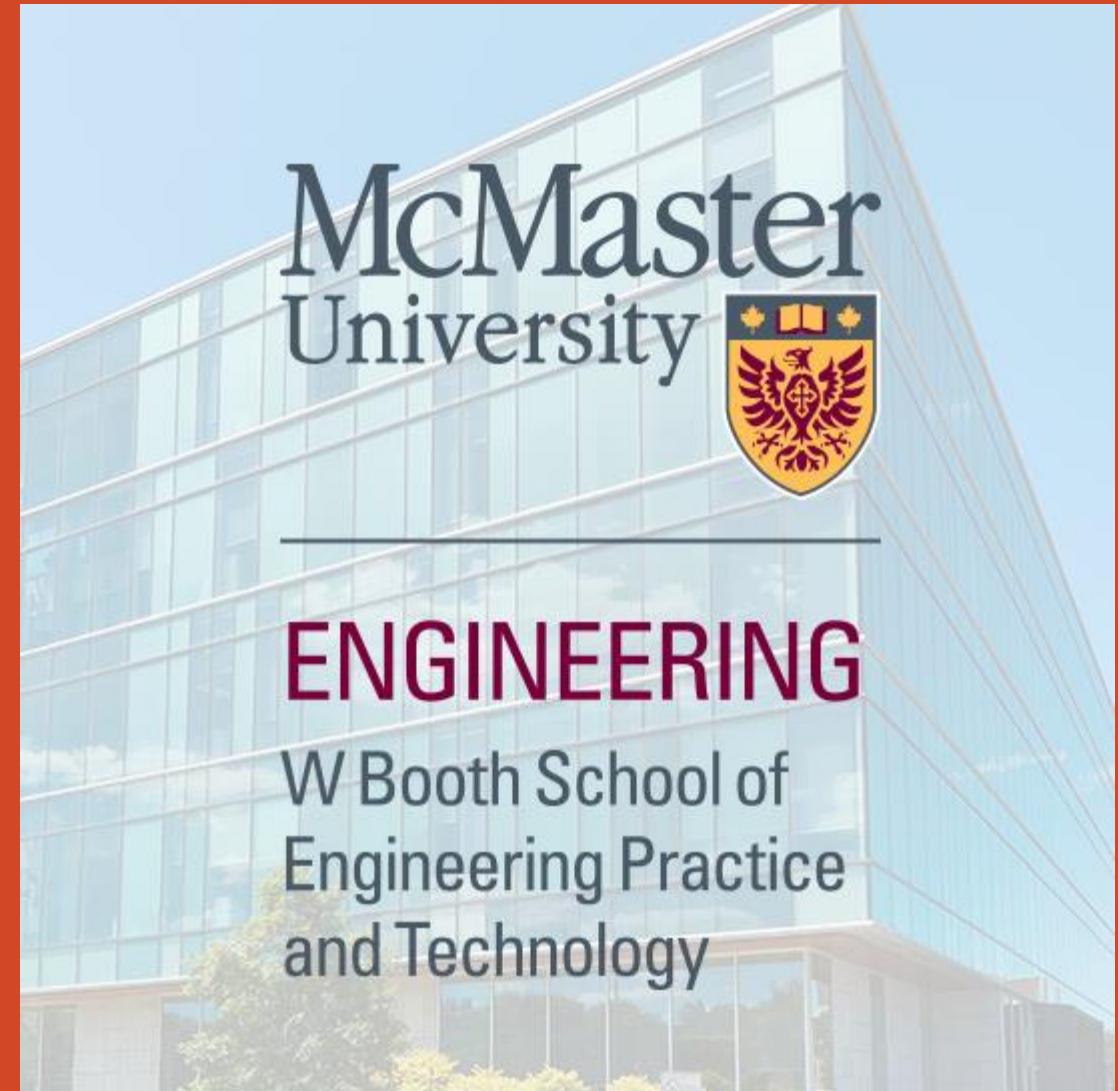


Practical Project Management for Today's Business Environment

Week 1: Introduction and Course Overview

Dr. Mikhail Hanna, PhD, PMP, PMI-RMP



Agenda



Welcome and Course Overview



Introduction to Project Management



The Role of Project Management in Various Industries



Group Exercise: Project Lifecycle Overview



Risk Management Plan Assignment Introduction

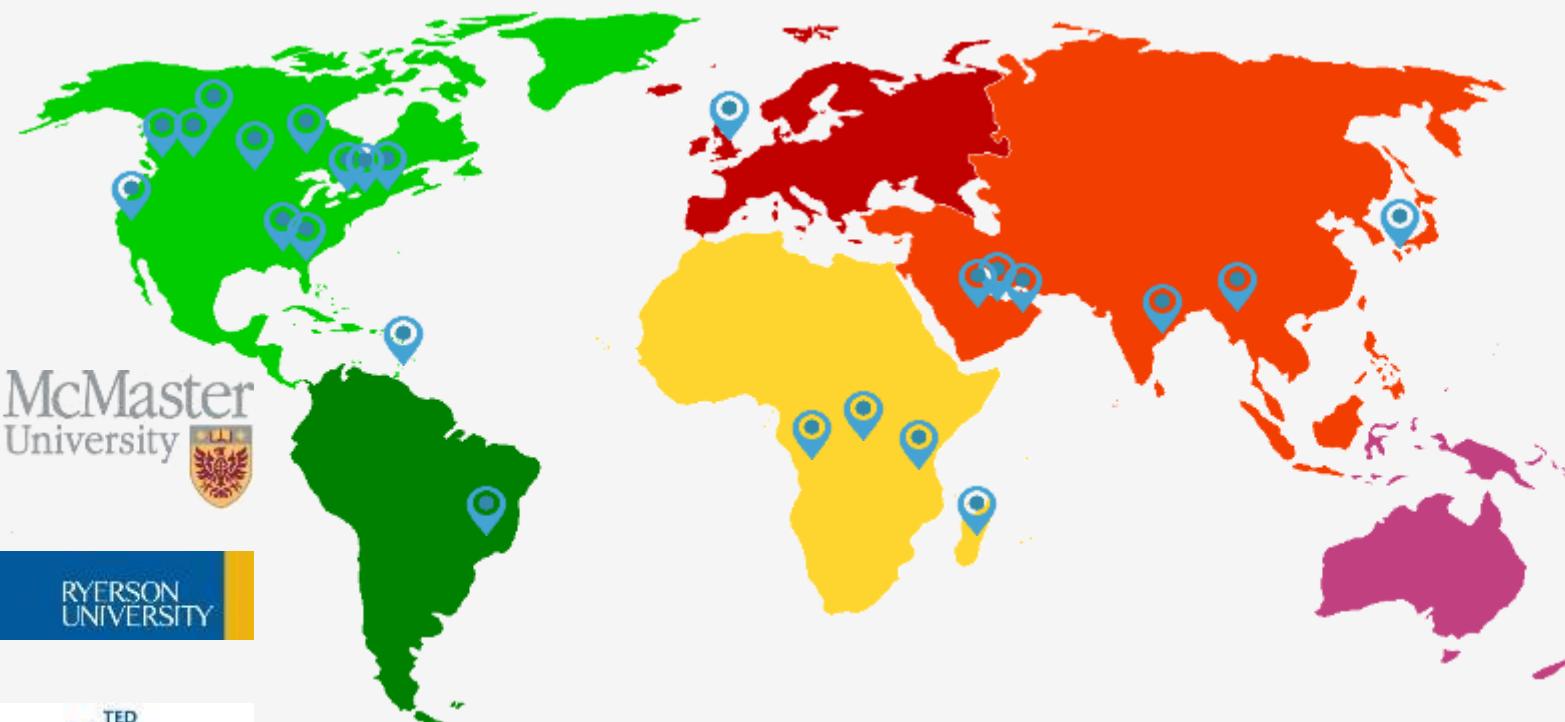


Q&A and Wrap Up





Who Am I



McMaster
University



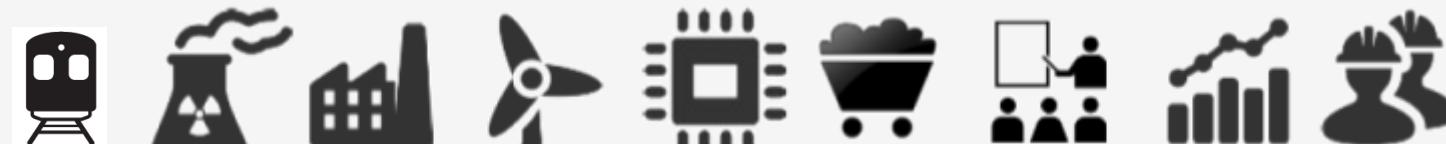
RYERSON
UNIVERSITY

TED
ROGERS
SCHOOL OF
MANAGEMENT

UNIVERSITY OF
CALGARY

Sheridan

BEDGE
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Course Overview

- **Course Objectives:** Equip students with practical project management skills
- **Key Topics:** Project management principles, adaptive methodologies, case studies
- **Assessment Breakdown:** Group work (50%), individual work (25%), final exam (25%)
- **Expectations:** Participation, collaboration, timely submissions





Consultation

Before or After class

- Email:

mhanna@mcmaster.ca

Subject: [W25]



- Other Contact Information:

