

SE 329 – Software Project Management

Project Management Processes

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Goal

- What is project management?
- What is the difference between project management and development life-cycle?
- What are the 5 project management process groups?
- What is the role of PM?

Project Value

- A project has a business value – tangible and intangible
- **Project management** is the application of knowledge, skills, tools, and techniques to project activities to meet the project requirements”

Expectations from The Course

- “Project management is the application of knowledge, skills, tools, and techniques to project activities to meet the project requirements”
- Learn techniques for:
 - Scheduling
 - Risk
 - HR
 - Communication
 - Etc.

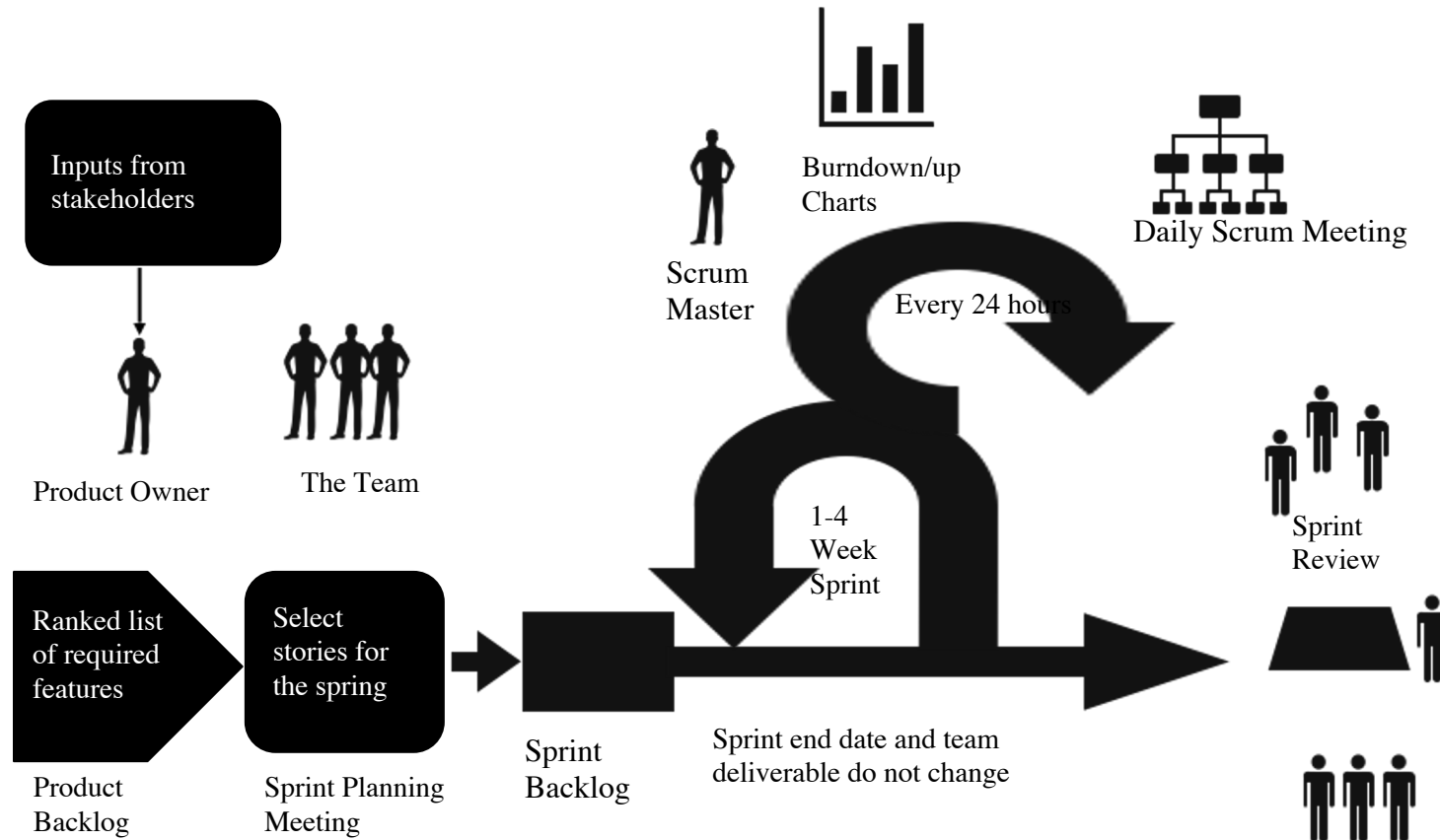
Need for Project management

Your best friend met an administrator in the city hospital and discussed the possibility for you to develop an electronic health records management system for the hospital. The administrator proposed that you work on the software and they will buy it if it helps them to reduce the cost.

