MIDOCEAN UNIVERSITY

Information Systems

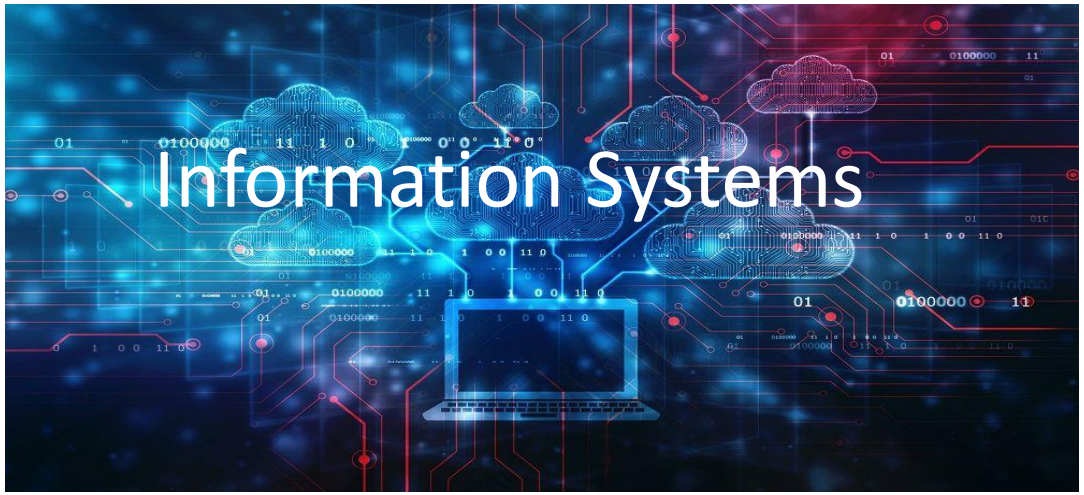
Prepared by Dr. Amjad Qtaish

IT372
Information Systems

Lecture 08

MIDOCEAN UNIVERSITY

Module 4: Systems Development



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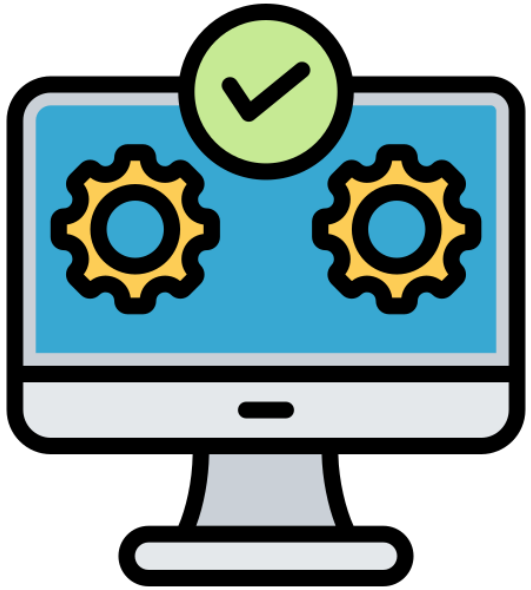
Chapter 12: (IS) Project Management
Chapter 14: Design And Implementation

Outline

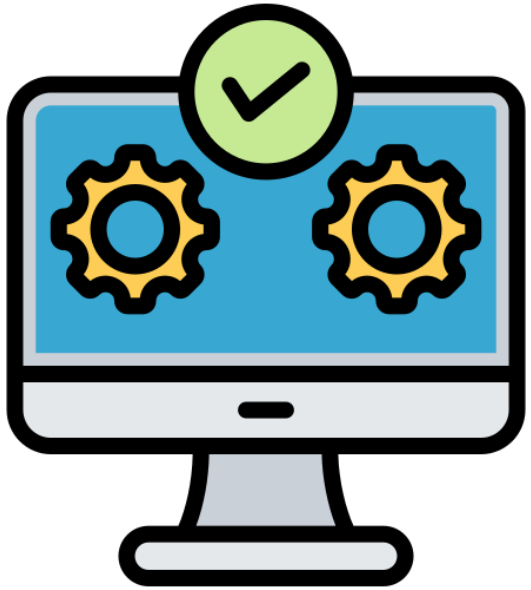
Systems Development:

- Importance of Project Management
- Project Management Concepts
- Change Management and Concept of Implementation
- Designing for the Organization
- Systems Implementation
- Systems Operation and Maintenance
- Systems Review
- Systems Performance Measurement
- Summary

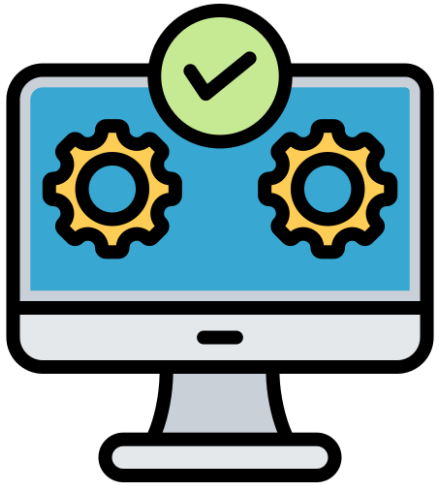


Learning Objectives

- Discuss the importance of project management by learning different reasons of project failures
- Discuss the various ways of selecting projects and concepts related with the selection
- Discuss the risks, specifically change management and what should be considered in designing for the organization
- Discuss System design and differences between logical and physical design
- Describe the considerations in interface design and system security design
- Describe techniques for system selection evaluation
- State the purpose of system implementation and discuss the activities associated with it
- List the advantages and disadvantages of purchasing versus developing software

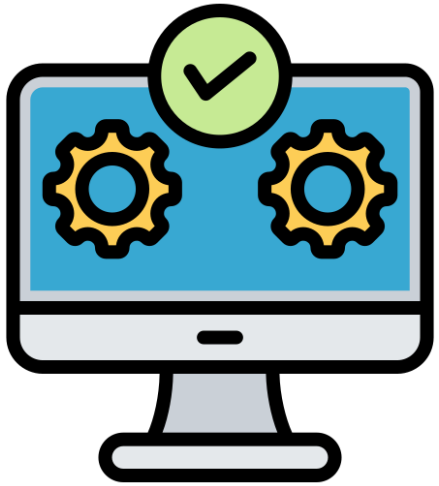


Importance of Project Management



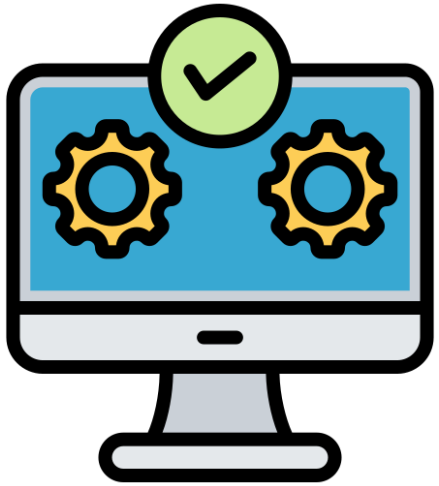
- **There is a high failure rate among IS projects**
- **Inadequate project management might have the following consequences**
  - Costs that vastly exceed budgets
  - Unexpected time slippage
  - Technical performance that is less than expected
  - Failure to obtain anticipated benefits
- ***Therefore, it is importance to have knowledge about managing IS projects and causes of failure***

Importance of Project Management



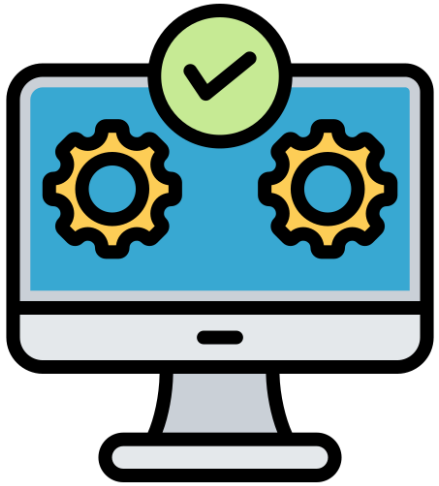
- **The systems produced might have the following types of problems**
  - Doesn't fulfil business requirements
  - Not in easily understandable format
  - Designed with poor user interface
  - Outputs difficult to comprehend
  - Data is inconsistent or incomplete
  - Web pages are cluttered poorly arranged