mikhail@3EDGE.ca

Subject: [W25]

Mobile: 905.699.6261

Project Management - Overview

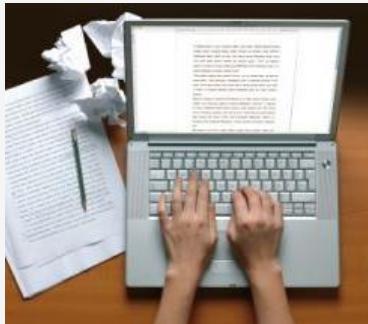




What is a Project

It is a sequence of **unique, complex** and **connected** activities having one goal or purpose

It must be completed by a specific **time**, within a specific **budget** and according to certain **specifications**.



What is Project Management

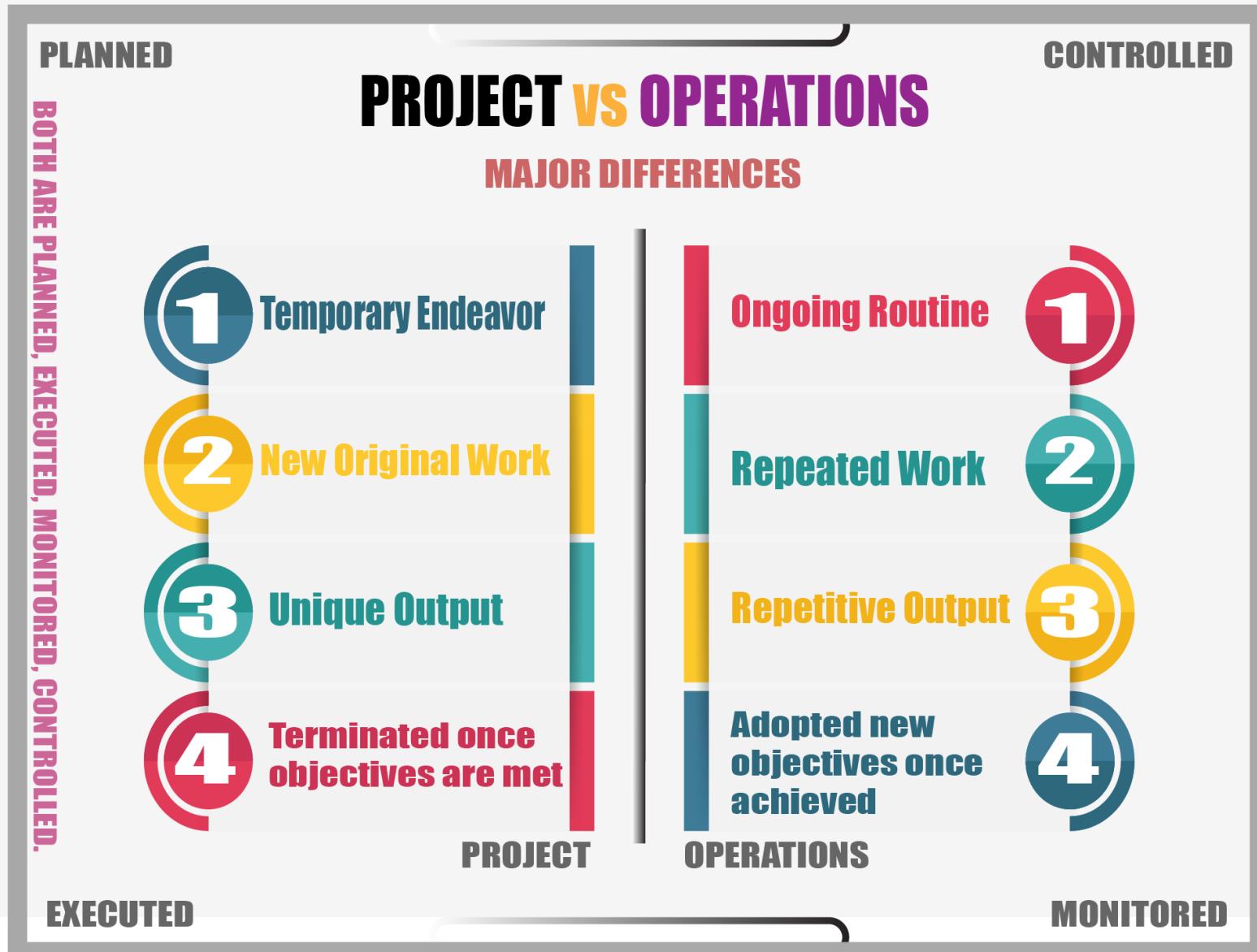
The application of knowledge, skills, tools and techniques to project activities to meet project requirements

A Guide to the Project Management Body of Knowledge
(PMBOK™),
Project Management Institute, 2008





What is not a Project





Project Management Fundamentals

Three constraints/goals/parameters operate on every project

- **Scope**: Define project boundaries
 - **Quality**: product quality, process quality
- **Cost**: Project Budget
- **Time**: Project Deadlines (resources cannot be inventoried)
 - **Resources**: assets that can be scheduled

These constraints are an independent set

- A change in one requires a change in at least one other constraint to restore the equilibrium of the project