- What information would you need to start working on the project? Would you do that if they have only 5K?
- Would the project development lifecycle be sufficient to work on the project? Why?

Project Lifecycle

Project life-cycle supports transforming needs to a product



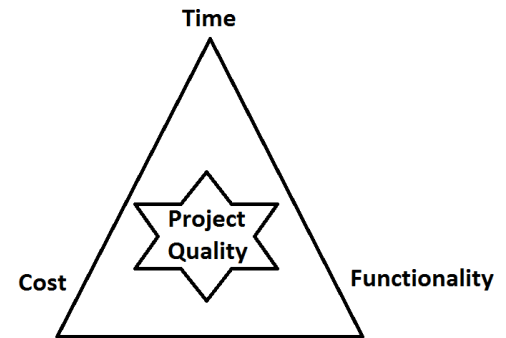
Objectives of Project Management

- Finish on time (metric: time)
 - Agree on deliverables carefully
 - Agree to timeline carefully
 - Avoid being overly optimistic
- Finish with available resources (metric: cost)
 - Available team members
 - Subcontractors
 - Funding
- Finish by exceeding client's expectations (metric: functionality and quality)
 - Negotiate to finish, not to land the job
 - Make sure everyone knows what is expected

Objectives of Project Management

- Quality is a constrained optimization of

- 1) Time
- 2) Cost
- 3) Functionality

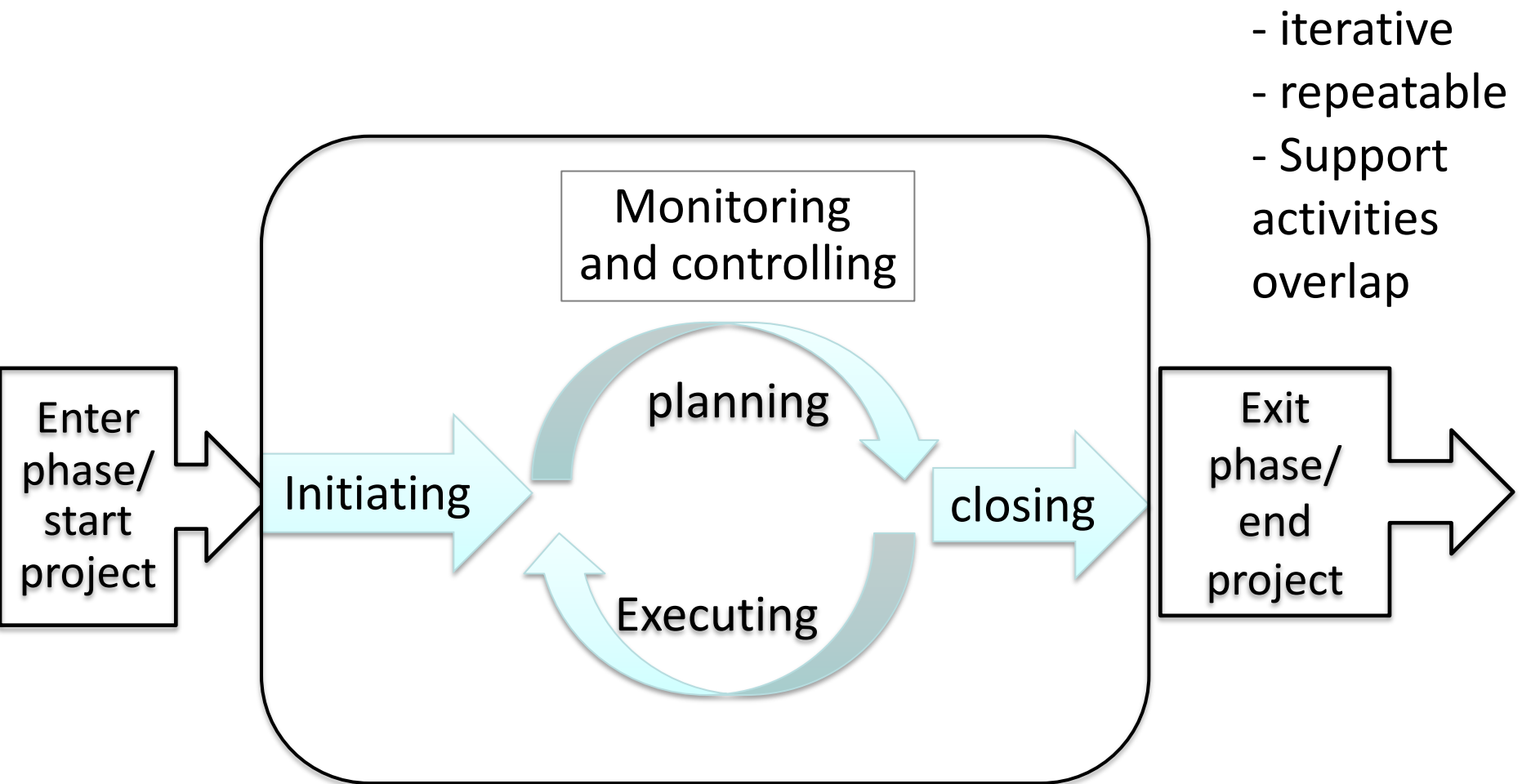


- Maximize one at the expense of the other two
 - “I can deliver you a fast answer [executive] or a correct answer.”
- In the end, compromises are made

Project Management Process

“Project management processes ensure the effective flow of the project through its life-cycle.”