Importance of Project Management



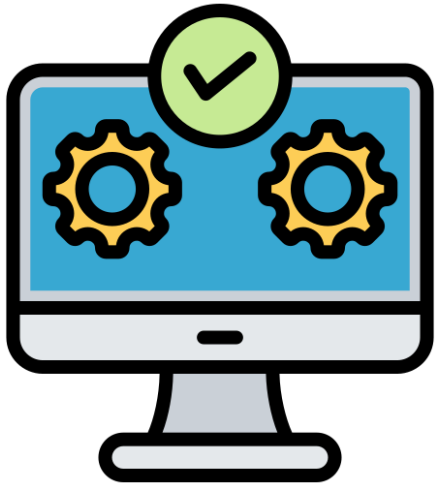
- **IS Project**
  - Planned series of related activities for achieving a specific business objective
- **Project Management**
  - Refers to application of knowledge, skills, tools, and techniques to achieve specific targets within specified budget and time constraints
    - Planning the work
    - Assessing risk
    - Estimating resources
    - Organizing the work
    - Acquiring human and material resources
    - Assigning tasks
    - Project execution
    - Reporting progress
    - Analyzing results

Importance of Project Management



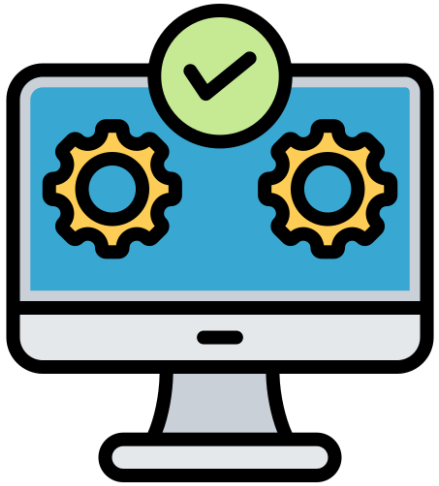
- **Variables of project management**
  - **Scope:** what work does the project encompass. Need to define the scope initially
  - **Time:** amount of time required to complete. Time line is set for different project components and tasks within as well
  - **Cost:** depends on time required multiplied and cost of human resources, plus h/w, s/w & work space costs
  - **Quality:** indicates how well has the project satisfied the management. Also ensures accuracy and timeliness of the information produced
  - **Risk:** potential problems that would threaten the success of a project

Project Management Concepts

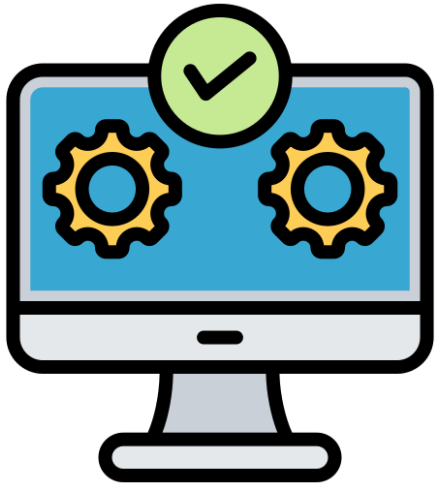


- **Linking Systems projects to Business Plan**
  - Develop information systems plan that support overall business plan
  - The plan serves as a roadmap to define
    - Direction of systems development
    - The rationale
    - The current systems/ situations
    - New development to consider
    - The management strategy
    - Implementation plan and budget
  - The plan also indicates the key management decisions for
    - Acquiring IT infrastructure
    - Centralization/decentralization
    - Organizational change
  - For decision making systems, managers should identify what decision improvements are required to be achieved

Project Management Concepts

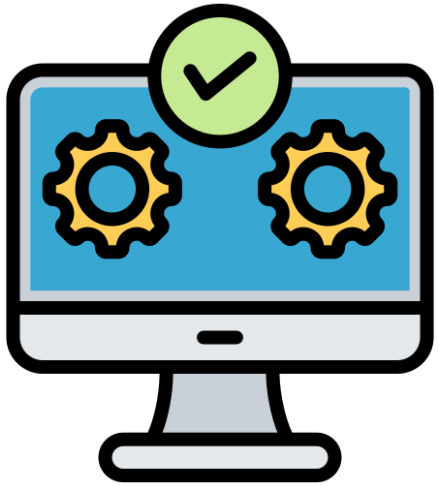


- **Critical Success Factors (CSF)**
  - For IS plan, both long term and short-term information requirements needs to be defined
  - These are determined by the CSF
  - Goals attained results in success assured
  - Therefore Information Systems need to be built to provide information that helps the firm meet these goals



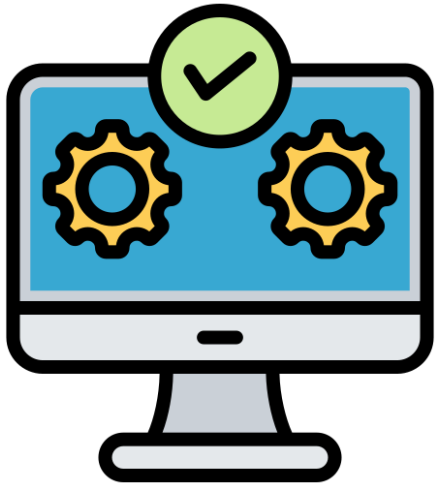
- **Portfolio Analysis**
  - Used to evaluate alternative system projects
  - Lists all organization's IS projects and assets
  - Projects are profiled for risks and benefits to the firm
  - Most desirable high benefits, low risk

		High	Low
Provide benefits to firm	**High**	Cautiously Examine	Identify and Develop
	Low	Avoid	Routine Projects



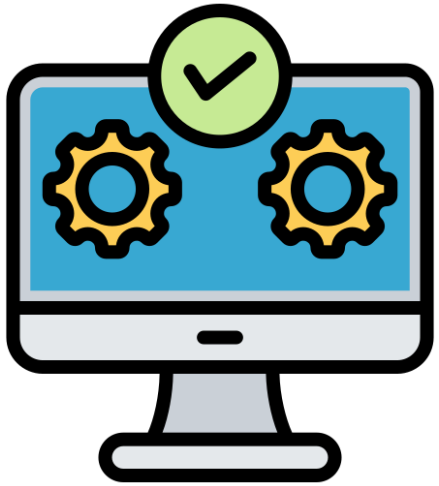
- **Scoring Models**
  - Useful for selecting projects where many criteria must be considered
  - Assign weights to different features and then calculate weighted total
  - E.g. weights can be assigned to certain aspects of order processing, inventory management and warehousing
  - Even though it's calculations, but qualitative judgments are also involved by experts who understand the issues and the technology

Change Management and Concept of Implementation



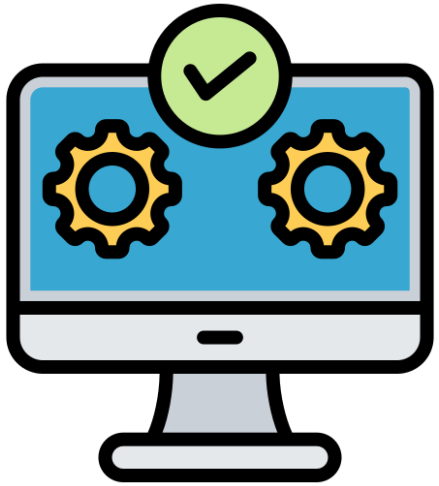
- **Information Systems, whether new or updated, have a huge behavioural & organizational impact**
- **Successful system development is dependent on *change management***
- ***The concept of implementation***
  - Refers to all organizational activities working towards adoption, management and routinization of the new IS
  - Change Agent: System analyst
    - Redefines configuration, interactions, job activities and power relationships of various organizational groups
    - Ensures all parties accept change

