UNIT 2:

Project Planning and Budgeting

What is project planning?

Project planning is a discipline addressing how to complete a project in a certain timeframe, usually with defined stages and designated resources. One view of project planning divides the activity into these steps:

- setting measurable objectives
- identifying deliverables
- scheduling
- planning tasks

Supporting plans may encompass human resources, communication methods and risk management.

Why is project planning important?

Project planning is important at every phase of a project. It lays out the basics of a project, including the following:

- scope
- objectives
- goals
- schedule

Planning enables project managers to turn an intangible idea into reality. Key purposes of planning include the following:

- facilitate communication and provide a central source of information for project personnel;
- help the project sponsor and other key stakeholders know what is required;
- identify who will perform certain tasks, and when and how those tasks will happen;
- facilitate project management and control as the project progresses;
- enable effective monitoring and control of a project;
- manage project risk; and
- generate feedback useful for the next project planning phase.

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What are the components of a project plan?

The three major parts of a project plan are the scope, budget and timeline. They involve the following aspects:

- **Scope.** The scope determines what a project team will and will not do. It takes the team's vision, what stakeholders want and the customer's requirements and then determines what's possible. As part of defining the project scope, the project manager must set performance goals.
- **Budget.** Project managers look at what manpower and other resources will be required to meet the project goals to estimate the project's cost.
- **Timeline.** This reveals the length of time expected to complete each phase of the project and includes a schedule of milestones that will be met.

How do you create a project plan?

Project planning includes the following 10 steps:

1. **Define stakeholders.** Stakeholders include anyone with an interest in the project. They can include the customer or end user, members of the project team, other people in the organization the project will affect and outside organizations or individuals with an interest.
2. **Define roles.** Each stakeholder's role should be clearly defined. Some people will fill multiple roles, however.
3. **Introduce stakeholders.** Hold a meeting to bring stakeholders together and unify the vision behind the project. The topics covered should include scope, goals, budget, schedule and roles.
4. **Set goals.** Take what is gleaned from the meeting and refine it into a project plan. It should include goals and deliverables that define what the product or service will result in.

5. **Prioritize tasks.** List tasks necessary to meet goals and prioritize them based on importance and interdependencies. A Gantt chart can be helpful for mapping project dependencies.
6. **Create a schedule.** Establish a timeline that considers the resources needed for all the tasks.
7. **Assess risks.** Identify project risks and develop strategies for mitigating them.
8. **Communicate.** Share the plan with all stakeholders and provide communications updates in the format and frequency stakeholders expect.
9. **Reassess.** As milestones are met, revisit the project plan and revise any areas that are not meeting expectations.
10. **Final evaluation.** Once the project is completed, performance should be evaluated to learn from the experience and identify areas to improve

What Is Work Breakdown Structure in Project Management?

Work breakdown structure (WBS) in project management is a method for completing a complex, multi-step project. It's a way to divide and conquer large projects to get things done faster and more efficiently.

The goal of a WBS is to make a large project more manageable. Breaking it down into smaller chunks means work can be done simultaneously by different team members, leading to better team productivity and easier project management.

In Wrike, you can build a WBS by creating folders and subfolders and can go further to divide individual tasks into subtasks.

How to create a work breakdown structure

Before you create a work breakdown structure, it's essential to first assess the project scope by talking to all stakeholders and key team members involved.

As the project manager, you want to ensure that all critical input and deliverables are gathered and transparently prioritized. You may use Gantt charts, flow charts, spreadsheets, or lists to show the hierarchical outline of importance and connectivity between the tasks needed to complete the project.

After outlining the deliverables and tasks in order of completion, you can then assign each task to a project team member. Ensure no team member carries the majority of the project's weight by spreading duties and responsibilities across the team.

Characteristics of a work breakdown structure

The Project Management Institute (PMI) defines WBS as "a deliverable-oriented hierarchical decomposition of the work to be executed by the project team to accomplish the project objectives and create the required deliverables."