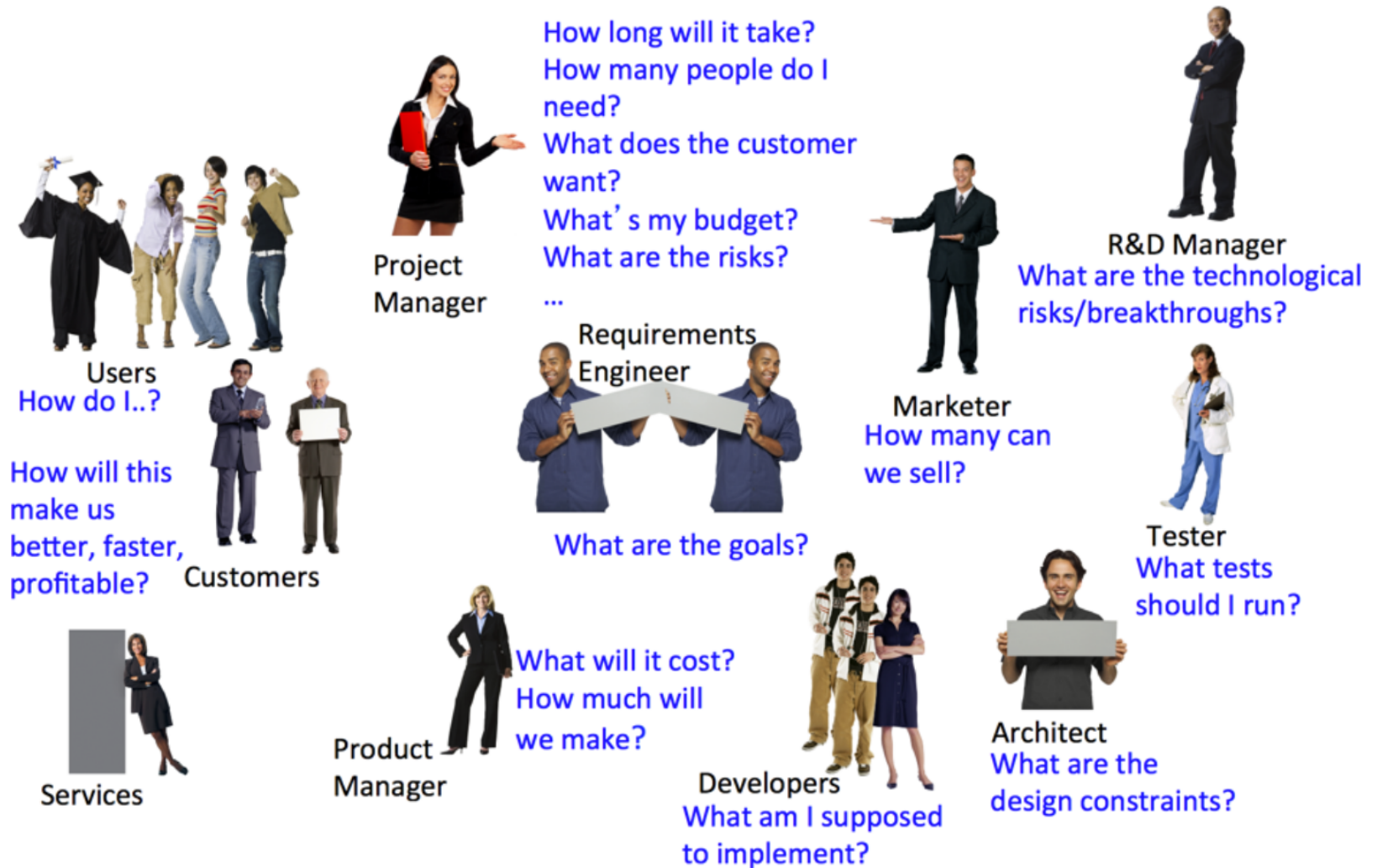
Project Management Processes



Initiating Processes Group

- These processes set the vision for the project and obtain the authorization to start it.
- Purpose:
 1. Align the stakeholders expectations with the project purpose
 2. Clarify the scope and objectives
 3. Make the stakeholders understand the value of their participations

Who Are the Stakeholders?



