

# Project Management

COMP6204: Software Project  
Management and Secure Development

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# An Overview

- Project vs Operations
- PMBOK & Project Management Institute (PMI)
- Project Attributes
- Project Constraints
- What is Project Management?
- Project Management Knowledge Areas
- Project Stakeholders
- Project Management Tools and Techniques – Cont.

# Project vs Operations

- A **project** is “*a temporary endeavour undertaken to create a unique product, service, or result*” (PMBOK® Guide, Sixth Edition, 2017)
- **Operations** is work done to **sustain** the business
- Projects end when their objectives have been reached or the project has been terminated.
  - Projects can be large or small and take a short or long time to complete

# Examples of IT Projects

- A team of students creates a smartphone application and sells it online
- A company develops a driverless car
- A government department develops a system to track child immunizations
- A global bank acquires other financial institutions and needs to consolidate systems and procedures

# What Is PMBOK in Project Management?

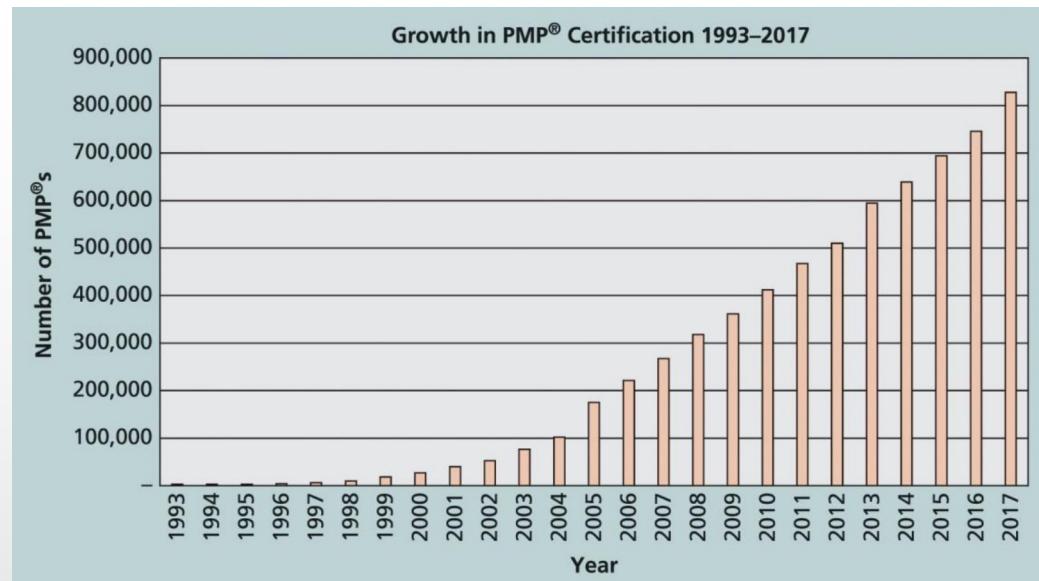
- PMBOK stands for *Project Management Body of Knowledge*.
  - It converse collection of processes, best practices, terminologies, and guidelines that are accepted as standard within the project management industry.
- PMBOK is considered valuable for companies as:
  - it helps them standardise practices across various departments,
  - tailor processes to suit specific needs,
  - and prevent project failures.

# PMBOK

- Because the body of knowledge is constantly growing as practitioners discover *new methods* or *best practices*, it must be regularly updated and disseminated.
- This is an effort that is overseen by the Project Management Institute (PMI), a global *not-for-profit* member association of project management professionals.
- You can find a more in-depth discussion on PMBOK in Wrike's Project Management Guide.