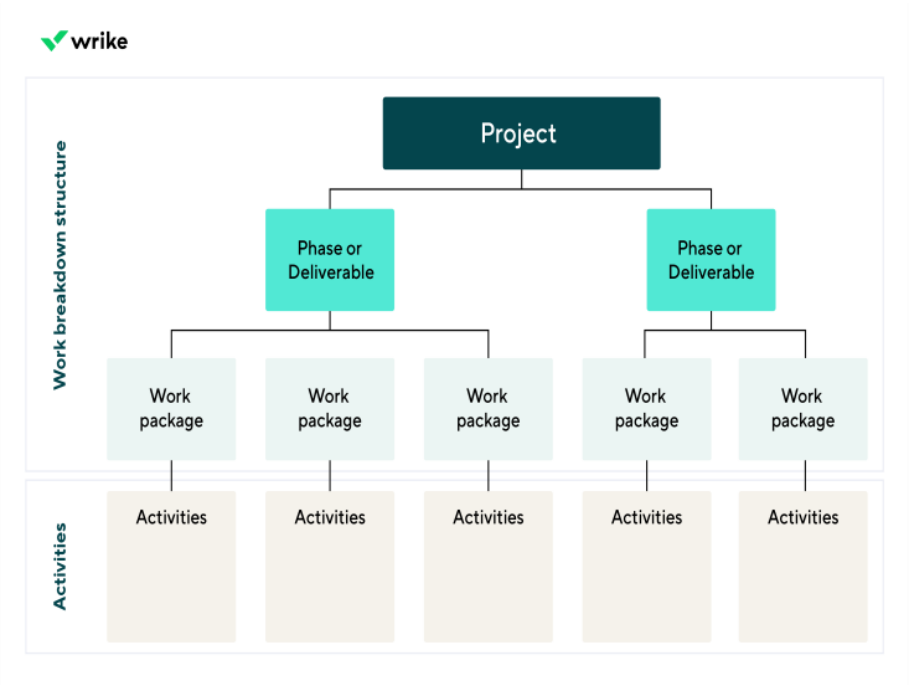
Each WBS level represents a new and increasingly detailed definition of work needed to complete the project.

PMI's definition adds that a WBS structure must be constructed in a way that each new level in the hierarchy includes all the work needed to complete its parent task. This means that every parent task element must have more than one child task within it to consider the parent task element complete.

Work breakdown structure example

When created thoroughly, the work breakdown structure is a roadmap that guides a team when completing projects — whether simple or complex.

Here's a work breakdown structure example.



Software Development Life Cycle Process

SDLC is a process that defines the various stages involved in the development of software for delivering a high-quality product. SDLC stages cover the complete life cycle of a software i.e. from inception to retirement of the product.

Adhering to the SDLC process leads to the development of the software in a systematic and disciplined manner.

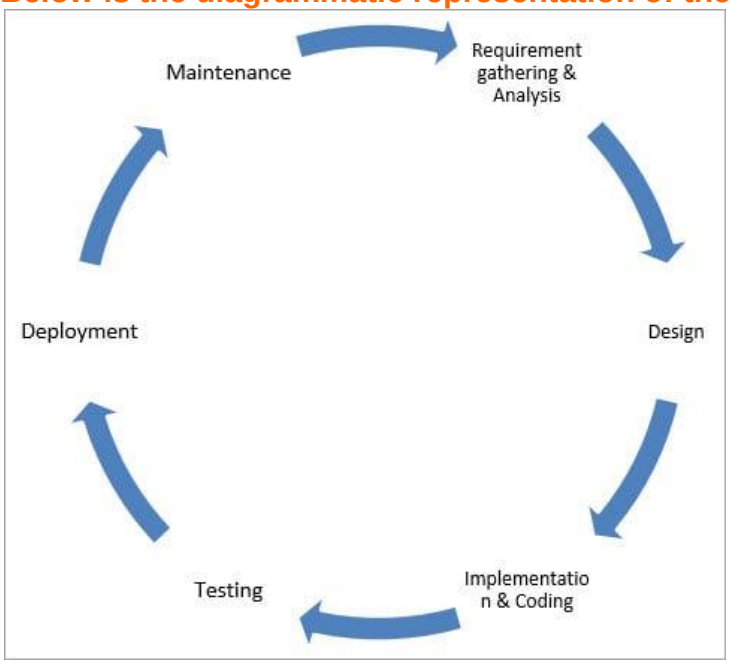
Purpose:
Purpose of SDLC is to deliver a high-quality product which is as per the customer's requirement.