Change Management and Concept of Implementation



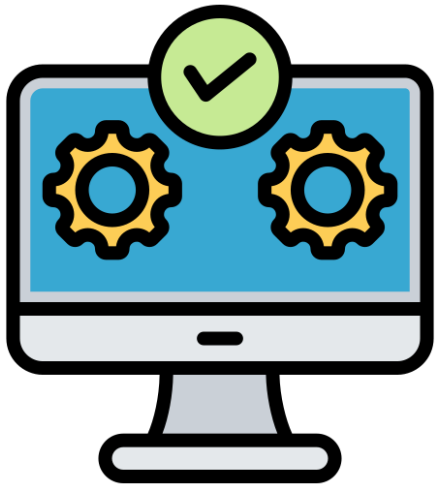
- ***The Role of End User***
  - Various positive reasons of user involvement in the implementation of IS
  - User have more opportunities to mold the system according to their priorities and business requirements
  - More likely to react positively response to completed system
  - User knowledge and expertise leads to better solutions
  - However, there is a user-designer communication gap, that can be a cause of high risk failure of the project
  - Both parties concerned with different ways to solve a problem

Change Management and Concept of Implementation



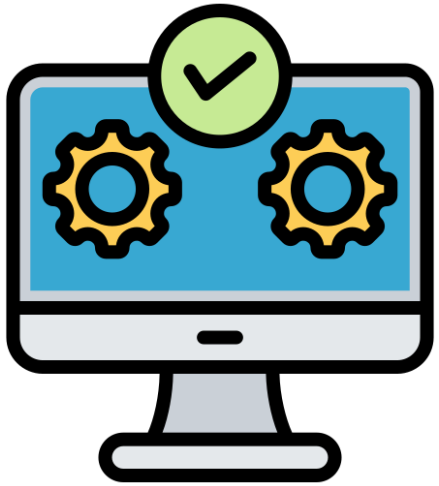
- ***Change management challenges for BPR, Enterprise Applications, Mergers***
  - Challenges of Innovation and implementation
  - Replace old techniques and legacy systems
  - Dealing with fear and anxiety, overcoming resistance by key managers, changing jobs etc. pose more difficulty
  - Mergers require combining IS of two different companies, because without systems integration, benefits anticipated from mergers cannot be realized

Designing for the Organization



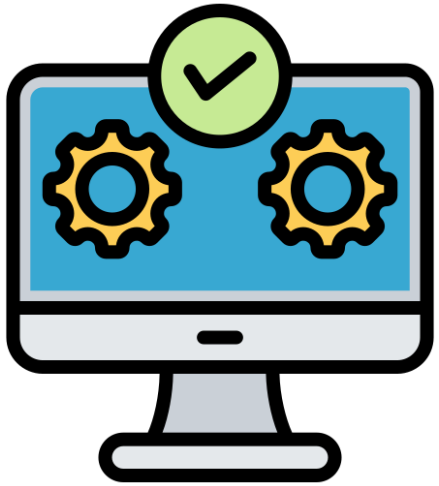
- IS projects must explicitly address ways in which the organization will change
  - Transformation in job functions, organizational structure, power relationships, work environment
- Ergonomics: interaction of people and machines in the work environment
- Organizational Impact Analysis: explains how proposed system will effect various aspects of organization
- Sociotechnical Design: technical solutions are compared with social solutions

Systems Implementation



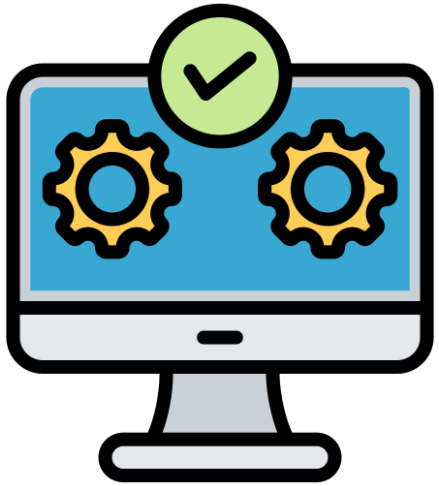
- **Includes**
  - hardware acquisition,
  - programming and software acquisition or development,
  - user preparation,
  - hiring and training of personnel,
  - site and data preparation,
  - installation,
  - Testing
  - user acceptance

Systems Implementation



- **Acquiring Hardware**
  - Organizations purchase, lease or rent hardware from IS vendors
  - IS vendors
    - General or small computer manufacturers
    - Peripheral equipment manufacturers
    - Computer dealers and distributors
  - Pay for computing services
    - Processors, storage devices, network facilities

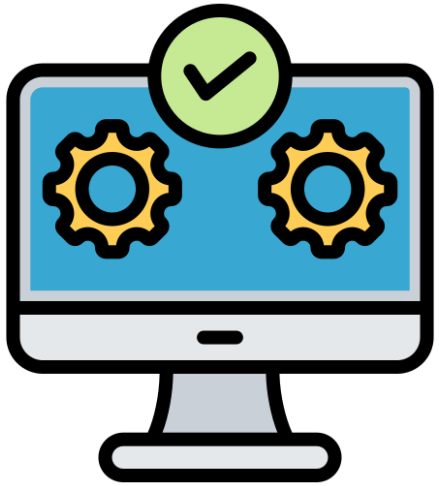
Systems Implementation



- **Acquiring Software**
  - Make or buy decision to be made by the company
  - Most cases it is a blend: e.g. OS are purchased or modify other off- the-shelf software

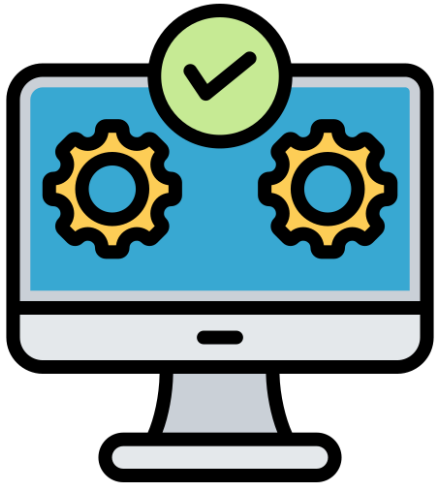
Factor	Off the Shelf	Developed
Cost	Low cost	High cost
Needs	Might not get what you need	Custom software to satisfy the need
Quality	Usually high quality	Quality varies depending on programming team
Speed	Can acquire instantly	Can take years to develop
Competitive advantage	Other organizations can have the same software and same advantages	Can develop a competitive advantage with good software

Systems Implementation



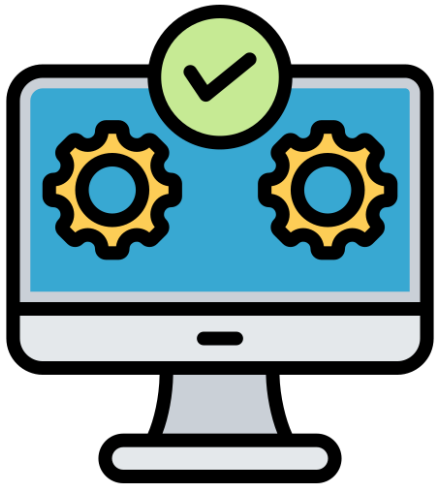
- **Externally Acquired Software**
  - Software as a Service (SaaS)
  - Commercial off-the-shelf (COTS)
- **In-House Developed Software**
  - Chief programmer teams
  - Structured programming
  - CASE and object-oriented approach
  - Cross-platform development
  - Integrated development environment (IDEs)
  - Documentation