# The Project Management Institute

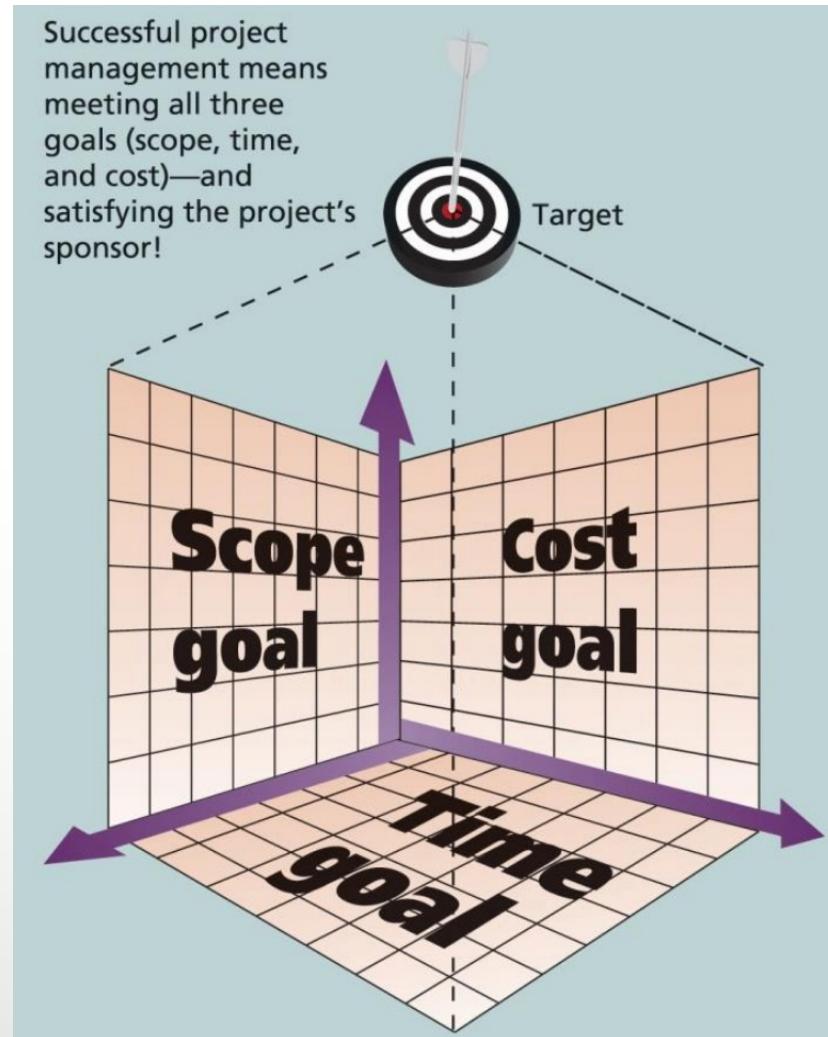
- PMI provides **certification** as a Project Management Professional (PMP®)
- A PMP® has documented sufficient project experience, agreed to follow a code of ethics, and passed the PMP® exam
- The number of people earning PMP® certification is increasing quickly



# Project Attributes

- A project
  - has a **unique** purpose
  - is **temporary**
  - drives **change** and enable value creation
  - is developed using **progressive elaboration**
  - requires **resources**, often from various areas
  - should have a **primary customer** or **sponsor**
    - The project sponsor usually provides the **direction** and **funding** for the project
  - involves **uncertainty**
- Project managers work with project **sponsors**, **team**, and other people **involved** in a project to achieve **project goals**