The system must remain in balance for the project to be in balance



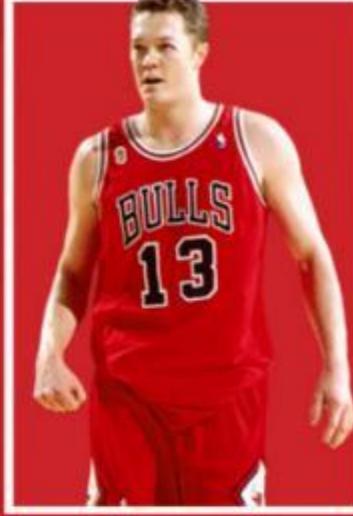
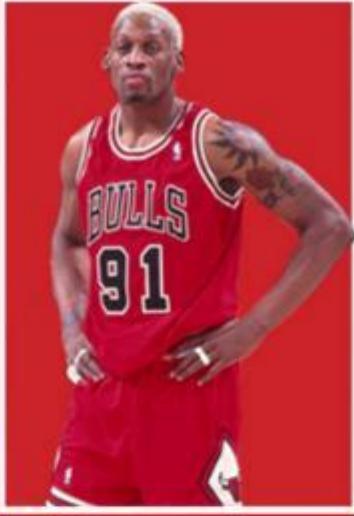
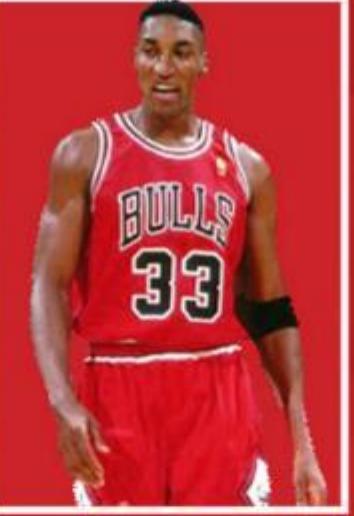
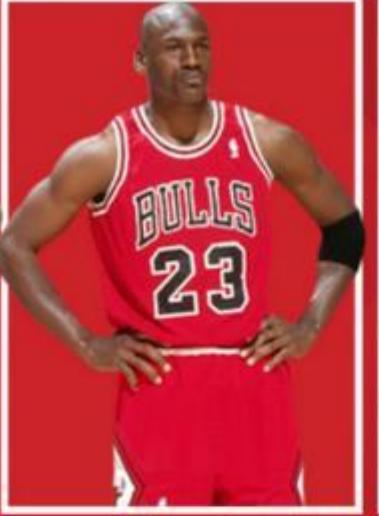
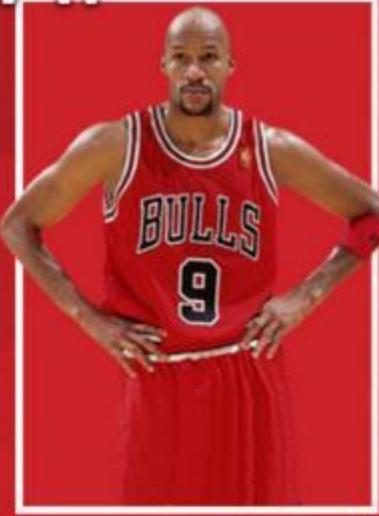
Who will win the game?



Assume two famous teams consist of renowned players, and they are going to play a basketball game the next day.

Can you tell me exactly which team is going to win?

FW



1996 CHICAGO BULLS



2017 GOLDEN STATE WARRIORS





How About

Now, let us put the same basketball game in a different scenario.

Let us say again that two teams are going to play a game, and no players are selected for either team.

In this situation, if somebody asked you which team is going to win, what would your response be?

You will be clueless because you don't know which team consists of which players, and you have no idea how the teams will perform.

Here, you don't have any information on past performance, and cannot predict the outcome of the event, even though the rules and the stadium are the same.

This situation is called **uncertainty**.



Double Triangle

Scope: What is included in the project

Time: Timeline to complete the project

Cost: Budget and resources needed

Quality: Standards that need to be met

Risk: Potential issues that could affect the project

Stakeholders: People with an interest in the project's outcome



The "double triangle" diagram of project constraint sometimes measures "client satisfaction" as well as "team satisfaction," as two of the three other prongs on the new triangle, along with "processes." This notation can be especially helpful when delivering a software solutions for a client.

Success and Failures





Case Study 1

Sydney Opera House

Budget

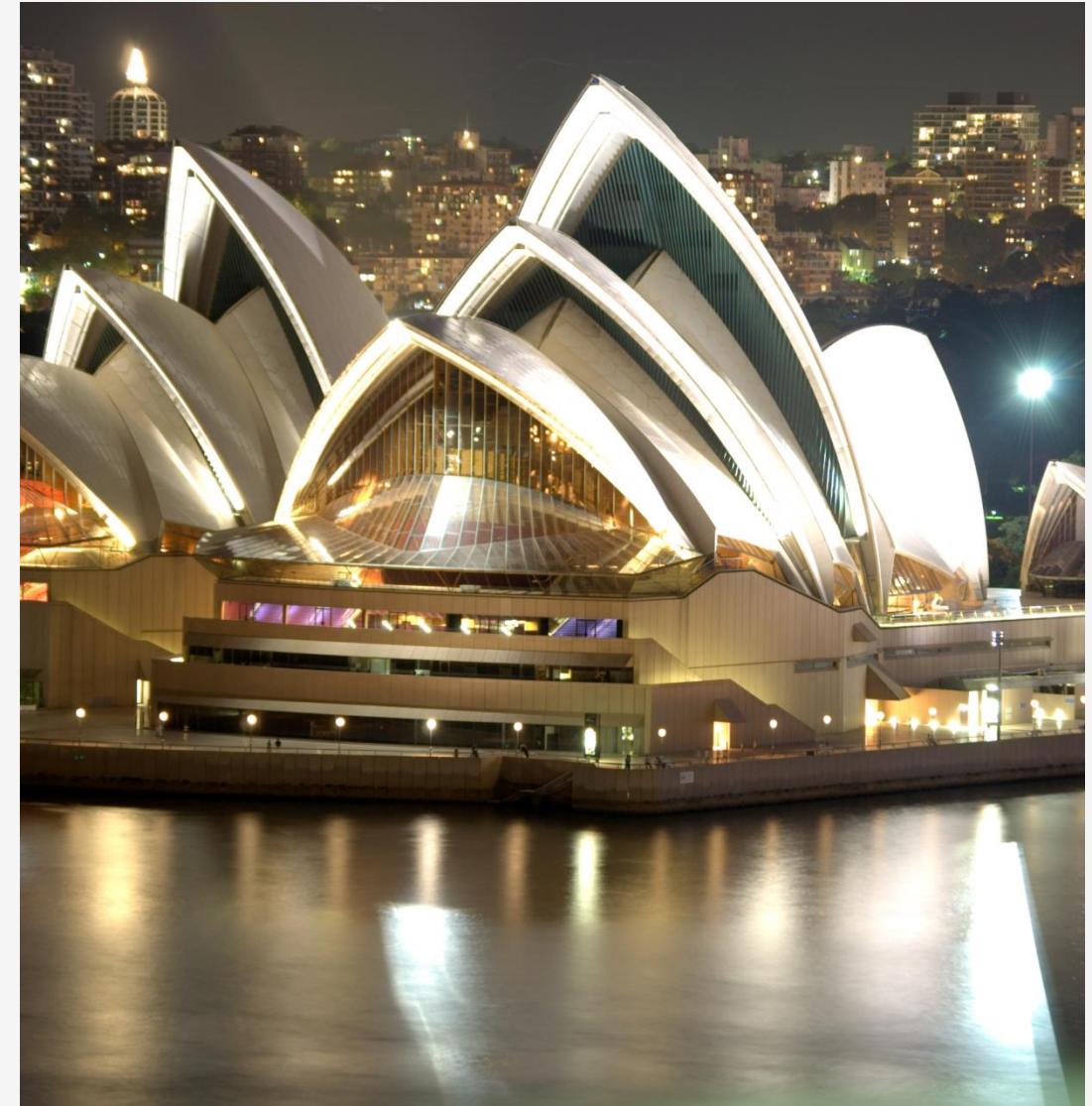
- Plan: \$7 MM
- Actual: \$102 MM

Construction Start

02-Mar-1959

Completion Date

- Plan: 26-Jan-1963
- Actual: 20-Oct-1973





What Went Wrong

Inadequate Initial Planning: The design competition was won before detailed plans were fully developed, leading to significant issues during construction.

Scope Creep: The project's design evolved considerably after construction began, causing delays and escalating costs.