SDLC has defined its phases as, Requirement gathering, Designing, Coding, Testing, and Maintenance. It is important to adhere to the phases to provide the Product in a systematic manner.

SDLC Cycle

SDLC Cycle represents the process of developing software.

Below is the diagrammatic representation of the SDLC cycle:



SDLC Phases

Given below are the various phases:

- Requirement gathering and analysis
- Design
- Implementation or coding
- Testing
- Deployment
- Maintenance

#1) Requirement Gathering and Analysis

During this phase, all the relevant information is collected from the customer to develop a product as per their expectation. Any ambiguities must be resolved in this phase only.

Business analyst and Project Manager set up a meeting with the customer to gather all the information like what the customer wants to build, who will be the end-user, what is the purpose of the product. Before building a product a core understanding or knowledge of the product is very important.

#2) Design

In this phase, the requirement gathered in the SRS document is used as an input and software architecture that is used for implementing system development is derived.

#3) Implementation or Coding

Implementation/Coding starts once the developer gets the Design document. The Software design is translated into source code. All the components of the software are implemented in this phase.

#4) Testing

Testing starts once the coding is complete and the modules are released for testing. In this phase, the developed software is tested thoroughly and any defects found are assigned to developers to get them fixed.

Retesting, regression testing is done until the point at which the software is as per the customer's expectation. Testers refer SRS document to make sure that the software is as per the customer's standard.

#5) Deployment

Once the product is tested, it is deployed in the production environment or first UAT (User Acceptance testing) is done depending on the customer expectation.
In the case of UAT, a replica of the production environment is created and the customer along with the developers does the testing. If the customer finds the application as expected, then sign off is provided by the customer to go live.

#6) Maintenance

After the deployment of a product on the production environment, maintenance of the product i.e. if any issue comes up and needs to be fixed or any enhancement is to be done is taken care by the developers.

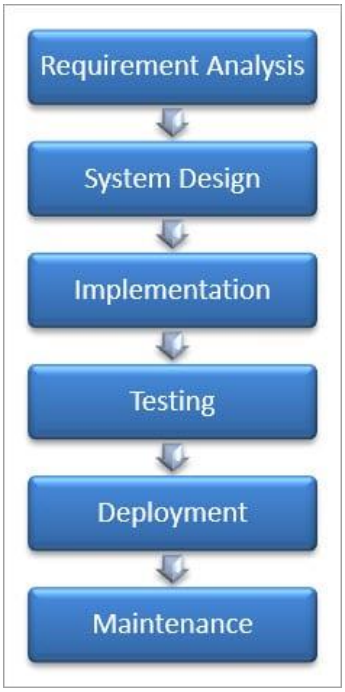
Software Development Life Cycle Models

A software life cycle model is a descriptive representation of the software development cycle. SDLC models might have a different approach but the basic phases and activity remain the same for all the models.

#1) Waterfall Model

Waterfall model is the very first model that is used in SDLC. It is also known as the linear sequential model.
In this model, the outcome of one phase is the input for the next phase. Development of the next phase starts only when the previous phase is complete.

- First, Requirement gathering and analysis is done. Once the requirement is freeze then only the System Design can start. Herein, the SRS document created is the output for the Requirement phase and it acts as an input for the System Design.
- In System Design Software architecture and Design, documents which act as an input for the next phase are created i.e. Implementation and coding.
- In the Implementation phase, coding is done and the software developed is the input for the next phase i.e. testing.
- In the testing phase, the developed code is tested thoroughly to detect the defects in the software. Defects are logged into the defect tracking tool and are retested once fixed. Bug logging, Retest, Regression testing goes on until the time the software is in go-live state.
- In the Deployment phase, the developed code is moved into production after the sign off is given by the customer.
- Any issues in the production environment are resolved by the developers which come under maintenance.