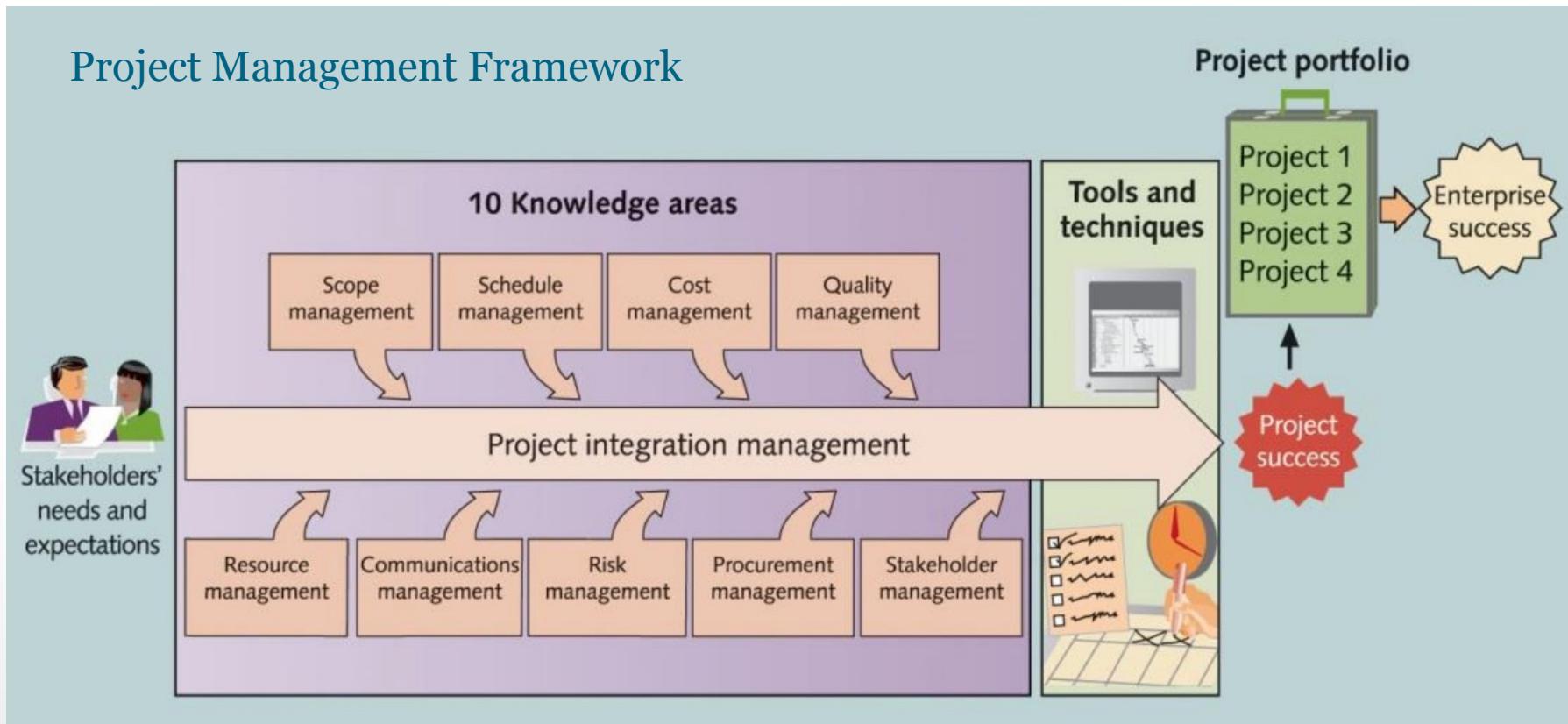
# Project Constraints



# What is Project Management?

- Project management is “*the application of knowledge, skills, tools and techniques to project activities to meet project requirements*” (PMBOK® Guide, Sixth Edition, 2017)
- Project managers strive to meet the **triple constraint** (project **scope**, **time**, and **cost** goals) and also facilitate the entire process to meet the **needs** and **expectations** of project stakeholders

# What is Project Management?



# Project Stakeholders

- Stakeholders are the people involved in or affected by project activities
- Stakeholders include
  - the project sponsor
  - banks and other financial institutions
  - the project manager
  - the project team
  - support staff
  - suppliers
  - opponents to the project

# Project Management Knowledge Areas

- Knowledge areas describe the key competencies that project managers must develop
- Project managers must have knowledge and skills in all 10 knowledge areas (scope, schedule, cost, quality, resource, communications, risk, procurement, stakeholder, and project integration management)

# Project Management Tools and Techniques

- Project management **tools** and **techniques** assist project managers and their teams in various aspects of project management
- Some specific ones include
  - Project charter, scope statement, and **Work Breakdown Structure** WBS (scope)
  - **Gantt charts**, **network diagrams**, **critical path analysis**, critical chain scheduling (time)
  - **Cost estimates** and earned **value** management (cost)
  - See the table below for many more

