager of end users in the business area	Try to avoid this problem by starting development of the user acceptance test three weeks earlier than originally planned. Monitor progress carefully.	Key users have been identified and have started developing the test.
R3	Business pressures make end users unavailable during the time scheduled for training.	Jon Andersen, manager of end users in the business area	Try to avoid this problem by hiring and training four temporary workers to fill in for end users as they participate in training.	Three of four temporary workers have been hired. Their training is scheduled to begin next week.
R1	The required new servers arrive at the installation site more than two weeks late.	Alice Fields, team member responsible for hardware acquisition	Set a firm delivery deadline with the vendor, with a substantial dollar penalty for each day that the equipment is late.	The contract with the penalty clause has been signed by the vendor, who agrees to provide a shipment status update each Tuesday and Friday.

Well linking Projects to Organizational Goal and Strategy



Procurement Management

- Acquiring goods and/or services for the project from sources outside the performing organization
- Divided into the following processes
  - Plan purchase and acquisition
  - Plan contracting
  - Request seller responses
  - Select seller
  - Contract administration
  - Contract closure

Procurement Management

- **Make-or-buy decision**: Comparing the pros and cons of in-house production versus outsourcing of a given product or service
- Contract - Legal agreement that defines the terms and conditions of the buyer-provider relationship
  - Types
    - **Fixed-price**
    - **Cost-reimbursable**
    - **Time and material**

Contracts

A. The school hires a contractor to build a new library. The contractor agrees to complete the project at a fixed cost of $500,000, regardless of any changes in material costs or hours of work.

B. The university needs to renovate its scientific laboratories but is not sure of the exact scope of work. They agree to pay the contractor for the actual time spent and materials used, plus a fixed hourly rate for the work.

C. The Faculty is building a new student dormitory. The contractor agrees to a maximum price of $2 million. If the project costs exceed this amount, the contractor will cover the additional costs.

D. The high school hires a contractor for the extension of its sports facilities. The contractor provides an estimate, but the final payment will be based on the hours actually worked and the materials used, without a fixed price.

E. The university commissions the construction of a new research building. The contractor agrees to complete the project at the agreed price, but all savings will be split between the contractor and the university.

Fixed-price

Time and material

Cost-reimbursable

Project Integration Management

- Requires the assimilation of all eight other project management knowledge areas
- Requires the coordination of all appropriate people, resources, plans, and efforts to complete a project successfully

Project Integration Management

- Comprises of the following project management processes
  - Developing the project charter
  - Developing a preliminary project scope statement
  - Developing the project management plan
  - Directing and managing project execution
  - Monitoring and controlling the project work
  - Performing integrated change control
  - Closing the project successfully

Discussion

SCOPE INTEGRATION QUALITY RISK PROCUREMENT
SCHEDULE COSTS PROJECT RESOURCES

Coordinating all the work so that it is done correctly. Make sure that the changes are approved before they happen.

____

Figure out what work needs to be done for your project. Make sure that your end product has everything you have defined in the plan.

____

Define the time it will take you to complete the activities, and the appropriate order. Follow the schedule to make sure everything is on time.

____

Know the amount of investment you are willing to make in the project.
Make sure you spend your money as planned.

____

Make sure that you work as efficiently and effectively as possible, and that you do not contribute to the appearance of defects in the final result.

____

Influence people to work as part of a team, and constantly motivate them. Rewarding for a job well done and resolving potential conflicts.

____

Determine how to protect your project from anything that could potentially happen to it. Coping with the unexpected.

____

Find a contractor to help you complete the project. Setting the basic rules for their relationship with your company.

____

Summary

- Five parameters define a project
  - Scope, cost, time, quality, and user expectations
- Project management
  - Application of knowledge, skills, and techniques to project activities to meet project requirements
- Project managers must coordinate nine areas of expertise
- Forming-storming-norming-performing model describes how teams form and evolve

Summary

- Each project should have a project steering team
- Risk management is a process that attempts to identify, analyze, and manage project risks
- Procurement management involves acquiring goods and/or services for the project from sources outside the performing organization
- Project integration management needs the assimilation of all the project management knowledge areas