Initiating Process Group

- Activities:

- Initial scope
- Feasibility evaluation
- Initial financial resources are committed
- Stakeholders are identified
- Selection of the project manager

Questions to answer include : Can we do it?

- Is the technology ready?
- Do we understand the technology?
- Can anyone use it?
- How much does it cost?

Initiating Process Group

- Documentation
 - Project scope
 - Deliverables
 - Project duration
 - Expected needed resources
- Decision: Continue/delay/stop

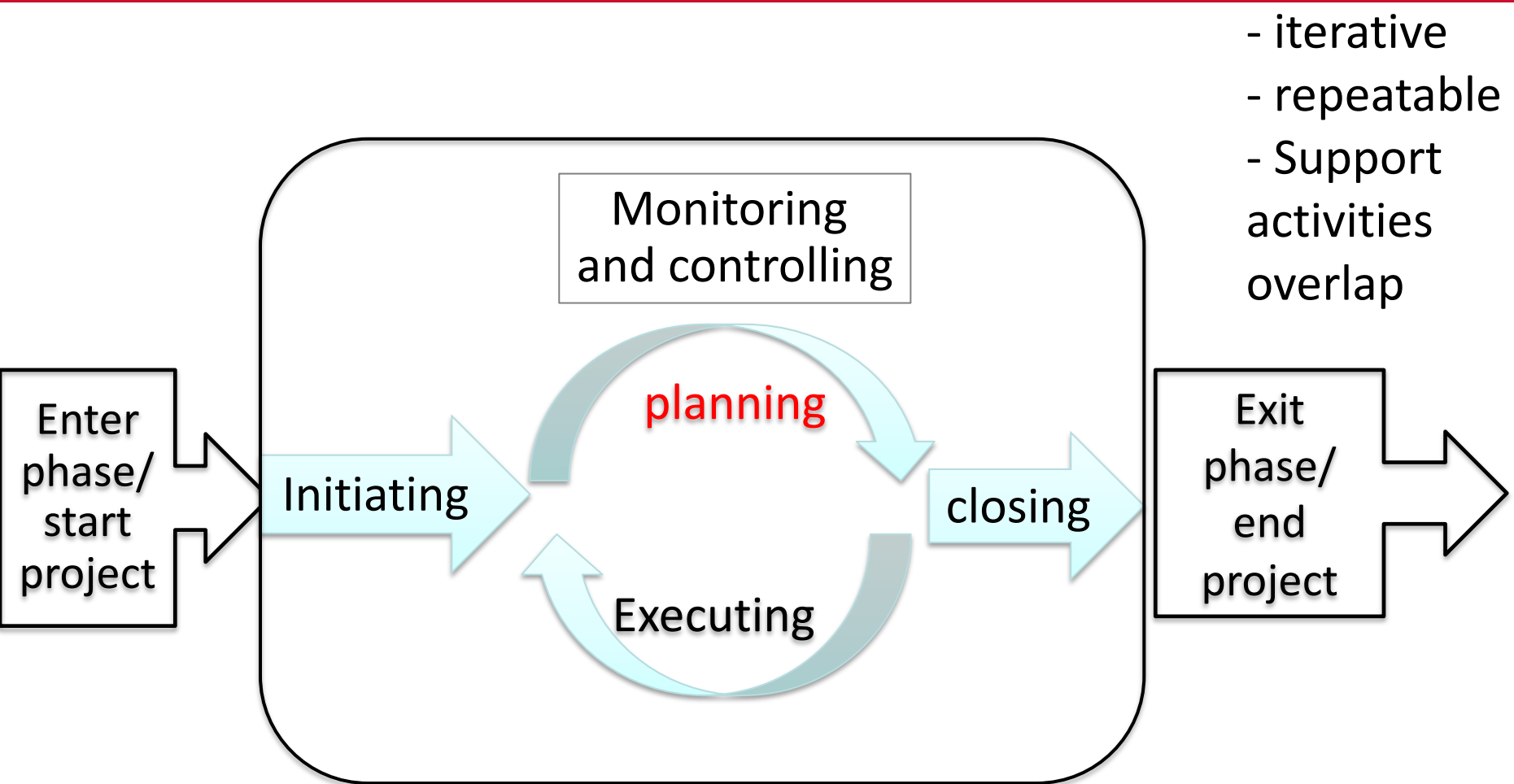
Continue -> PM is given authorization to use resources to continue the project

Initiating Process Group

Example: What would you do to initiate the project “Electronic health records management” ?

