

# EPM Final Exam Revision

**What is a project life cycle? Use a diagram to aid your discussion. Why is the life cycle an important consideration for project management? (5 marks)**

Project lifecycle is useful for managing projects. The lifecycle recognizes that projects have a limited life span and that there are predictable changes in level of effort and focus over the life of the project. There are various life cycle models used in the industry usually industry tailored. The general project life cycle consists of 4 phases; defining phase, planning phase, executing phase, and delivering phase.

## Defining stage:

- Specifications of the project are defined.
- Scope established
- Teams formed
- Major responsibilities assigned

## Planning stage:

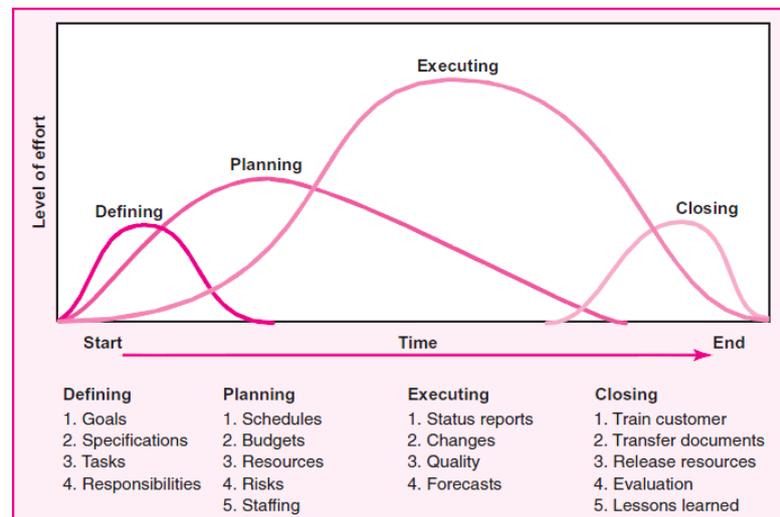
- The level of effort increases
- Scheduling
- Budget
- WBS
- Stakeholders identified

## Executing stage:

- Deliverable is produced
- Status reports
- Project control and monitoring
- Changes to the project

## Closing stage:

- Delivery of product to customer
- Redeployment of staff to other projects
- Post-project review (assessing performance & capturing lessons learned)



**What might some impacts be, at the project level, of poor strategy processes? (ICE)**

- Lack of goals, values
- Financial loss
- Failure to deliver projects, no repeat business
- Bad reputation for the company

**Discuss the concept of Project Scope. Comment on the relevance of the work breakdown structure to this concept. What kinds of information are included in a work package. (5 marks)**

A clearly defined scope ensures that all stakeholders understand the projects outcomes. Some of the key elements that should be included in the scope are; project objective, deliverables, milestones, technical requirements, limits and exclusions. Once the scope is completed you will need to review it with the customer so both parties are aware of the expectations. Once the scope is identified the work in the project can be divided into smaller and smaller tasks. These small tasks are used to outline the project from the top till the bottom and show a clear image of what needs to be done at what time. The WBS defines all the elements of the project in a hierarchical framework and establishes their relationships to the end product.

**Discuss the importance of defining limits and exclusions when considering the projects scope. (5 marks)**

Defining the project scope sets the stage for developing a project plan. The project scope definition is a document that will be published and used by the project owner and project participants for planning and measuring the project success. Limits and exclusions further define the boundary of the project by stating what is not included; to ensure that the customer is aware of aspects of the project that will not be considered.

**Describe the major components of the strategic management process. Explain the role projects play in this process. (5 marks)**

1. Review and define the organizational mission
  - “This is why we exist”
  - Identify the scope of the organization
  - SWOT analysis
    - i. Strengths and weaknesses (internal)
    - ii. Opportunities and threats (external)
2. Set long-range goals and objectives
  - By setting objectives it will allow the company to work towards a goal which helps them prosper
  - SMART: Specific, measurable, assignable, realistic, time related
3. Analyze and formulate strategies to reach objectives
  - To ensure projects align with strategic goals
  - Project Portfolio Management
4. Implement strategies through projects
  - Compliance projects – to survive

- Operational projects – support current operations
- Strategic projects – support long term organizational mission

Each company has its own business strategy that it needs to follow in order for it to prosper. Projects play a key role in the strategic plan because the project itself has to be in line with the organizations structure. Companies acquire projects that are related to their field rather than just taking any project just for the sake of it.

**What is time-phased estimating? When is it appropriate? (5 marks)**

Time-phased budgeting effectively unites the project schedule with the project budget. Without it, budget and schedule have no interconnection, and are left to float along independently. By time-phasing a project budget, you're armed with a more accurate representation of cash outflow so that appropriate project financial planning can take place. You're also much better able to monitor budget vs. actual costs as the project progresses so as to gain better insight into potential cost overruns (or, under-runs) and other cost controls capabilities.

