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UNIT-3 :- Project lifecycle :—

project life cycle, phases - project planning, project execution, project closure, project Risks, project cost Risk Analysis, Time and cost overruns.

project life-cycle :-

Every project has a beginning, a middle period (during which activities moves the project toward completion) and an ending (either successful or unsuccessful). These different phase of development in a project is called project life cycle. A clear understanding of these phases helps entrepreneurs and project managers to have better control over existing resources to achieve the desired goals.

phases of project life cycle :—

project life cycle is a complex process consisting different steps arranged in a sequential order. By definition, a project has a beginning and an end and phases passes through several phases of development known as life cycle phases.

The no. of phases and sequence of the cycle are determined by the management and various other factors like, needs of the organization involved in the project, the nature of the project, and its area of application. The phases have a definite start, end and control point and are constrained by time. The project lifecycle can be defined and modified as per the needs of the organization. The lifecycle provides the basic foundation of the actions that has to be performed in the project irrespective of the specific work involved.

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Definition:- A project life-cycle is the series of phases that a project passes through from its start to its completion.

The stages in the project life cycle are:-

(a) project ~~init~~ initiation phase (starting of the project):-
In this stage, the specifications of the project are defined along with the clear cut project objectives. projects teams are formed and their major responsibilities are assigned. More specifically, this stage defines the goals, specifications, tasks and responsibilities.
The project charter includes information such as:-
i) project's purpose, vision and mission.
ii) Measurable objectives and success criteria.
iii) Elaborated project ~~desp~~ description, conditions and risks.
iv) Name and authority of the project sponsor.
v) concerned stakeholders like project manager, investors, company owners etc.

(b) project planning stage:-(organising and preparing):-
In this stage, the effort level increases and plans are developed to determine what the project will entail, when it will be scheduled, whom it will benefit, what quality level should be maintained and what the budget will be. More specifically, this stage will include planning schedules, budgets, resources, risks and staffing.

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(c) project execution stage (carrying out the project) :-
In this stage, a major portion of the project work takes place. The physical product is produced (for eg- house, bridge, software program, report etc). Time, cost and specification measures are used for control. More specially, this stage will take care of. Status reports, changes, quality and forcasts.

(d) project closure stage:- (closing the project) :-
This is the final stage which includes two activities; viz, delivering the outcomes of the project to the customer and redeploying the project resources. Delivery of the project might include customer training and transferring documents. Redeployment usually involves releasing project equipment/ materials to other projects and finding new assignments for team members. More specially, this stage will undertake activities relating to training the customer, transfer of documents, releasing resources; releasing staff and ~~learin~~ learning lessons.

project Management life-~~cycle~~ cycle General :-
The project management life cycle describes high-level processes for delivering a successful project. A project management life cycle is defined in the PMBOK (project Management Body of knowledge) by project Management institute (PMI) consists of 5 phases :-
(1) project initiation (2) project planning (3) project execution (4) ~~by~~ project monitoring & control (5) project closure.

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The project management lifecycle :-

Initiating → planning → executing → Monitoring and controlling → closing

1. project Initiation :- (defining what needs to be done) :-
In this phase the initial work necessary to create and authorise the project are defined -
key project management steps for initiating a project :-
(a) Make a project charter :- what is the vision, objective and goals of this project?
(b) Identify the High-level scope and deliverables :- what is the product or service that needs to be provided?
(c) conduct a feasibility study - what is the primary problem and its possible solutions?
(d) estimate the overall cost and create a business case - what are the costs and benefits of the solution?
(e) Identify stakeholders - who are the people this project affects, how and what are their needs

2. project planning :- (Defining how to do, what needs to be done) :-
It involves creating the planning documents to guide the team throughout the project delivery.

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key project management steps for planning a project-

(a) Create a project plan - Identify the phases, activities, constraints and schedule and create a project timeline with a work Breakdown schedule and Gantt chart.

(b) Create a financial plan:- Create a project budget and cost estimate and a plan to meet the maximum cost, complete with allocations across resources and departments.

(c) Create a Resource plan - Build a great team, recruit and schedule the resources and materials needed to deliver the project.

(d) Create a quality plan - Set project quality targets and measures.

(e) Create a Risk plan - Identify the people possible risks, assumptions, issues and dependencies, assign an owner, and develop a mitigation plan for how to avoid / overcome them.