# Common project management tools and techniques by knowledge area

Knowledge Area/Category	Tools and Techniques	Super Tools
<i>Integration management</i>	Project selection methods Project management methodologies Stakeholder analyses Work requests Project charters Project management plans Change control boards Project review meetings	Project management software Change requests Lessons-learned reports
<i>Scope management</i>	Statements of work Scope management plans Scope verification techniques Scope change controls	Scope statements Work breakdown structures Requirements analyses
<i>Schedule management</i>	Project network diagrams Critical path analysis Crashing Fast tracking Schedule performance measurements	Gantt charts

# Common project management tools and techniques by knowledge area

Knowledge Area/Category	Tools and Techniques	Super Tools
<i>Cost management</i>	Project budgets Net present value Return on investment Payback analysis Earned value management Project portfolio management Cost estimates Cost management plans Cost baselines	
<i>Quality management</i>	Quality metrics Checklists Quality control charts Pareto diagrams Fishbone diagrams Maturity models Statistical methods Test plans	

# Common project management tools and techniques by knowledge area

Knowledge Area/Category	Tools and Techniques	Super Tools
<i>Resource management</i>	Motivation techniques Empathic listening Responsibility assignment matrices Project organizational charts Resource histograms Team building exercises	
<i>Communications management</i>	Communications management plans Conflict management Communications media selection Status reports Virtual communications Templates Project websites	Kick-off meetings Progress reports
<i>Risk management</i>	Risk management plans Risk registers Probability/impact matrices Risk rankings	
<i>Procurement management</i>	Make-or-buy analyses Contracts Requests for proposals or quotes Source selections Supplier evaluation matrices	

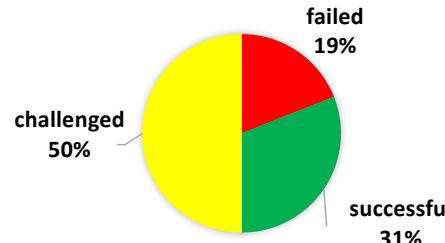
# Project Management Tools and Techniques – Cont.

- PMBOK® Guide – Sixth Edition lists tools and techniques based on their purpose:
  - Data gathering
  - Data analysis
  - Data representation
  - Decision making
  - Communication
  - Interpersonal and team skills
  - Ungrouped

# The Standish Group's CHAOS Report -2020

## Project Success Quick Reference Card

Based on CHAOS 2020: Beyond Infinity Overview. January'2021, QRC by Henny Portman



Modern measurement  
(software projects)



Good Sponsor, Good Team, and Good Place are the only things we need to improve and build on to improve project performance.



**The Good Place** is where the sponsor and team work to create the product. It's made up of the people who support both sponsor and team. These people can be helpful or destructive. It's imperative that the organization work to improve their skills if a project is to succeed. This area is the hardest to mitigate, since each project is touched by so many people. Principles for a Good Place are:

- The Decision Latency Principle
- The Emotional Maturity Principle
- The Communication Principle
- The User Involvement Principle
- The Five Deadly Sins Principle
- The Negotiation Principle
- The Competency Principle
- The Optimization Principle
- The Rapid Execution Principle
- The Enterprise Architecture Principle



Successful project Resolution by Good Place Maturity Level:

highly mature	50%
mature	34%
moderately mature	23%
not mature	23%

**The Good Team** is the project's workhorse. They do the heavy lifting. The sponsor breathes life into the project, but the team takes that breath and uses it to create a viable product that the organization can use and from which it derives value. Since we recommend small teams, this is the second easiest area to improve. Principles for a Good Team are:

- The Influential Principle
- The Mindfulness Principle
- The Five Deadly Sins Principle
- The Problem-Solver Principle
- The Communication Principle
- The Acceptance Principle
- The Respectfulness Principle
- The Confrontationist Principle
- The Civility Principle
- The Driven Principle



Successful project Resolution by Good Team Maturity Level:

highly mature	66%
mature	45%
moderately mature	21%
not mature	1%

**The Good Sponsor** is the soul of the project. The sponsor breathes life into a project, and without the sponsor there is no project. Improving the skills of the project sponsor is the number-one factor of success – and also the easiest to improve upon, since each project has only one.