**Discuss at least 3 major contract types. Comment on how each contract type shares risk between the parties under contract. (5 marks)**

1. **Lump Sum Contract** – typically used for mechanical, electrical and civil work to determine the total cost of a project, it allows the financial commitment to be known (**low risk to owner, high risk to contractor**)
2. **Schedule of Rates** – usually used in civil engineering to determine the complexity of the work but not the extent of work needed to be done. The contract prices equal agreed rates multiplied by actual quantities of work performed (**risk is relatively the same** for both parties because no one is aware of the extent of work that needs to be done)
3. **Cost Plus Contract** – there are several types of cost plus contracts which are; cost plus fixed fee, cost plus percentage fee, and target estimate. All of these contracts determine how the contractor will be paid and it provides little incentive for efficiency and requires extensive administration (**high risk to owner and low risk to contractor**)

**What is the difference between critical chains and critical paths?**

- Critical Path
  - Longest path through the project network that has the least amount of slack
  - Based upon task dependencies
- Critical Chain
  - Longest chain of tasks that considers both task dependencies and resource dependencies
  - More emphasis on resources than scheduling
  - If unlimited resources, critical chain = critical path
  - The goal of critical chain is to help projects finish on time, within budget, and without cutting scope.

### **How is PERT used to determine the likelihood of project completion within certain time frames?**

PERT uses three time estimates for each activity which basically means that each activities duration can range from an optimistic time to a pessimistic time and a weighted average can be computed for each activity.

Pessimistic – a (smallest duration, unlikely)

Most Likely – m (middle, likely)

Optimistic – b (largest number, more than likely)

By calculating the weighted average and variances for each activity, a Z value can be calculated and probability determined.

### **Critical chain scheduling requires that you schedule on the basis of 50% confidence level activity durations and that you create your own schedule on 'late finish' basis. Comment, with justification, on whether or not you consider this risky. How does Critical Chain scheduling deal with this? Limit your answer to less than 150 words. (5 marks)**

Critical-Chain Project Management (CCPM)'s solution to reducing project time overruns is to insist on people using the "true 50/50" activity time estimates (rather than estimates which have an 80 to 90 percent chance of being completed before the estimated time).

No, I do not consider this risky. Although the duration of activities are reduced making them more realistic, CCPM inserts time buffers into the schedule to act as "shock absorbers" to protect the project completion date against task durations taking longer than the 50/50 estimate. There are three kinds of buffers in CCPM:

1. Project buffer: A project time buffer is added to the expected project duration.
2. Feeder buffers: Buffers are added to the network where noncritical paths merge with the critical chain. These buffers protect the critical chain from being delayed.
3. Resource buffers: Inserted where scarce resources are needed for an activity.

All buffers reduce the risk of the project duration being late and increase the chance of early project completion.

### **Why is scheduling resources an important task? How can resource scheduling reduce the flexibility in managing projects? (5 marks)**

Project managers usually face resource-constrained problems, where there is not enough people and/or equipment to meet peak demand requirements. Thus, resources are scheduled to minimize project delay without exceeding the resource limit or altering the technical network relationships.

Flexibility is reduced because, after leveling, slack is reduced and the amount of critical activities increases.

**What are examples of quality prevention, appraisal and failure costs. (5 marks)**

<i>Prevention Costs:</i>	<i>Appraisal Costs:</i>	<i>Failure Costs:</i>
Prevention costs support activities whose purpose is to reduce the number of defects.	Appraisal costs, which are sometimes called inspection costs, are incurred to identify defective products before the products are shipped to customers.	Failure costs are incurred when a product fails to conform to its design specifications.
Examples: <ul style="list-style-type: none"> <li>• Quality Training</li> <li>• Technical support provided to suppliers</li> <li>• Audits of the effectiveness of the quality system</li> </ul>	Examples: <ul style="list-style-type: none"> <li>• Test and inspection of incoming materials</li> <li>• Maintenance of test equipment</li> <li>• Field testing and appraisal at customer site</li> </ul>	Examples: <ul style="list-style-type: none"> <li>• Disposal of defective products</li> <li>• Product recalls</li> <li>• Lost sales arising from a reputation for poor quality</li> </ul>

**Discuss possible reasons for reducing project duration. Discuss the options that are available for accelerating project completion. (5 marks)**

Some reasons why the project duration might be reduced is;

- Imposed duration - perhaps by a political announcement
- Market factors – delay in market release may result in profit loss or loss of market share
- Incentive clauses may encourage early completion
- Liquidated damages clauses may motivate early completion
- Unforeseen delays may require compression of remainder of the project

Some examples on how to accelerate project completion are; outsourcing project work, scheduling overtime, dedicated core team, fast tracking, critical chain, phased handover, reduce scope, compromise quality and adding resources

**How is the earned value used to compare budgeted with actual expenditure?**

The earned value is the percent of the original budget that has been earned by actual work completed which will give us a realistic estimate of performance against a time-phased budget.

**How can stakeholders have both a positive and negative influence over the project's success? (5 marks)**

Stakeholders have positive influences on the project by assisting the team in completing the project successfully. They provide funds, expertise and resources to the team to assist them, because they benefit from the project. Sometimes stakeholders have negative influences because they tend to see the negative outcomes from the project's success. Thus, they are reluctant to provide extra support or resources to the project. Sometimes various stakeholders will have conflicting objectives that need to be managed accordingly by the project manager.