- Define the initial scope
- Evaluate the feasibility and the committed Initial financial resources
- Identify the stakeholders
- Select of the project manager
- Identify the intellectual property

Project Management Processes



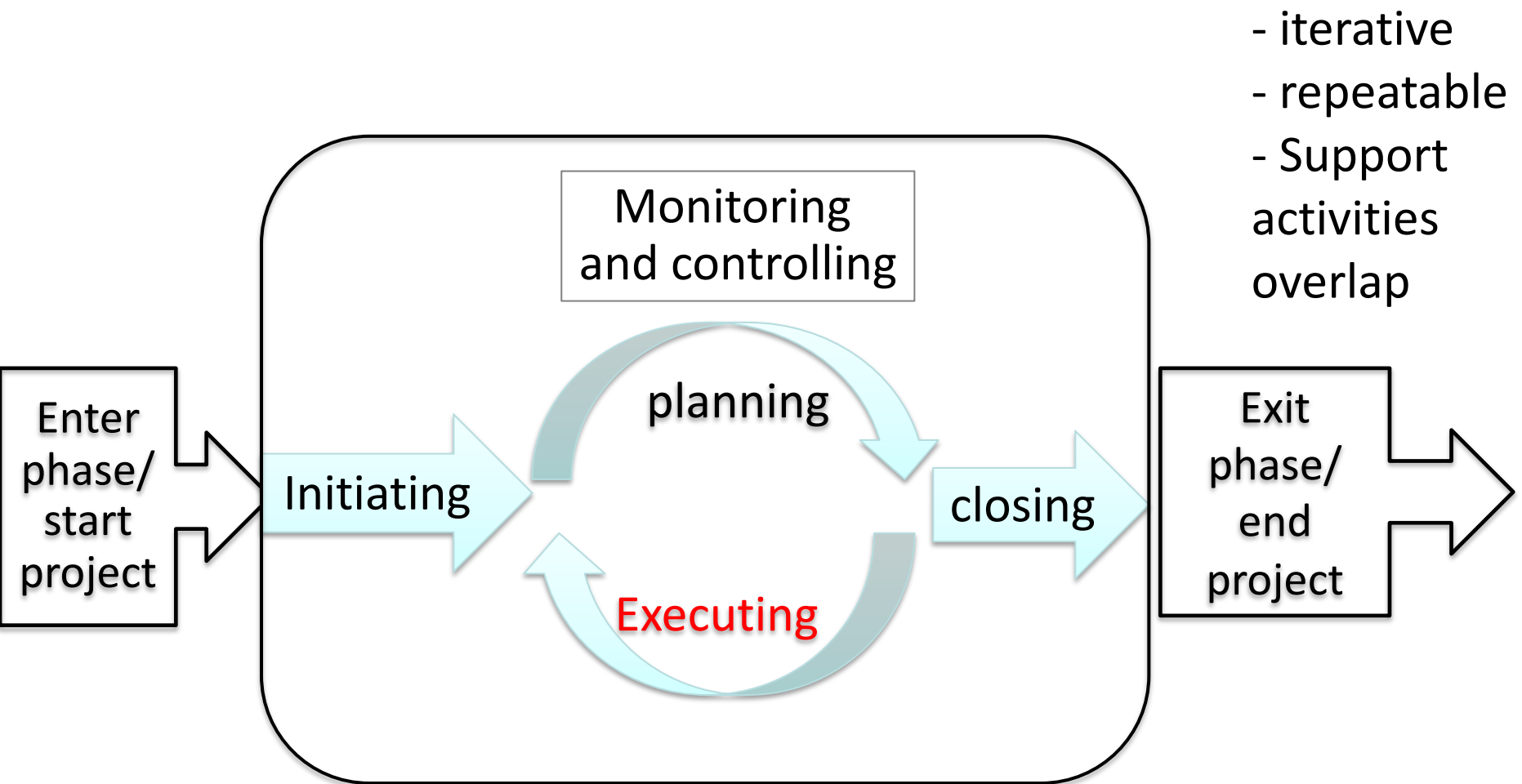
Planning Process Group

- The processes establish the scope, define the objectives, and set the actions plan to achieve them.
- Explore the following aspects: scope, time, cost, quality, communication, risks, procurements, and stakeholders.
- Activities of the phase include
 1. Develop a strategy and a course of actions to achieve the project
 2. Gather information about the project and refine the plan of action

Planning Process Group

- The **elaboration** of **project plan** is **iterative**
- Progressive project plan implies incremental detailing of the project