Poor Cost Estimation: The initial budget was grossly underestimated, leading to a final cost that was more than 14 times the original estimate.

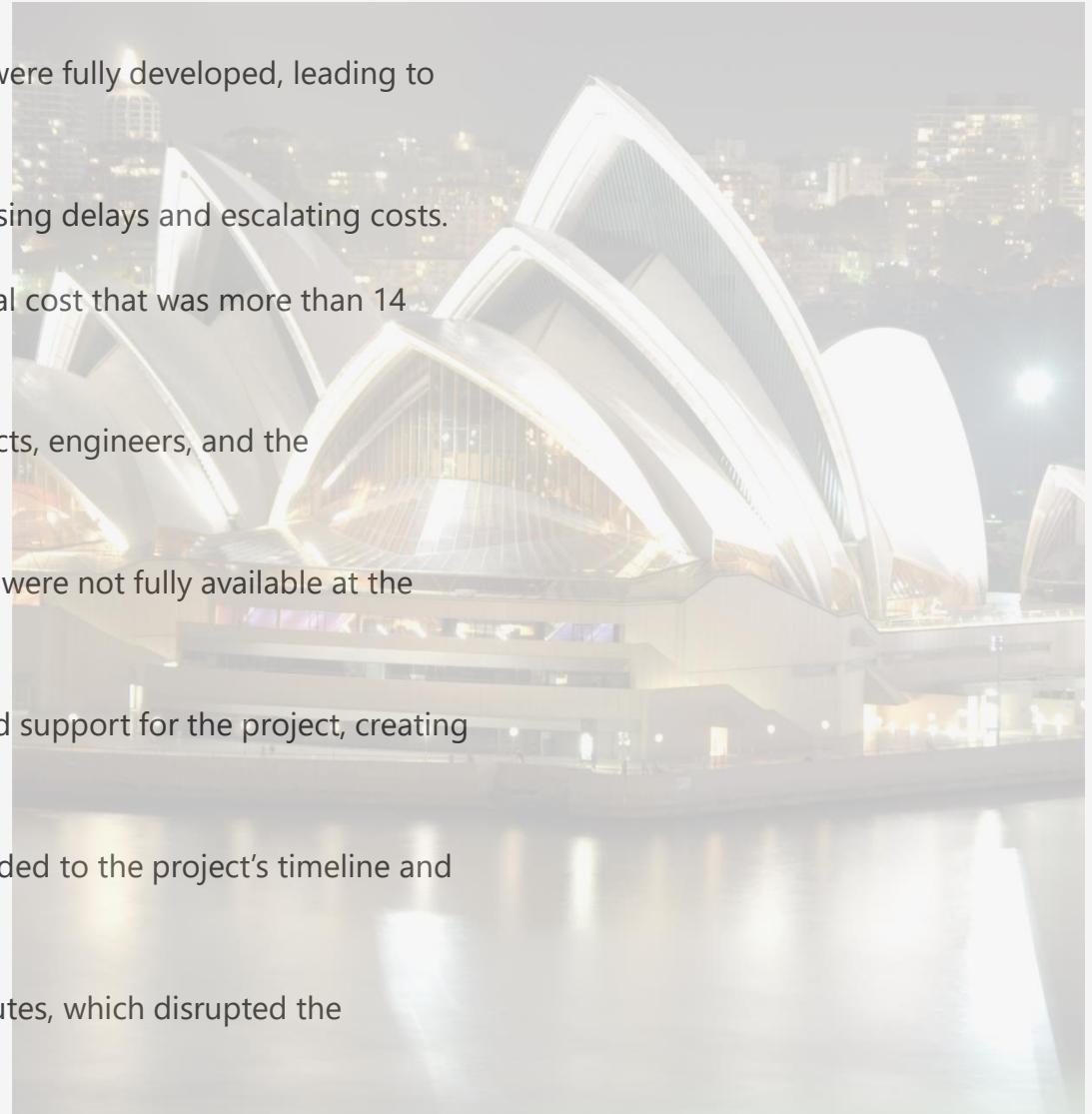
Lack of Communication: Miscommunication between stakeholders, including architects, engineers, and the government, caused frequent changes and delays.

Technological Challenges: The innovative design required engineering solutions that were not fully available at the time, further complicating the construction process.

Political Interference: Changes in government brought shifts in priorities and reduced support for the project, creating additional challenges.

Delays in Decision-Making: Slow decision-making and approvals from authorities added to the project's timeline and costs.

Architect Departure: Jørn Utzon, the project's visionary architect, resigned amid disputes, which disrupted the continuity and vision of the project.





Case Study 2

Denver Airport Luggage Handling System

Budget

- Plan: \$186 MM
- Actual: \$560 MM

Completion Date

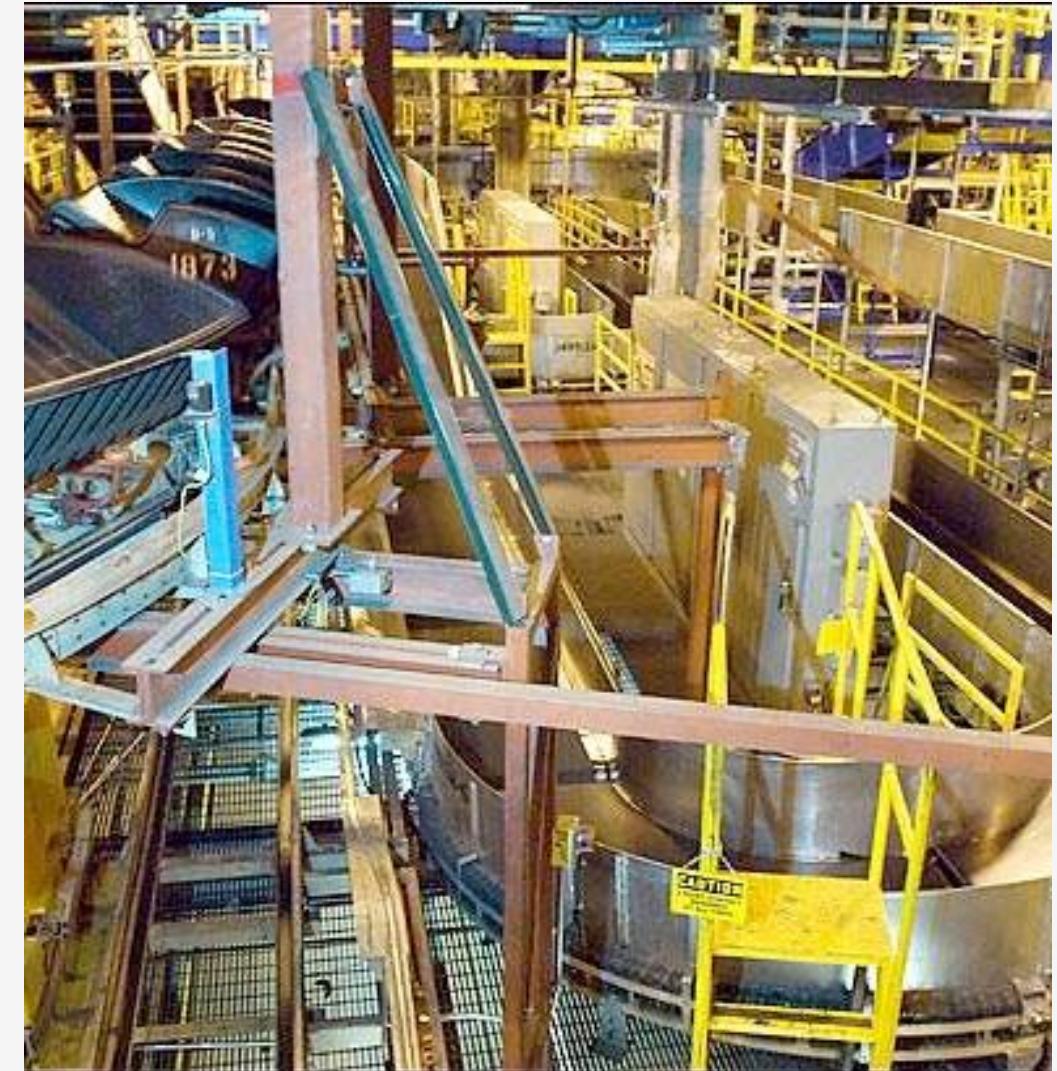
- Plan: 31-Oct-1993
- Actual: 28-Feb-1995

Operating Cost

- \$1.0 MM / Month (interest payments)

System Scrapped

- August 2005





What Went Wrong

Overly Ambitious Design: The automated baggage system was highly complex and ambitious, aiming to integrate multiple airlines and serve the entire airport. This scope proved too large.