Systems Implementation



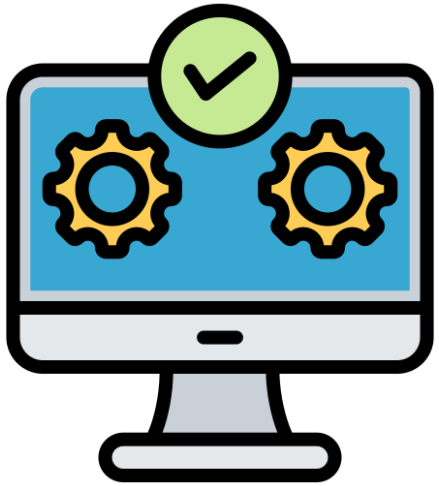
- **Acquiring Databases and telecommunication systems**
  - Need of increased storage or new DBMS
  - To create networks and communication methods for business
  - Same hardware and software acquiring procedures happen here
- **User Preparation**
  - Readying managers, decision makers, employees, other users, and stakeholders for new systems
  - Important, but often ignored area of systems implementation

Systems Implementation



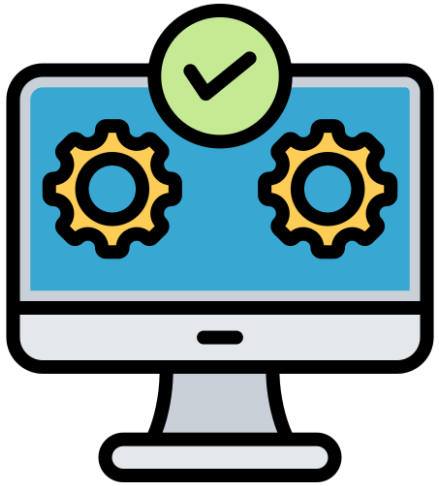
- **IS personnel: Hiring and Training**
  - Training programs should be conducted for the IS personnel who will be using the computer system
  - More detailed than user training in the technical aspects of the systems
- **Site Preparation**
  - Preparation of the location of a new system
  - Larger systems may require special equipment
  - Developing IS sites that are energy efficient is important
- **Data Preparation**
  - Also called data conversion
  - Ensuring all files and databases are ready to be used with new computer software and systems

Systems Implementation



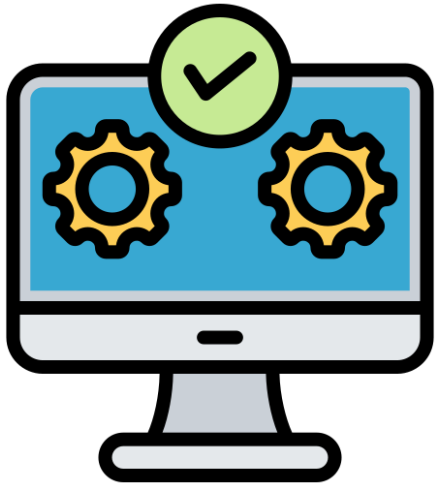
- **Installation**
  - Process of physically placing computer equipment on the site and making it operational
  - Normally, manufacturer is responsible for installing computer equipment
  - Someone from the organization (usually IS manager) should oversee the process
- **Testing**
  - Unit testing
  - System testing
  - Volume testing
  - Integration testing
  - Acceptance testing
  - Alpha testing
  - Beta testing

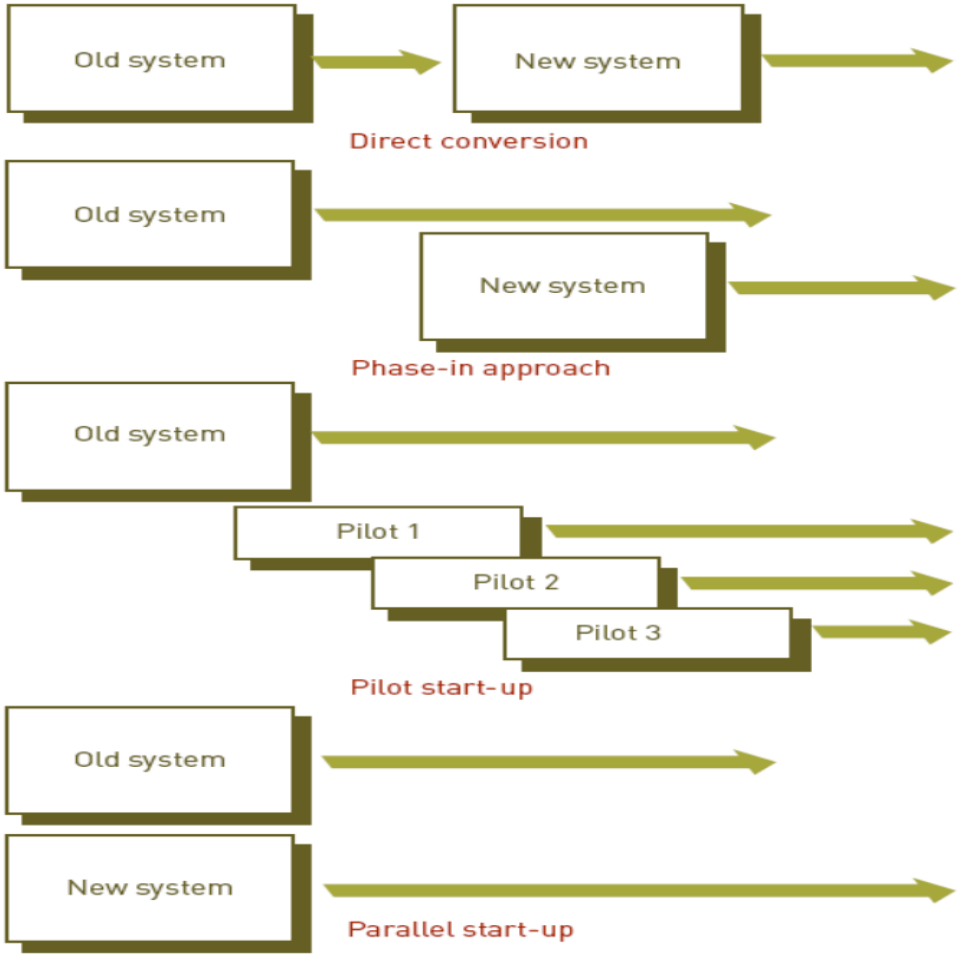
Systems Implementation



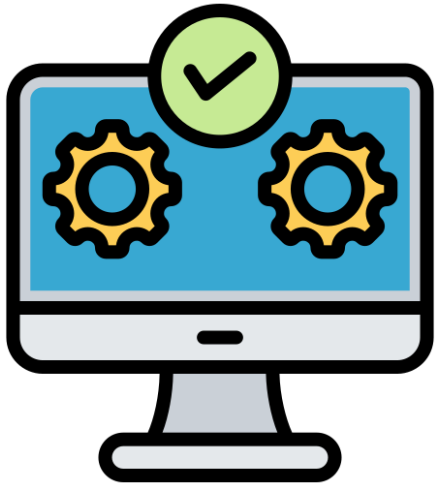
- **Start Up**
  - Process of making the final tested information system fully operational
  - Various start up (also called cutover) approaches available:
  - **Direct Conversion**
  - **Phase-in approach**
  - **Pilot start-up**
  - **Parallel start-up**