Project Management Processes



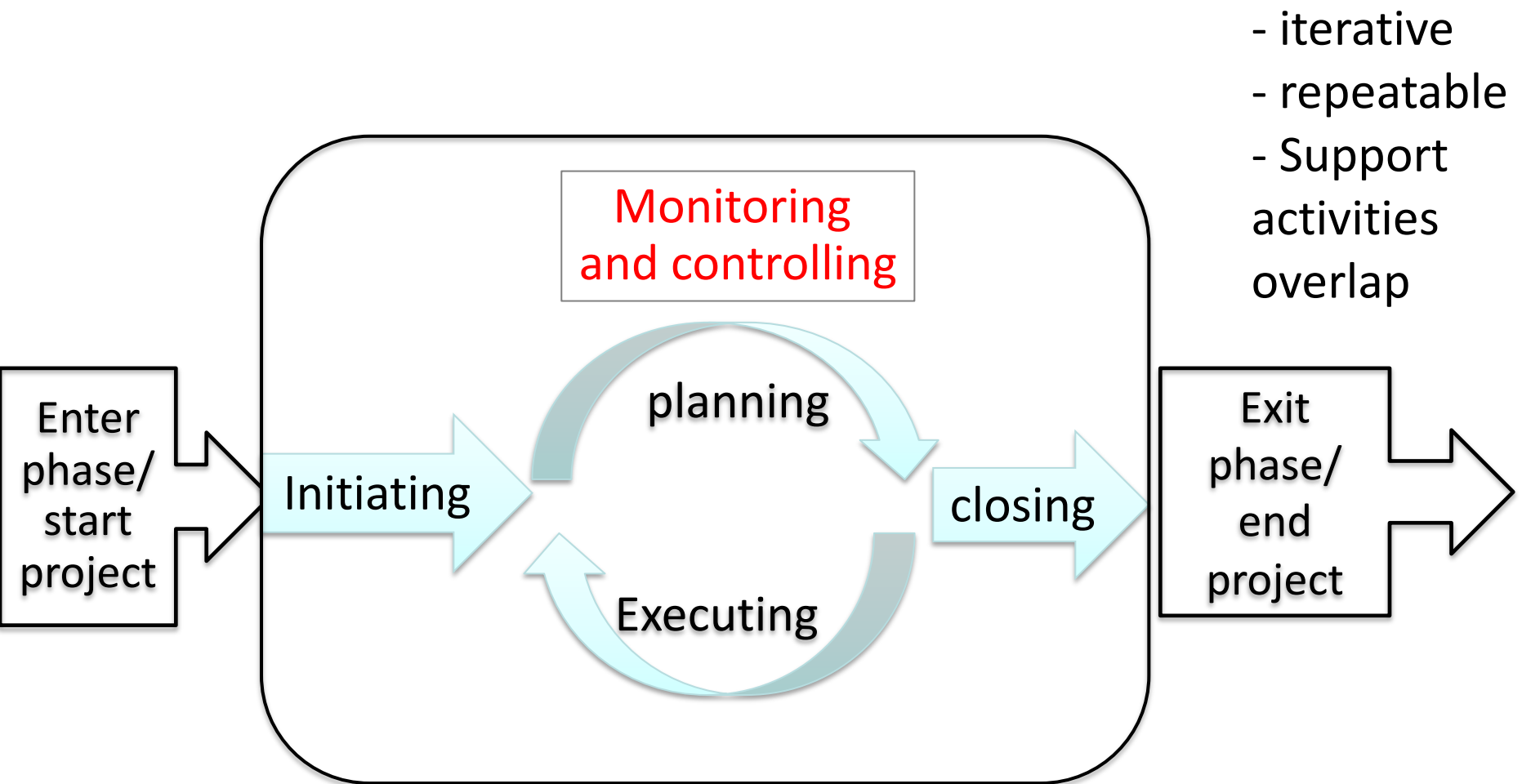
Executing Process Group

- The processes support performing the work defined in the project plan to satisfy the project objectives
- Activities include:
 - Coordinating resources
 - Managing stakeholders expectations
 - Performing the project plan tasks
 - Integrating the results of the project plan tasks

Executing Process Group

The execution may require updating the project plan including the **tasks, risks, cost**, etc. It may also require e.g., changing the scope

Project Management Processes



- iterative
- repeatable
- Support activities overlap

Monitoring and Controlling Process Group

- The processes track, review and orchestrate the progress and performance of the project, and identify required plan changes
- Activities include:
 - Monitor project activities and compare them to the planned activities
 - Apply corrective or preventive actions
 - Control changes to the project

Monitoring and Controlling Process Group

- The processes use metrics to measure the project performance, analyze the results and variance from the plan, and take corrective actions if needed