Inadequate Testing and Prototyping: The system was not thoroughly tested before implementation. Critical issues were identified only after the system was already in place.

Tight Schedule: There was pressure to complete the system quickly, leaving little room for proper development and troubleshooting, which resulted in rushed implementation.

Lack of Expertise: The design and implementation team lacked sufficient experience with such a large-scale automated system, leading to design flaws and misjudgments.

Poor Communication: Coordination between airport officials, airlines, and the baggage system vendors was insufficient. Stakeholders were not aligned on requirements or progress.

Frequent Technical Failures: The system encountered multiple mechanical and software issues, including bags being damaged or misrouted, causing significant delays.

Cost Overruns: Originally planned to save time and money, the system's problems led to massive cost overruns, with final costs ballooning far beyond the initial budget.

Abandonment of the System: After several failed attempts to fix the system, the airport eventually abandoned the automated baggage handling system, opting for a more conventional approach.

Project Management Lifecycle





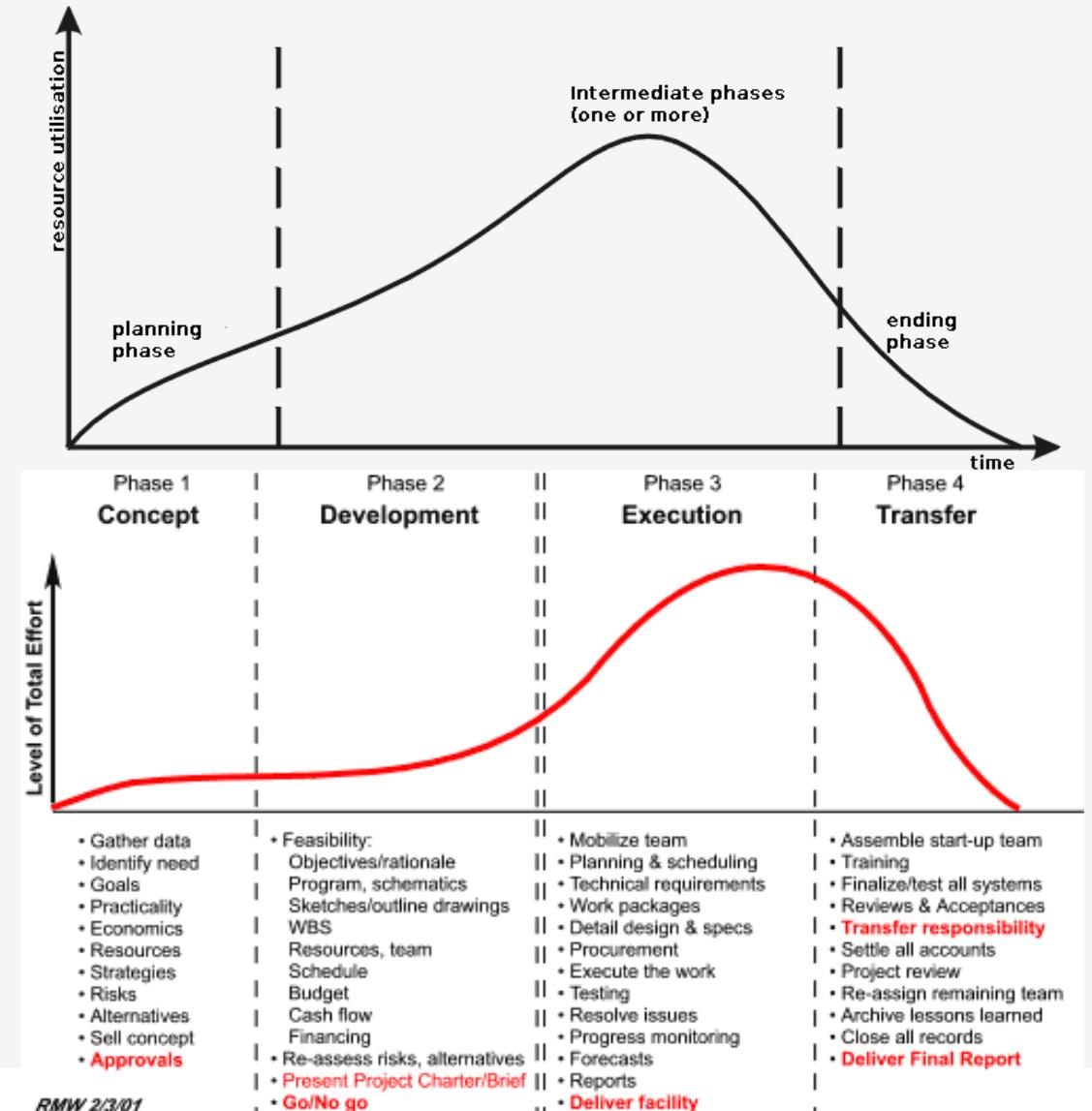
Project Life Cycle

Every project has certain phases of development. The phases of development are known as life cycle phases.

A project life cycle is a collection of project phases that defines:

- What work will be performed in each phase.
- What deliverables will be produced and when.
- Who is involved in each phase.
- How management will control and approve work produced in each phase.
- Has identifiable start and end points which can be associated with time scale.

A deliverable is a product or service produced or provided as part of a project.





Project Management Life Cycle

A process is a series of actions directed toward a particular result

Project management can be viewed as a number of interlinked processes

The project management process groups include:

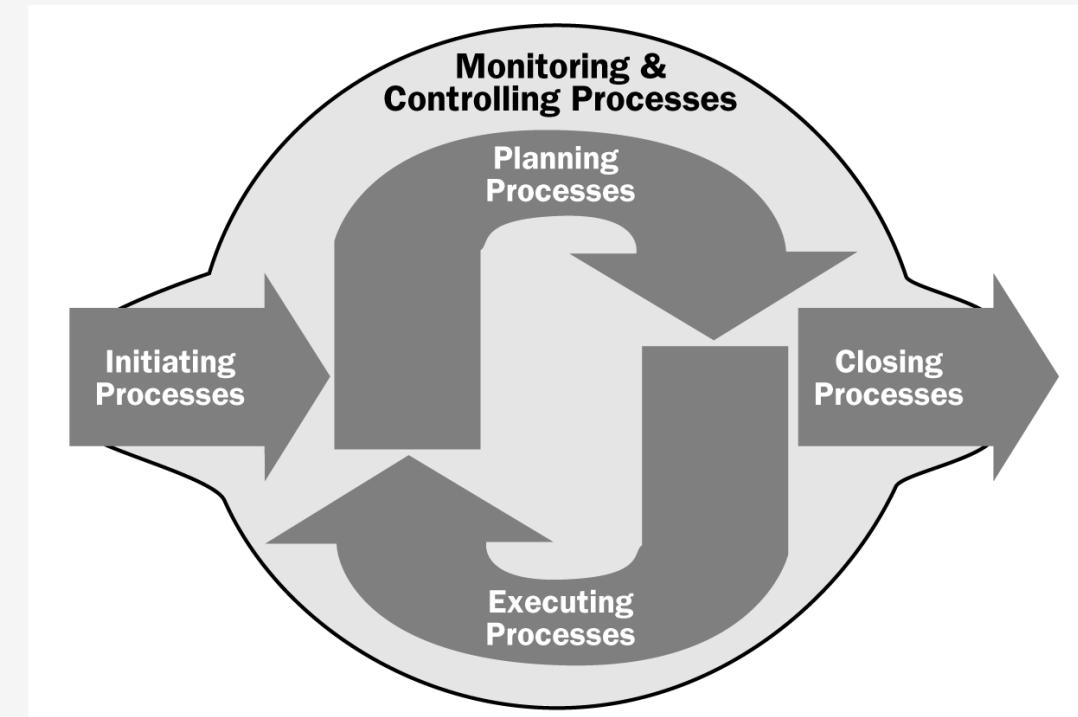
Initiation: Defining project goals and scope.