Systems Implementation



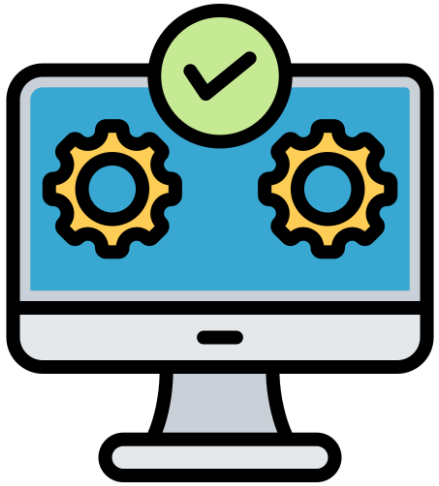


Systems Operation and Maintenance



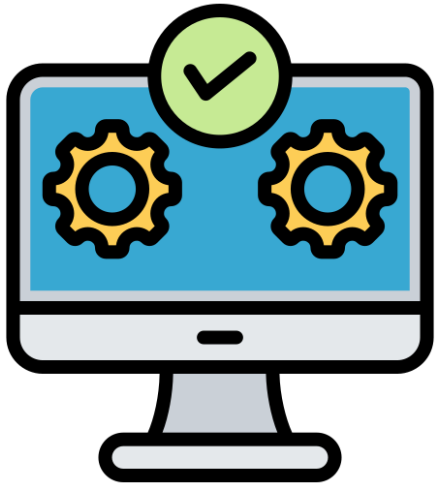
- **Systems operation**
  - Use of a new or modified system to see whether it has the performance and benefits as perceived
- **Systems maintenance**
  - Checking, changing, and enhancing the system to make it more useful in achieving user and organizational goals

Systems Operation and Maintenance



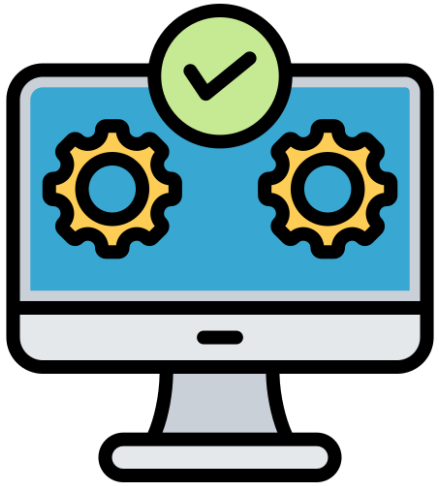
- **Reasons for Maintenance**
  - Changes in business processes
  - New requests from stakeholders, users, and managers
  - Bugs or errors in program
  - Technical and hardware problems
  - Corporate mergers and acquisitions
  - Government regulations
- **Types of maintenance**
  - Slipstream upgrade
  - Patch
  - Release
  - Version

Systems Operation and Maintenance



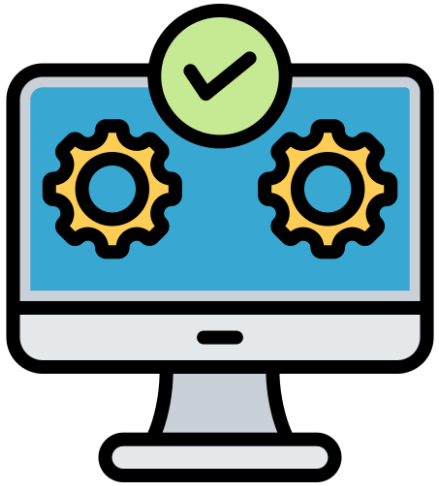
- **Performing Maintenance**
  - **Maintenance team**
  - Responsible for modifying, fixing, and updating existing software
  - Maintenance function
  - Becoming more automated

Systems Review



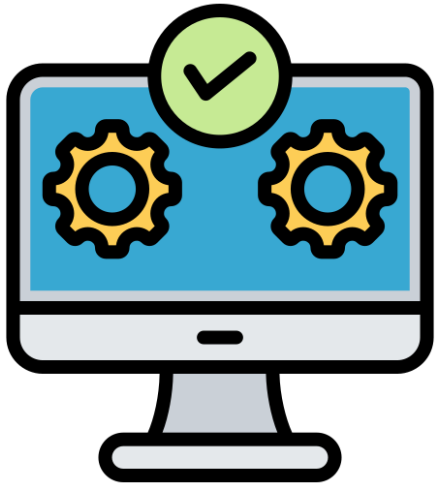
- **Final step of systems development**
- **Analyzes systems to make sure that they are operating as intended**
- **Types of Review procedures:**
  - *Event-driven review*
  - Triggered by a problem or opportunity
  - *Time-driven review*
  - Performed after a specified amount of time

Systems Performance Measurement



- **Monitoring the system**
  - Number of errors encountered
  - Amount of memory required
  - Amount of processing or CPU time needed
  - Other problems
- **System performance products**
  - Software that measures all components of the computer-based information system

Project Management Plan; Examples



Project Plan Template by Project Phase

1 Initiation

- Identify a problem or need.
- Get project buy-in.
- Appoint a project manager.
- Meet with stakeholders to define the SMART goal.
- Develop the project charter.

2 Planning

- Conduct a needs assessment to determine user requirements.
- Develop a detailed project plan including schedule, deliverables, tasks, KPIs, budget, and resources.
- Create a risk management plan to identify potential risks and mitigation strategies.

3 Execution

- Set up test environments for quality assurance.
- Conduct user training sessions.
- Implement the rollout according to the project schedule.

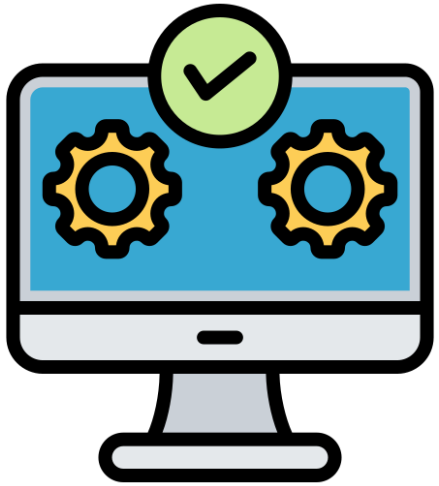
4 Monitoring

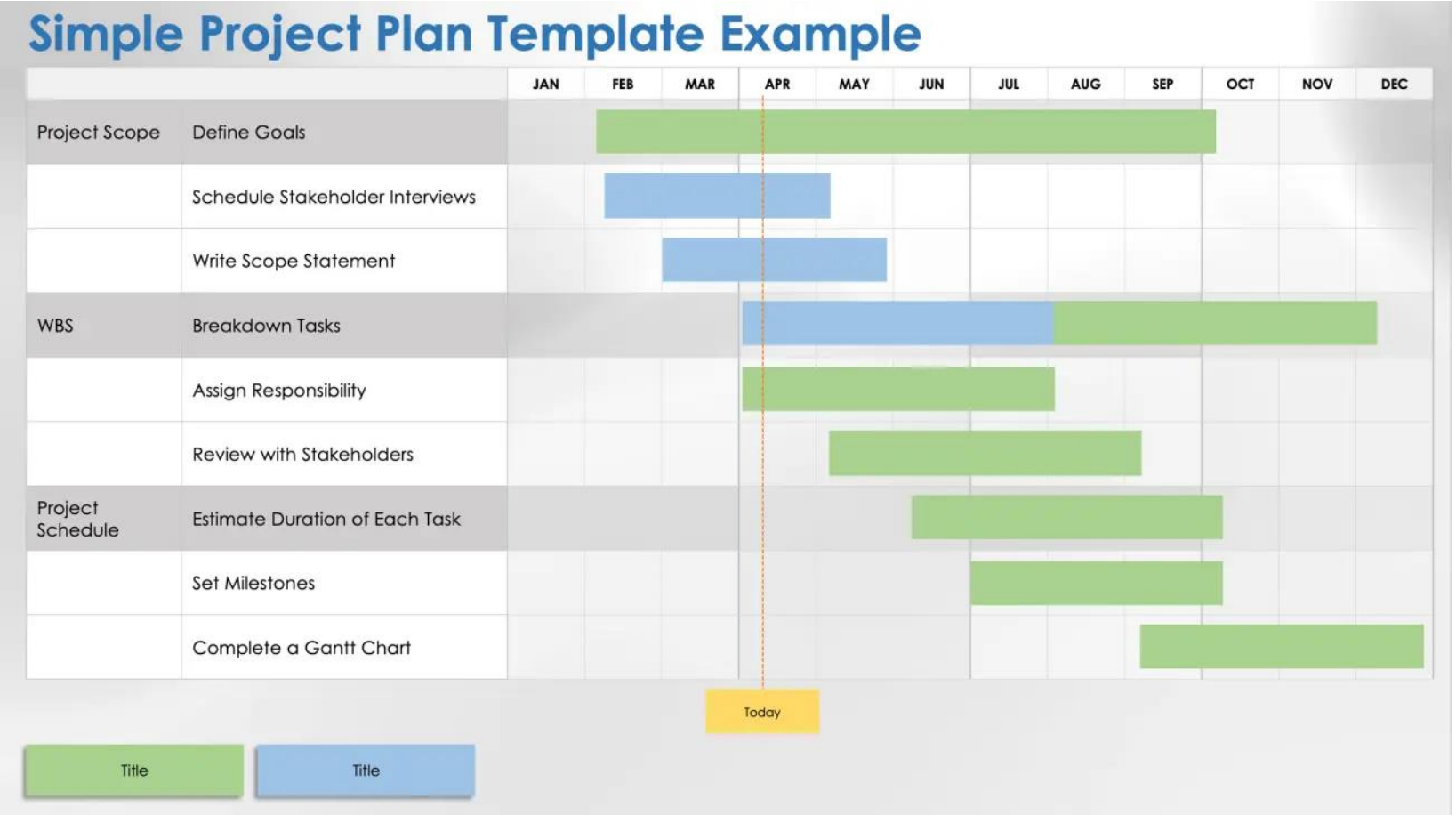
- Regularly assess project progress and performance against the project plan.
- Monitor user feedback.
- Conduct periodic quality assurance checks to ensure the product meets user expectations.