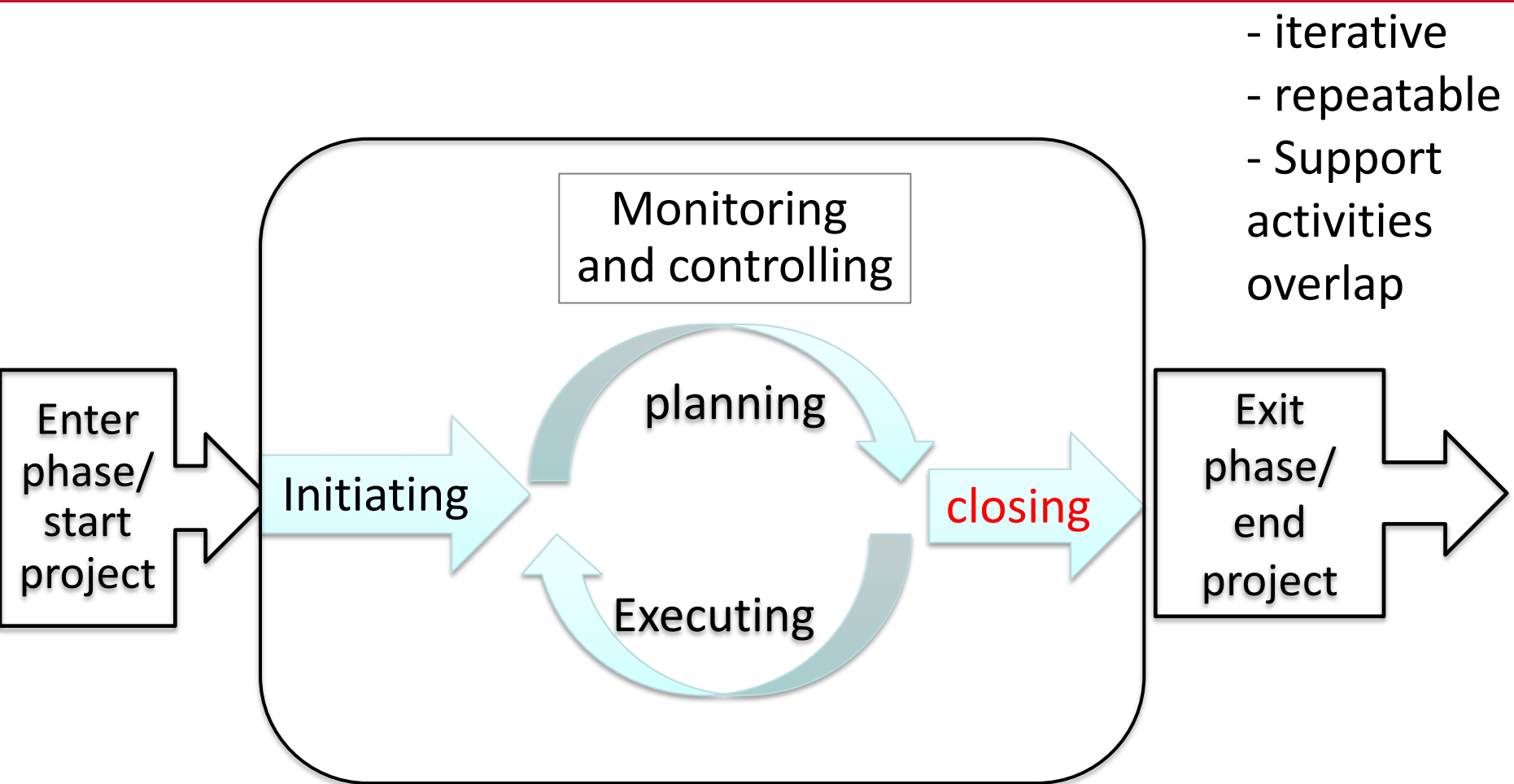
Monitoring and Controlling Process Group

The first deliverable of the electronic health records system is a desktop application that nurses could use to enter data related to doctor visits. You realized one week before the delivery date that you need an extra 1 month to deliver the software.

We may ask:

- What is the impact of the delay on the budget and project plan?
- What would you do to address the problem?