Planning: Developing a roadmap, timeline, and resource allocation.

Execution: Implementing the plan, coordinating tasks, and managing resources.

Monitoring/Controlling: Tracking progress, managing changes, and addressing issues.

Closure: Finalizing deliverables, evaluating success, and documenting lessons learned.





Process Groups and Outcomes

Initiating processes

- The organization recognizes that a new project exists – completion of a business case and project charter

Planning processes

- Completing the WBS and scope statement, project schedule and cost estimate

Executing processes

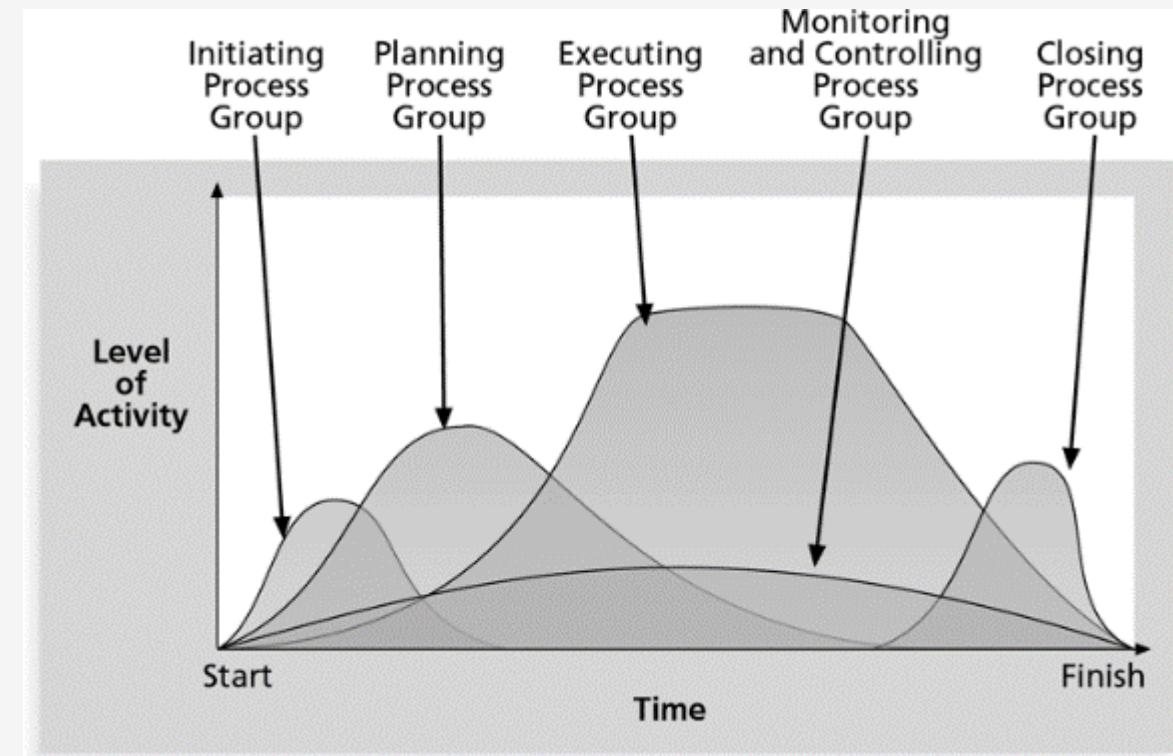
- Performing actions necessary to complete the work described in the planning activities

Monitoring and controlling processes

- Measuring progress toward the project objectives, monitoring deviation from the plan and taking corrective action to match progress with the plan

Closing processes

- Formal acceptance of the work and creation of closing document



Group Exercise



- Purpose: To understand how the project lifecycle is applied across different industries.
- Expected Outcome: A simplified project lifecycle for a hypothetical project that highlights key phases, tasks, and challenges.
- Time Allocation: 30 minutes (20 minutes for discussion, 10 minutes for group presentations).



Industry Assignment

Group 1: Construction

Project Scenario: Building a new corporate headquarters.

Group 2: Software Development

Project Scenario: Developing a mobile app for exam preparation.

Group 3: Startup

Project Scenario: Launching a wearable fitness tracker.

Group 4: R&D

Project Scenario: Developing a new drug for diabetes treatment.

Step 1: Identify Key Phases

Break down the project into the five phases of the project lifecycle:

- **Initiation:** What problem is being solved? Who are the stakeholders? What is the project's goal?
- **Planning:** What are the deliverables? What resources (budget, personnel) are required? What risks need to be considered?
- **Execution:** How will the team carry out the project tasks? What roles and responsibilities are needed?
- **Monitoring & Controlling:** How will the project be tracked? What are the critical success factors and performance indicators?
- **Closure:** How will the project be delivered and completed? What are the key outcomes and lessons learned?



Industry-Specific Challenges

Identify unique challenges that the industry might face in each phase of the lifecycle. For example:

- In **construction**, consider regulatory approvals and resource constraints.
- In **software development**, factor in the iterative nature of Agile methods and rapid prototyping.
- In **startups**, discuss the uncertainty of market validation and funding.
- In **R&D**, examine the long-term research and innovation aspects, along with compliance and testing.

Industry-specific Challenges



Understanding Project Management Across Different Industries



To illustrate how the project lifecycle is applied differently across various industries by examining real-world case studies. This slide will help students understand the unique challenges and approaches in project management for **Construction** and **Software Development** projects.