Principles for a Good Sponsor are:

- The Decision Latency principle
- The Vision Principle
- The Work Smart Principle
- The Daydream Principle
- The Influence Principle
- The Passionate Principle
- The People Principle
- The Tension Principle
- The Torque Principle
- The Progress Principle



Successful project Resolution by Good Sponsor Maturity Level:

highly mature	67%
mature	33%
moderately mature	21%
not mature	18%

# The Standish Group's CHAOS report -2015

- The Standish Group's CHAOS studies show improvements in the statistics for IT projects:
- The number of successful projects was 29% in 2015
- 62% of small projects were successful, 6% of large, 9% of medium, and 21% of moderate size
- 39% of all agile projects were successful compared to 11% of waterfall projects

# Project Success

- There are several ways to define project success:
  - The project met **scope**, **time**, and **cost** goals
  - The project **satisfied** the customer/sponsor
  - The results of the project met its main **objective**, such as:
    - **making** or **saving** a certain amount of **money**,
    - **providing** a good **return on investment**,
    - or simply making the **sponsors happy**

# Project Success – What Helps Projects Succeed?

Factors of Success	Points
Executive sponsorship	15
Emotional maturity	15
User involvement	15
Optimization	15
Skilled resources	10
Agile processes	7
Modest execution	6
Project management expertise	5
Clear business objectives	4

Source: The Standish Group, CHAOS Manifesto 2015 (2015)

# Project Success

- Top three reasons why federal technology projects succeed
  - Adequate funding
  - Staff expertise
  - Engagement from all stakeholders
- Research findings show that companies that excel in project delivery capability:
  - Use an integrated toolbox
  - Grow project leaders
  - Develop a streamlined project delivery process
  - Measure project health using metrics, like customer satisfaction or return on investment

# Program and Project Portfolio Management

- About one quarter of the world's gross domestic product is spent on projects
- Two important concepts that help projects meet enterprise goals:
  - Use of programs
  - Project portfolio management

# Programs

- A program is “*a group of related projects managed in a coordinated manner to obtain benefits and control not available from managing them individually*” (PMBOK® Guide – Sixth Edition, 2017)
  - Examples of common programs in the IT field include infrastructure, applications development, and user support
  - A **program manager** provides leadership and direction for the project managers heading the projects within the program

# Project Portfolio Management

- As part of project portfolio management, organizations group and manage projects and programs as a portfolio of investments that contribute to the entire enterprise's success
- Portfolio managers help their organisations make wise investment decisions by helping to select and analyse projects from a strategic perspective

# Project Portfolio Management



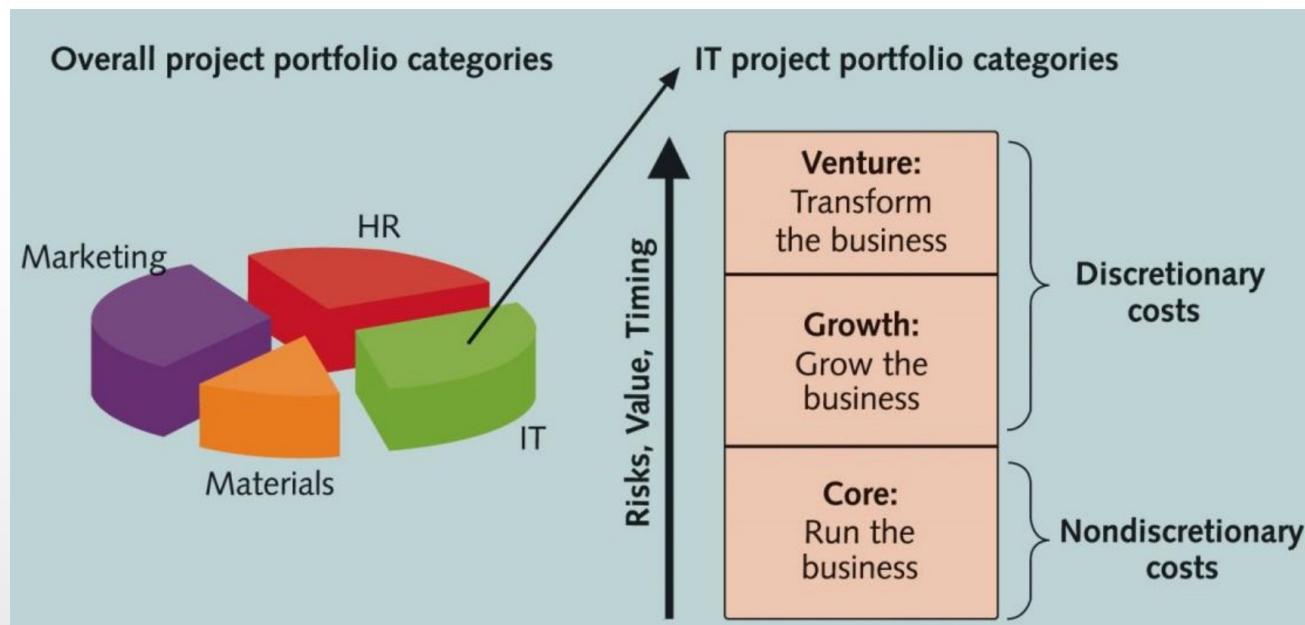
Project management compared to project portfolio management