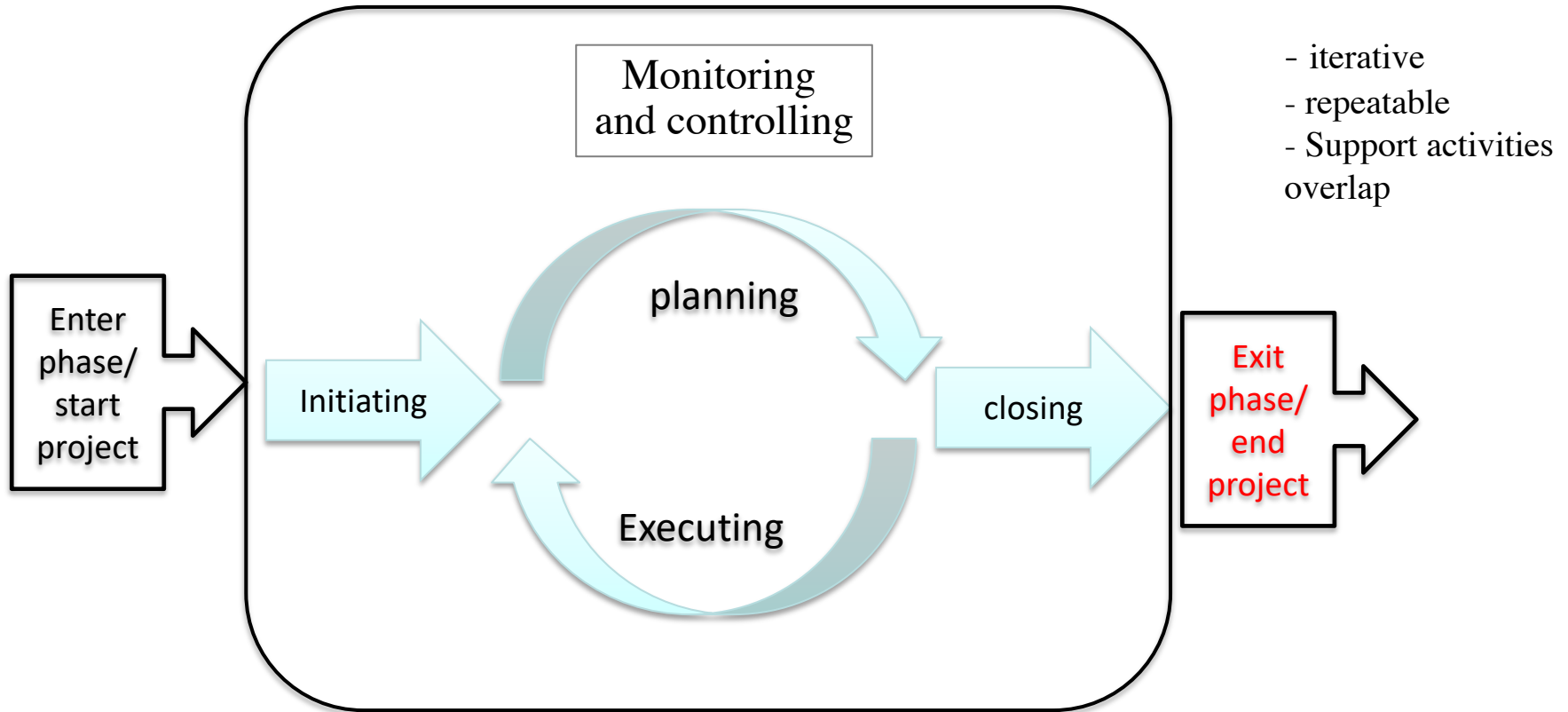
Project Management Processes



Closing Process Group

- Processes to conclude the project activities and formally complete the project
- It includes verification that all tasks (e.g., knowledge transfer) are completed and deliverables are accepted by the stakeholders

Project Management Processes



Project Knowledge Areas

Areas are

1. Integration management
2. Scope management
3. Time management
4. Cost management
5. Quality management
6. Human resource management
7. Communication management
8. Risk management
9. Procurement management
10. Stakeholders management

Project Manager Role

The Role Project Manager

- Project manager (PM) is a person assigned to manage a project and is responsible to achieve the projects goals
- A PM may report to a business unit manager or a program manager
- Main required competencies
 1. Knowledge: have required knowledge to work on the project
 2. Performance: able to apply knowledge to accomplish goals
 3. Skills: have personal characteristics such as leadership

Examples of Tasks of a Project Manager

1. Finding out what the customers want – main aspects
2. Estimating development time
3. Estimating required resources
4. Managing change
 - employee loss, resource loss, requirement change
5. Estimating the cost
6. Coordinating the work
7. Controlling the project execution
 - Tracking time, resources, quality, productivity, effectiveness, etc.

Good Project Manager

Discussion: Identify the best project manager that you have worked with.

- Why did you choose them?

Characteristics of a Good PM

- They include
 - Serve the team, not themselves
 - Be a facilitator
 - Connects with the right people
 - Identify and remove obstacles
 - Seek nonintrusive updates
 - Increase team velocity

Assignment 1

Chapter 1, Chapter 2, and Chapter 4 of the report “Capability Maturity Model for Software, Version 1.1”

1. What are the fundamental concepts of process maturity?
2. What are the levels of process maturity?
3. Are they sufficient to measure the maturity of organizations?
4. How does improving process maturity levels help managing software projects?
5. What are the uses of CMM?
6. What would you do to improve the maturity level of a team you worked with?

Self-check

1. What is project management?
2. What is the difference between project management and development life-cycle?
3. What are the 5 project management process groups?
4. What is the role of PM?