(f) Create an Acceptance plan - Assign criteria for what constitutes 'done' and 'delivered'.

(g) Create a communication plan - List your stakeholders and plan the frequency of communication betn stakeholders.

(h) Create a procurement plan - find any 3rd party suppliers required and agree terms.

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3. project execution :- (Making a project happen)
(In the execution phase project plan is executed and planning gets turned into action. The project manager directs and manages project work, and the project team carries out the work. The project deliverables are produced and delivered.)

× key project management steps for executing a project :-

(a) Team leadership - set a vision for success and enable the team to deliver on it.

(b) Creating Tasks - clearly define what needs to be done and the ~~eer~~ criteria for the task.

(c) Task Briefing - ensuring the team is clear about what they need to do, by when.

(d) client Management - working with the client to ensure deliverables are acceptable.

(e) Communications - ensure you are informing and updating the right people at the right time through the right channel.

4. project Monitoring and control: (keeping a project on track):
In this phase, the monitoring of the project life is done to ensure the project is going according to plan and if it is not, controlling it by working out solutions to get it back on track. In reality, a project manager is monitoring and controlling a project in some way throughout the phases.

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key project management steps for monitoring and controlling a project -

(a) Cost & Time management - Review timesheets and expenses to record, control and track against the project's budget, timeline and tasks.

(b) Quality Management - Reviewing deliverables and ensuring they meet the defined acceptance criteria.

(c) Risk Mangement :- Monitor, control, manage and reduce potential risks and issues.

x (d) Acceptance Management - conduct user acceptance testing and ~~create creating~~ create a reviewing system, ensuring that all deliverables meet the needs of the client.

(e) Change Management - when the project does not go as per the plan, managing the process of acceptable changes with the client to ensure they are happy with necessary changes.

5. project closure : (ending a project) :-
project closure is the last phase of the project life cycle, which formally closes the project and reports the overall achievements of the project in terms of defined performance measures.

x key project management steps for closing a project -

(a) project performance Analysis - This is an overall look at how well the project was managed.

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(b) Team Analysis – did everyone do, what they were assigned to do?

(c) project closure – Document the tasks needed to bring the project life to an official end.

(d) post-implementation Review – write down a formal analysis of successes and failure and resulting lessons learned and suggestions for the future.

project Risks:-

- **Definition of Risk:-**
  Risk is defined as the possibility of an outcome being different from the expected outcome. It refers to the possibility of adverse results flowing from the uncertainty involved in carrying out the activities.

- **project Risks:-**
  The element of risk is inherent in every activity of a project. All projects are exposed to various types of risks. Since all risks cannot be eliminated or avoided, it is the job of the project manager to ensure that risks do not have adverse consequences. Every project manager follows a specialised risk management methodology that normally consists of four processes: Risk identification, risk qualification, risk response and risk control.

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Types of Risks :-

Risks can be classified as technical risks, social risks, economic risks, political risks, production risks, marketing risks, financial risks and human risks.

1. Technical Risks / operational risks :-

Technical risk refer to changes in technical specifications of the product results in loss.

Any decrease in operational efficiency may lead to reduced profitability or even at times can lead to loss for the project. In some project, the effects of decreased operational efficiency may be high or may not be high. Similarly, the possibility of variation of efficiency may vary from project to project. The breakdown of machines, demand and supply of the resources and products, shortfall of the goods and services, lack of efficient logistic and inventory may lead to inefficiency of production. Operational leverage is a measure of operational efficiency.

2. Social Risks :-

Social risks refer to risks arising from changes in the needs and preferences of customers. Lack of necessary natural resources, labour unrest, agitations and social movements against the project also constitute social risks.

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3. Economic Risks:-
Economic risks refer to an increase in the rate of inflation, changes in the economic policies of governments.
Global or ~~national~~ economy
It can also lead to reduce demand as well as selling price. Inflation rate varies with changes in economic situation. which also affects prospects of any project.

4. political Risks:-
Nationalisation or privatisation of a particular industry, political instability and trade restriction are some examples of political risks. The project manager should ensure that the project does not go against the political interests of the country.

5. production Risks:-
production risks refer to the shortage of necessary raw materials, sudden breakdown of key machinery and huge rise in ~~ist~~ installation and maintenance costs.

6. Marketing Risks:-
Marketing risks refer to failure of the developed product or service in the market due to changes in market demand, errors in forcasting of demand, or difficulties in distribution.