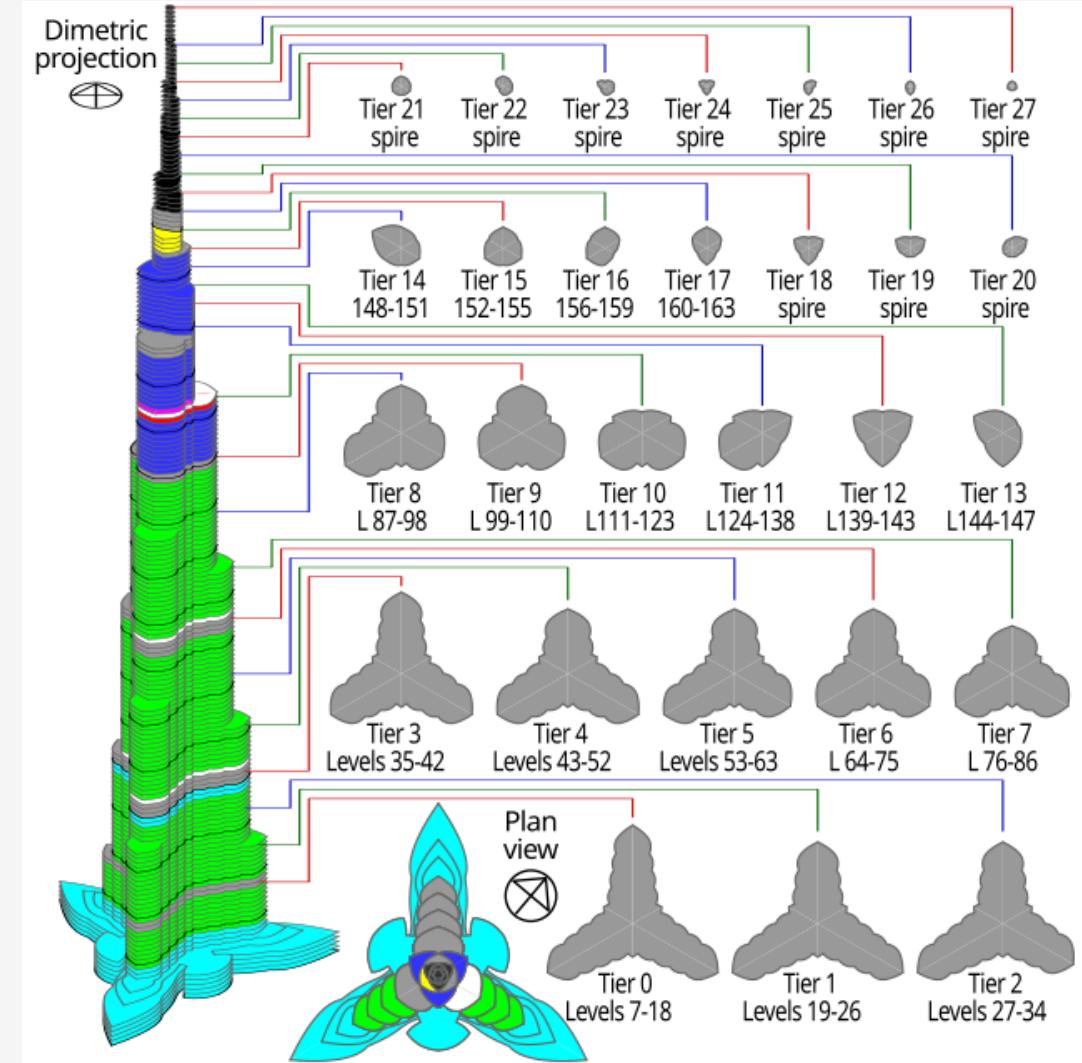
Case Study 1: Burj Khalifa Project (Construction)

• Initiation:

- **Objective:** To build the tallest building in the world in Dubai, UAE.
- **Scope:** Design, construct, and deliver a high-rise skyscraper with luxury apartments, offices, and hotels.
- **Stakeholders:** Government of Dubai, Emaar Properties, architects, contractors, and consultants.

• Planning:

- **Timeline:** 5 years from 2004 to 2009.
- **Resources:** Extensive manpower, specialized materials, and high-end construction technologies.
- **Milestones:** Groundbreaking, completion of the core structure, installation of the façade, and final touches





Case Study 1: Burj Khalifa Project (Construction)

- **Execution:**

- **Tasks:** Excavation, foundation work, core and shell construction, installation of the exterior glass and interior fit-outs.
- **Challenges:** Extreme heat, logistical complexities, and the need for innovative construction techniques.

- **Monitoring/Controlling:**

- **Progress Tracking:** Regular inspections, quality control measures, and adherence to safety standards.
- **Risk Management:** Addressing unforeseen issues such as supply chain delays and engineering challenges.



Case Study 1: Burj Khalifa Project (Construction)

- **Closure:**

- **Deliverables:** A fully functional skyscraper with residential, commercial, and leisure spaces.
- **Success Evaluation:** Achievement of the tallest building record, positive impact on Dubai's skyline and real estate market.



Case Study 2: Development of a Mobile App for Food Delivery

(Software Development)

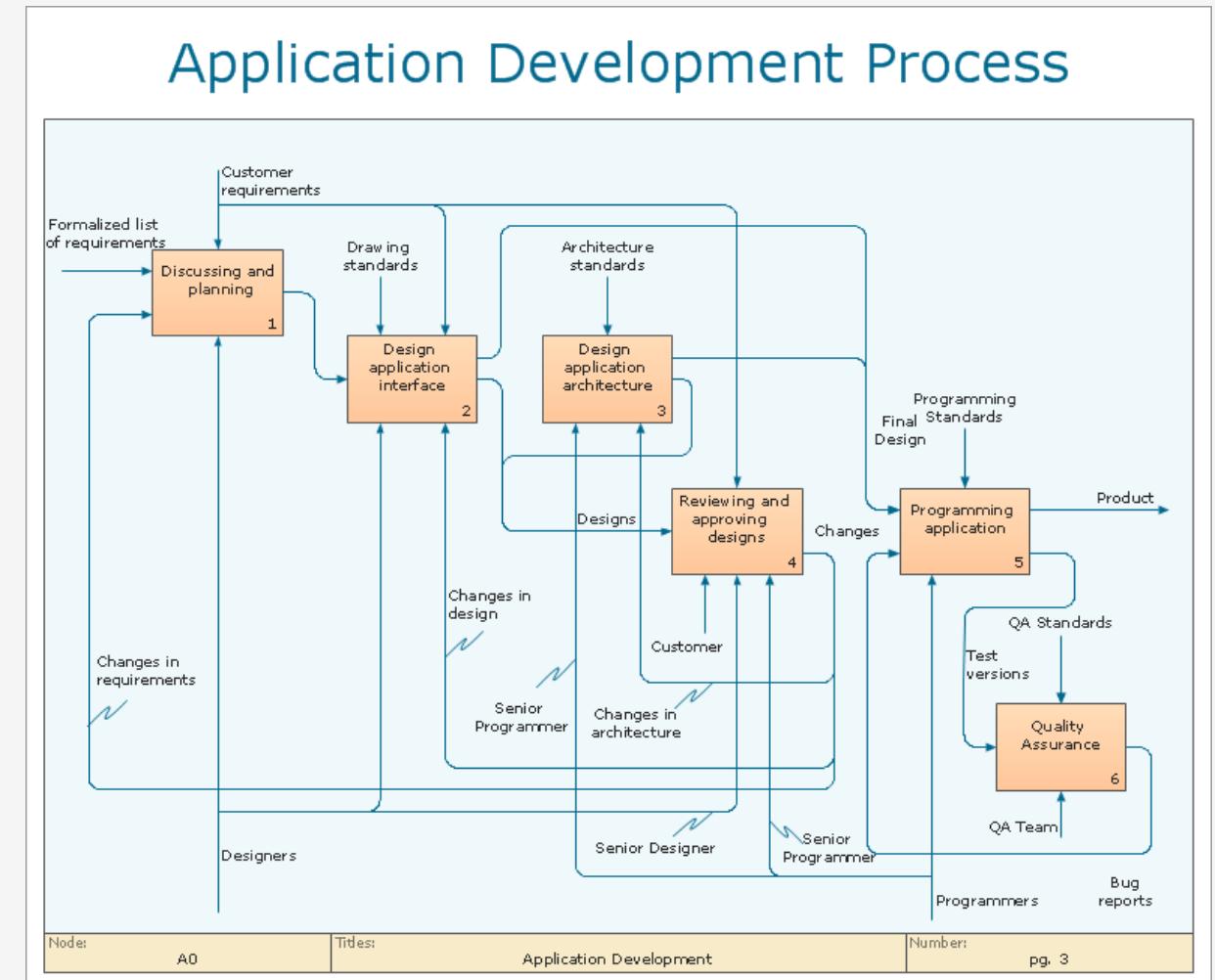


Initiation:

- Objective:** To create a user-friendly mobile application for food delivery.
- Scope:** Design, develop, and launch an app with features such as menu browsing, order placement, payment processing, and real-time tracking.
- Stakeholders:** App development team, clients (restaurant partners), end-users, and marketing team.