# Best Practice

- A best practice is “*an optimal way recognised by industry to achieve a stated goal or objective*”\*
- Robert Butrick suggests that organisations need to follow **basic principles** of project management, including these two mentioned earlier in this chapter:
  - Make sure your **projects** are **driven** by your **strategy**. Be able to **demonstrate** how each **project** you undertake fits your **business strategy**, and screen out unwanted projects as soon as possible
  - Engage your **stakeholders**. **Ignoring stakeholders** often leads to **project failure**. Be sure to engage stakeholders at all stages of a project, and encourage teamwork and commitment at all times
- \*Project Management Institute, Organizational Project Management Maturity Model (OPM3) Knowledge Foundation (2003), p. 13

# Organisational Project Management

- Organisational project management
  - Framework in which portfolio, program, and project management are integrated with organisational enablers in order to achieve strategic objectives



# The Role of the Project Manager

- Project managers must work closely with the other stakeholders on a project, especially the sponsor and project team
- They are also more effective if they are familiar with the 10 project management knowledge areas
  - And the various tools and techniques related to project management

# Project Manager Job Description

- Job descriptions vary, but most include responsibilities like planning, scheduling, coordinating, and working with people to achieve project goals
- Project management is a skill needed in every major IT field, from database administrator to network specialist to technical writer

# Suggested Skills for Project Managers

- The Project Management Body of Knowledge
- Application area knowledge, **standards**, and **regulations**
- Project environment knowledge
- General management knowledge and skills
- **Soft skills** or human relations skills

# Suggested Skills for Project Managers – Cont.

- Six traits of highly effective project managers as follows:
  - Be a **strategic** business partner
  - Encourage and recognise **valuable** contributions
  - Respect and motivate stakeholders
  - Be fully vested in success
  - Stress integrity and accountability
  - Work in the gray/Be able to deal with ambiguity

## PMI Talent Triangle® and the Importance of Leadership Skills\*

- The talent triangle includes:
  - Technical project management skills
  - Strategic and business management skills
  - Leadership skills
- Leadership styles include:
  - Laissez-faire
  - Transactional
  - Servant leader
  - Transformational
  - Charismatic
  - Interactional

# Project Management Software

- There are hundreds of different products to assist in performing project management
- Three main categories of tools:
  - Low-end tools: Handle single or smaller projects well, cost under £200 per user
  - Midrange tools: Handle multiple projects and users, cost £200-£1,000 per user, Microsoft Project is still the most popular
  - High-end tools: Also called enterprise project management software, often licensed on a per-user basis
- Several free or open-source tools are also available

# Chapter Summary

- A project is a temporary endeavour undertaken to create a unique product, service, or result
- Project management is the application of knowledge, skills, tools, and techniques to project activities to meet project requirements
- A program is a group of related projects managed in a coordinated way
- Project portfolio management involves organizing and managing projects and programs as a portfolio of investments
- Project managers play a key role in helping projects and organizations succeed
- The project management profession continues to grow and mature

# Reference

- **Information Technology Project Management**

**9<sup>th</sup> Edition**

by Kathy Schwalbe