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7. Financial Risks:-
-financial risks refer to bad debts, change in the interest rate wrong choice of investments and mistakes in the accounting procedures.

8. Human Risks:-
Human risks refer to the sudden demise of key employee, limited availability of skilled employees, inter-group politics etc.

9. Technological Risks:-
The failure of the selected technology is one of the biggest risks to any project. Moreover, a project may face the problem of up gradation of technology innovations. This particular source of risk is vital in the present world scenario as technology is changing very fast.

10 Quality Risks:-
Today's world is quality conscious ~~any~~ and any degraded quality product may lead to rejections and the brand may lose its value. in the long ~~term~~ run if it is not able to maintain quality norms as per the customer's requirement.

• **Risk Analysis** :- It is defined as " A process of identifying and quantifying the risk involved in a project and developing measures to avoid and manage such risks".

Activities involved in Risk Analysis :-

1. Risk Assessment
2. Risk Management.

1. **Risk Assessment** :- it is the process of identifying and quantifying risks. Identifying means to find out the reason or source of risk and quantification means to know the probability of occurrence of risk. ② **RISK management** is the process of avoiding or minimizing the impact of assessed risk. Efforts are made to avoid the risk by any means and if it is not possible minimise the impact of such risks.

project Risk management :-

project Risk management is the process of identifying, analysing and responding to any risk that arises over the life cycle of a project. This is to help the project remain on track and meets its goal.

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* Method of RISK Analysis:

a) Sensitivity Analysis:

Sensitivity Analysis is a method that measures how the impact of uncertainties of one or more input variables can affect the output. The analysis improves the prediction of the model, by improving the response of model to change in input variables. In sensitivity analysis, typically one variable is changed at a time.

b) Scenario Analysis

Scenario Analysis is a process of analysing future events of considering alternative possible outcomes. Scenario analysis is conducted, to analyse the impact of possible future event on the system performance.

c) Best-case and worst-case Analysis:

The objective of best-case and worst-case scenario analysis is to get a feel of what happens the most favourable of the most adverse configuration of key variables, without bothering much about the internal consistency of such configuration.

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Best-Scenario	High demand, high selling price, low variable cost and so on.
Normal Scenario	Average demand, average selling price, average variable cost, and so on.
Worst Scenario	low demand, low selling price, high variable cost and so on.

(d) Simulation Analysis:

The Simulation Analysis is a method, wherein the infinite calculation are made to obtain the possible outcomes and probabilities for any choice of action. The role of simulation analysis is to summarize and analyse the result in a way that will yield maximum insight and help with decision making.

* project cost RISK analysis:

Future estimates are not facts but statements of probabilities about how things will turn out. Hence, actual costs may be higher or lower than estimates made by even experts.

Cost RISK analysis considers the different costs associated with a project / labour, materials

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and focuses on the uncertainties and risk that may affect these costs.

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② Reason for project cost overruns

A cost overrun is the amount by which actual expenditure exceed the planned amount. It is the sum of unpredicted expenses that exceeds initial budget estimated at any point throughout the course of project realization.

Reasons for project cost overruns.

1. Unplanned expansion of the project scope.
2. Inaccurate initial cost estimation.
3. Failures in project performance.
4. Errors in project design.
5. Improper risk management.
6. Improper project team building.
7. Wrong choice of equipment.
8. ~~Improper project team building.~~ Incomplete material supplier.

① Estimating Time and cost overruns Risks

Time and cost overruns are the most common and most serious risk in project completion especially in the complex and big projects.

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over estimating the time requirement by providing contingencies are the approaches commonly used to take care of the situations. However statistical tools are available to simulate the project time more accurately.

(3) Time overspent:

poor planning and failures to meet the schedules result in time overspent. The project manager prepare a "time overspent analysis sheet" to understand where delays have occured and the reason for delays. The chart given below shows a time analysis sheet.

Sl No	Event Name	Schedule time	Actual Time	Time overspent	% of time overspent	Reason for Time overspent
01						
02						
03						
04						

Time overspent occur due to

1. A change in the scope of the project.
2. Ineffective project time management.
3. Delays in starting and executing some of the project activities.
4. A delay in one project, result in delays in subsequent projects.

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5. use of outdated technology.
6. political interference.
7. Poor administration.

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