5 Closure

- Obtain feedback from stakeholders.
- Conduct a post-implementation review to assess project success and lessons learned.
- Document final project reports and archive project documentation for future reference.

Project Management Plan; Examples





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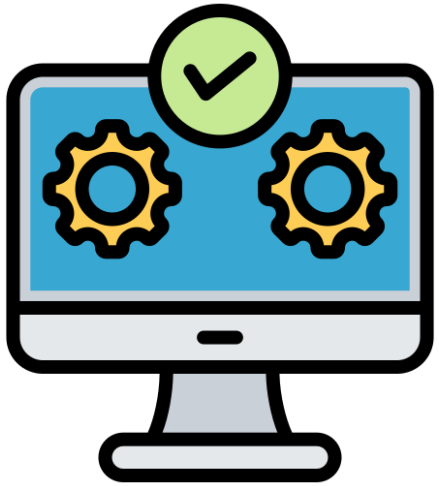


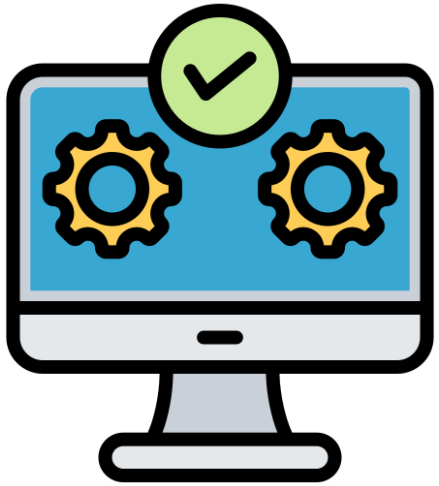
Agile Project Plan Template

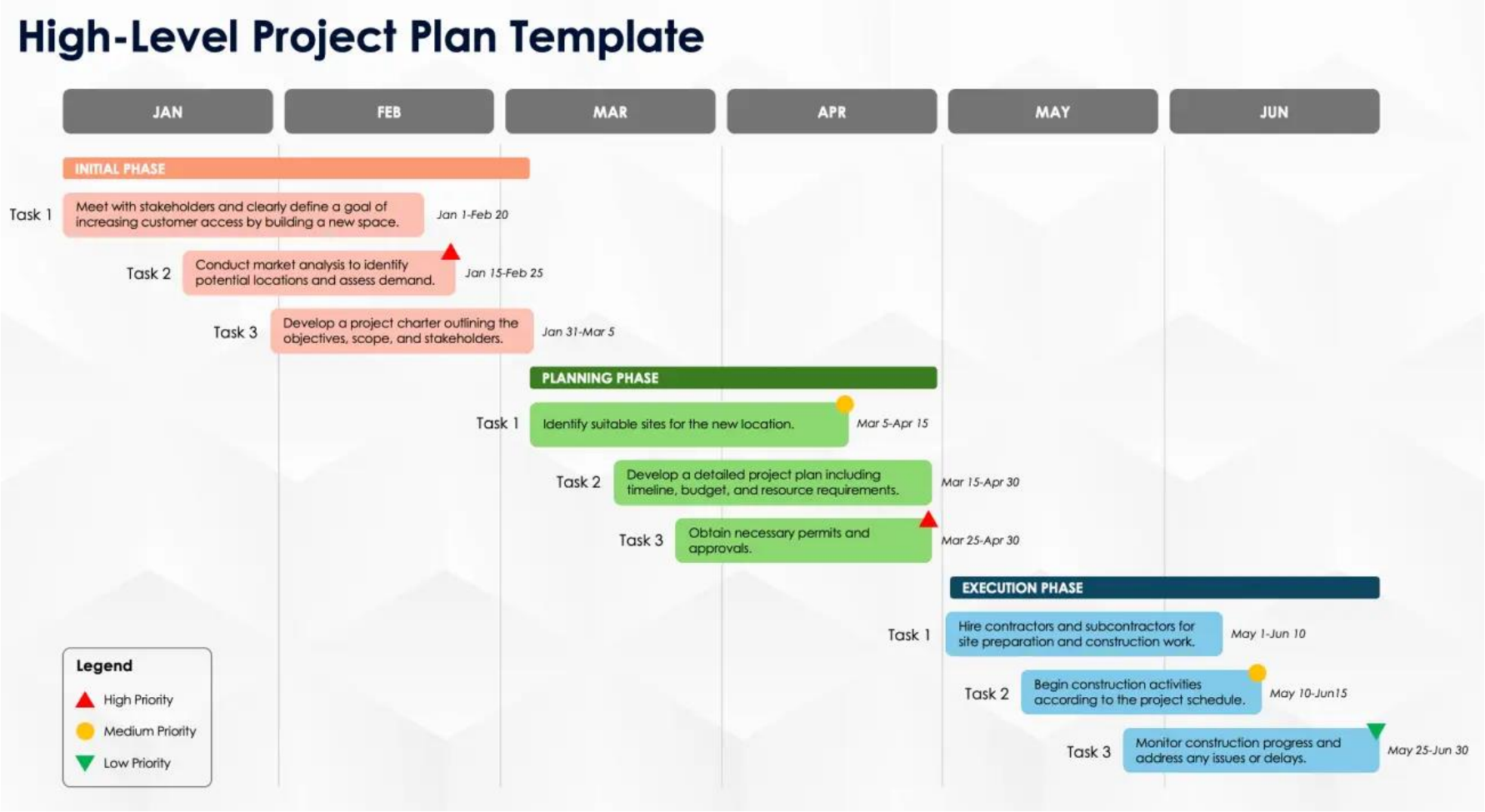
PROJECT NAME		START DATE	END DATE	OVERALL PROGRESS	PROJECT DELIVERABLE	
PROJECT MANAGER					SCOPE STATEMENT	

AT RISK	TASK NAME	FEATURE TYPE	RESPONSIBLE	STORY POINTS	START	FINISH	DURATION in days	STATUS	COMMENTS
No	SPRINT 1								
Yes	Feature 1								
No	Feature 2								
No	Feature 3								
No	SPRINT 2								
No	Feature 4								
Yes	Feature 5								
No	Feature 6								
No	SPRINT 3								
No	Feature 7								
No	Feature 8								
No	Feature 9								