Planning:

- Timeline:** 6 months from concept to launch.
- Resources:** Development team, designers, testers, and marketing specialists.
- Milestones:** Prototype development, user testing, beta launch, and final release.



Case Study 2: Development of a Mobile App for Food Delivery

(Software Development)



- **Execution:**

- **Tasks:** Coding, UI/UX design, integration of payment gateways, and testing.
- **Challenges:** Ensuring app performance under high user loads, integrating with restaurant systems, and addressing user feedback.

- **Monitoring/Controlling:**

- **Progress Tracking:** Agile sprints, regular stand-ups, and iterative testing.
- **Risk Management:** Handling bugs, user complaints, and adapting to market changes.

The screenshot shows the Visual Studio Code interface with several tabs open. On the left, there are icons for file operations like copy, paste, search, and refresh. The main area has four tabs: 'TS arrays.ts', 'JS index.js', 'README.md', and 'Preview README.md'. The 'index.js' tab contains the following code:

```
1  /*-----  
2   * Copyright (c) Microsoft Corporation. All rights reserved.  
3   * Licensed under the MIT License. See LICENSE in the project root for  
4   * license information.  
5   */  
6  import { CancellationToken } from 'vscode';  
7  import { CancellationTokenError } from 'vscode';  
8  import { ISlice } from 'vs/base/common/collection';  
9  import { findFirstIdxMonotonicOrArrLength } from 'vs/base/common/monotonicArray';  
10  
11  /**  
12   * Returns the last element of an array.  
13   * @param array The array.  
14   * @param n Which element from the end.  
15   */  
16  export function tail<T>(array: Array<T>): T | undefined {  
17      return array[array.length - (1 + n)];  
18  }  
19  
20  export function tail2<T>(arr: T[]): T | undefined {  
21      if (arr.length === 0) {  
22          throw new Error('Invalid tail');  
23      }  
24      return [arr.slice(0, arr.length - 1)];  
25  }  
26  
27  export function equals<T>(one: ReadonlyArray<T>, other: ReadonlyArray<T>): boolean {  
28      if (one === other) {  
29          return true;  
30      }  
31      if (one.length !== other.length) {  
32          return false;  
33      }  
34      for (let i = 0; i < one.length; i++) {  
35          if (one[i] !== other[i]) {  
36              return false;  
37          }  
38      }  
39      return true;  
40  }  
41  
42  const { join } = require('path');  
43  const Mocha = require('mocha');  
44  const minimist = require('minimist');  
45  
46  const [, , ...args] = process.argv;  
47  const opts = minimist(args, {  
48      boolean: ['web'],  
49      string: ['f', 'g']  
50  });  
51  
52  const suite = opts['web'] ? 'Browser Smoke' : 'Node';  
53  
54  const options = {  
55      color: true,  
56      timeout: 2 * 60 * 1000,  
57      slow: 30 * 1000,  
58      grep: opts['f'] || opts['g']  
59  };  
60  
61  if (process.env.BUILD_ARTIFACTSTAGINGDIR) {  
62      options.reporter = 'mocha-multi-reporters';  
63      options.reporterOptions = {  
64          reporterEnabled: 'spec', mocha-junit-reporter: true,  
65          mochaJunitReporterReporterOptions: {  
66              testsuitesTitle: `${suite}`  
67          },  
68          mochaFile: join(process.env.BUILD_ARTIFACTSTAGINGDIR, 'mocha.html')  
69      };  
70  }  
71  
72  Mocha.configure(options);  
73  Mocha.loadFiles(join(__dirname, 'test'))  
74  Mocha.run();  
75  
```

The sidebar on the right is titled 'The Repository' and contains the following text:

This repository ("Code - OSS") is where we (Microsoft) develop the Visual Studio Code product together with the community. Not only do we work on code and issues here, we also publish our roadmap, monthly iteration plans, and our endgame plans. This source code is available to everyone under the standard MIT license.

Below the repository info is a section titled 'Visual Studio Code' with a screenshot of the IDE interface.

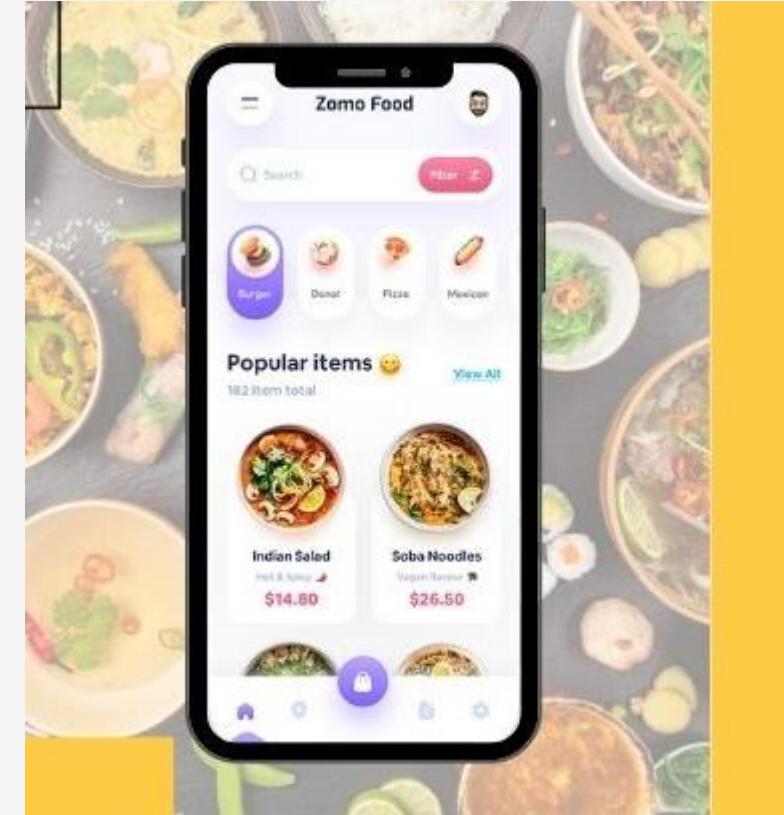
Case Study 2: Development of a Mobile App for Food Delivery

(Software Development)



- **Closure:**

- **Deliverables:** A fully functional mobile app available for download.
- **Success Evaluation:** User adoption rates, customer satisfaction, and achieving targeted revenue or engagement metrics.



Assignment Introduction: Risk Management Plan

Assignment 1: Create a risk management plan for a chosen industry

Select an industry (construction, software, startup, or other)

Identify key risks and propose mitigation strategies

Provide guidelines and grading rubric



References

Project Management Institute (PMI), A Guide to the Project Management Body of Knowledge (PMBOK® Guide), 7th Edition.

Key resource for understanding the fundamentals of project management

Harvard Business Review, "Why Good Projects Fail" (2005).

Discusses common pitfalls in project management

Kerzner, Harold. Project Management: A Systems Approach to Planning, Scheduling, and Controlling.

Comprehensive guide to advanced project management techniques

Case Study Reference:

Burj Khalifa: World's Tallest Building Project Success

Nokia Mobile Division: An example of project mismanagement in the tech industry



Summary

Key elements of project management

Project lifecycle stages

Expectations for the course and assignments

Preview for Week 2: Project Initiation and Feasibility Studies

Open for Q&A