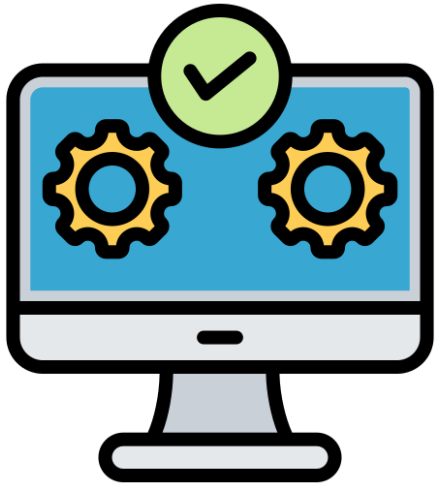
PROJECT NAME		START DATE	END DATE	OVERALL PROGRESS	PROJECT DELIVERABLE	
PROJECT MANAGER					SCOPE STATEMENT	

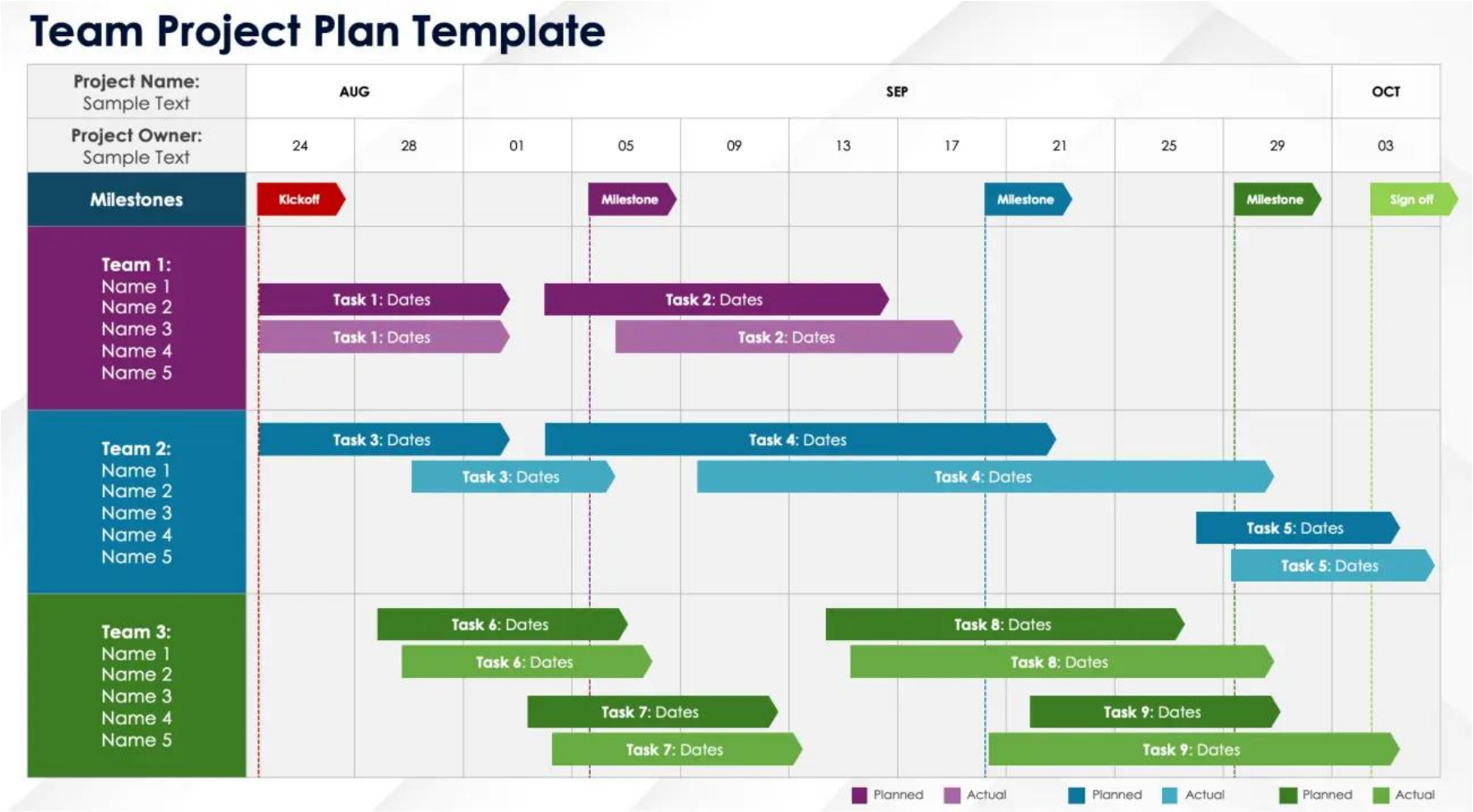
Project Management Plan; Examples



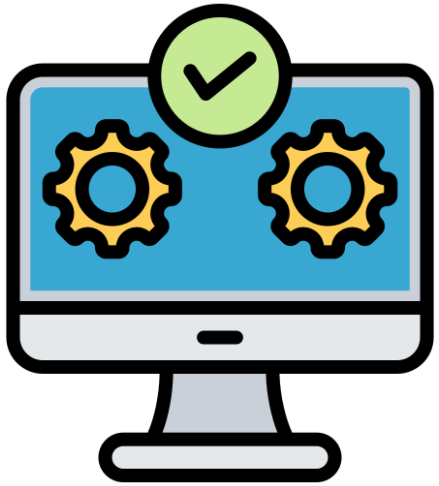


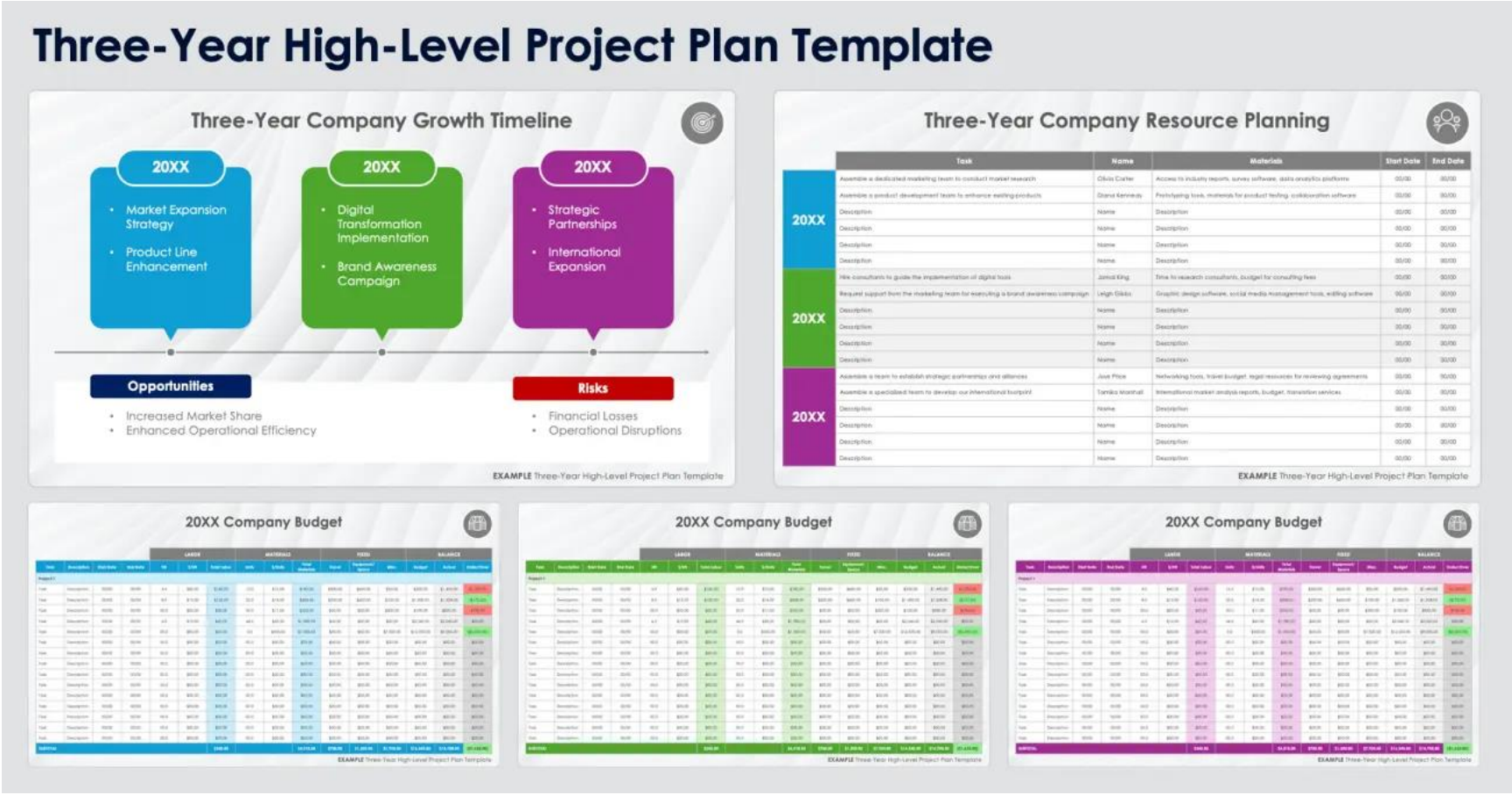
Project Management Plan; Examples



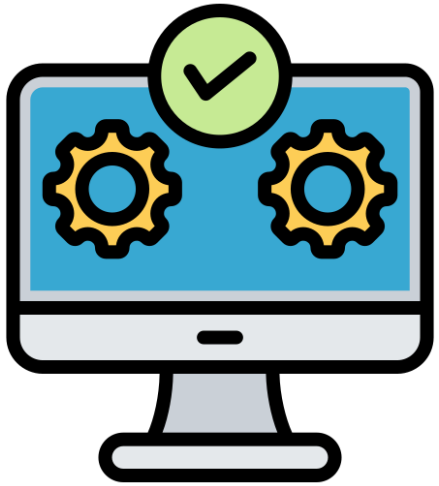


Project Management Plan; Examples

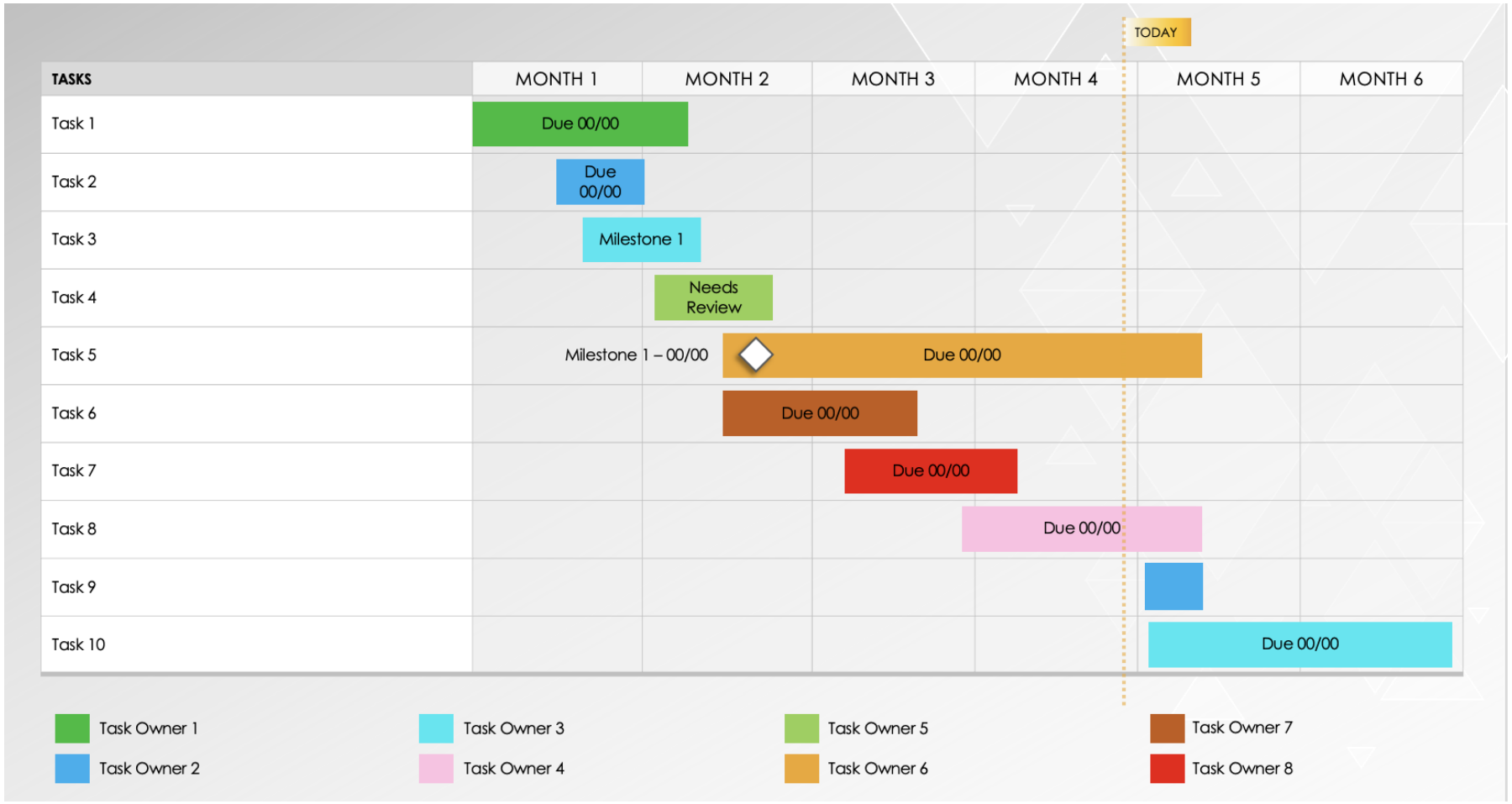




Project Management Plan; Examples

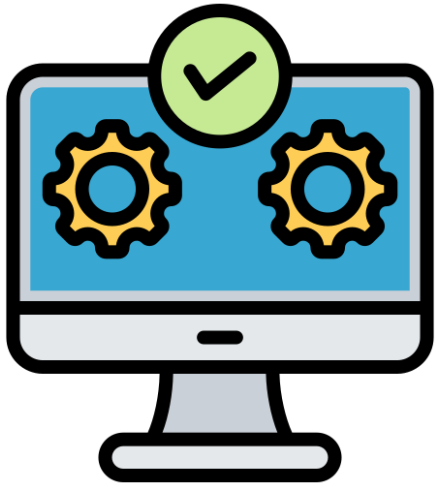


SIMPLE GANTT CHART TEMPLATE



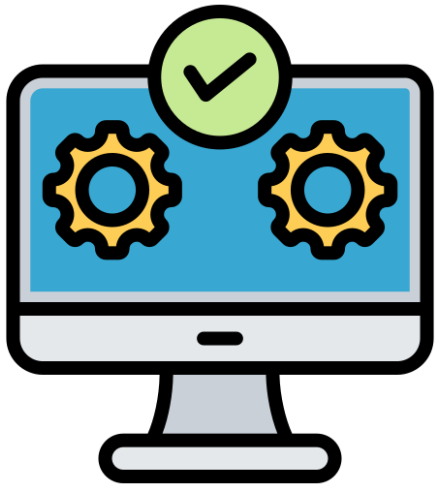
Project Management Plan; Examples

INTERNAL COMMUNICATIONS PLAN TEMPLATE



INTERNAL AND EXTERNAL COMMUNICATION PLAN					
STAKEHOLDERS	POWER/INTERST	KEY INTEREST & ISSUES	COMMUNICATI ON VEHICLE	FREQUENCY	COMMENTS

Summary



- IS projects have a high failure rate because of improper project management
- IS projects need linking to the business plans, IT goals need to be mapped to corporate goals
- Selecting of projects is based on CSF, portfolio analysis or scoring models
- Change management is crucial for the success of any project
- IS projects need to be developed keeping the organizational and management needs in mind

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Thank You