Advantages of the Waterfall Model:

- Waterfall model is the simple model which can be easily understood and is the one in which all the phases are done step by step.
- Deliverables of each phase are well defined, and this leads to no complexity and makes the project easily manageable.

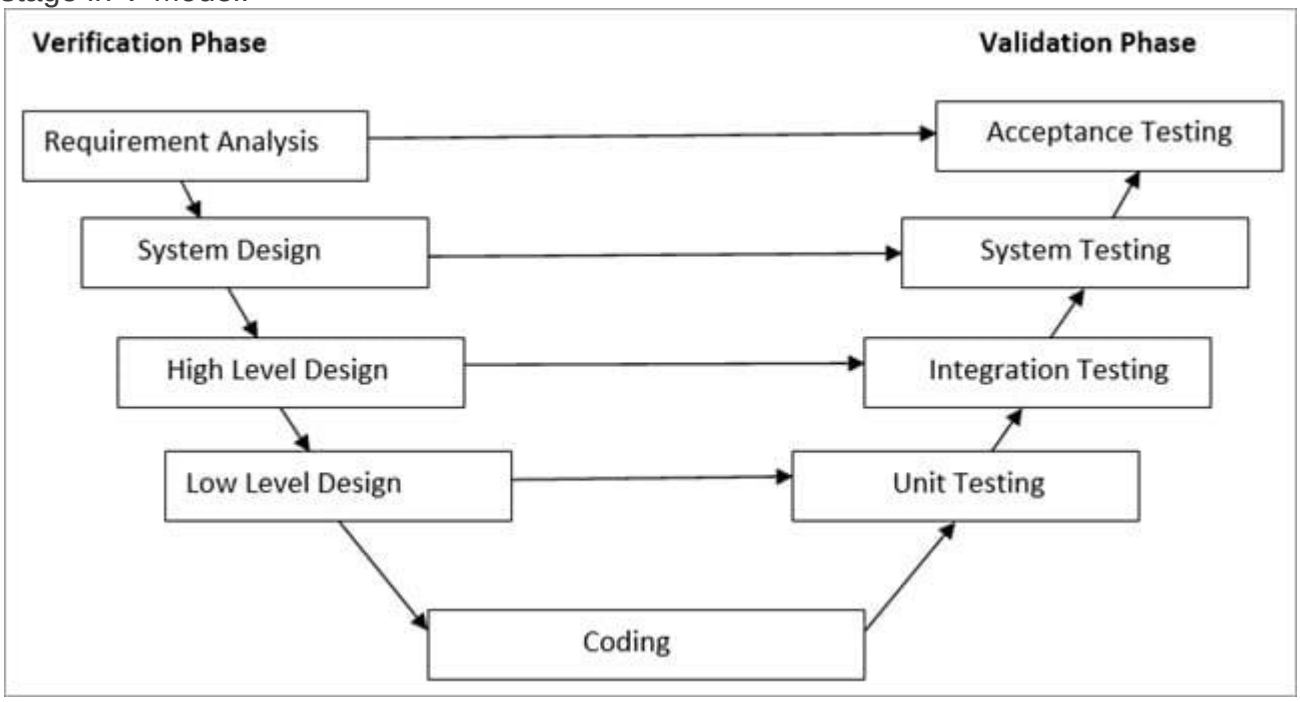
Disadvantages of Waterfall model:

- Waterfall model is time-consuming & cannot be used in the short duration projects as in this model a new phase cannot be started until the ongoing phase is completed.

#2) V-Shaped Model

V- Model is also known as Verification and Validation Model. In this model Verification & Validation goes hand in hand i.e. development and testing goes parallel. V model and

waterfall model are the same except that the test planning and testing start at an early stage in V-Model.



a) Verification Phase:

(i) Requirement Analysis:

In this phase, all the required information is gathered & analyzed. Verification activities include reviewing the requirements.

(ii) System Design:

Once the requirement is clear, a system is designed i.e. architecture, components of the product are created and documented in a design document.

(iii) High-Level Design:

High-level design defines the architecture/design of modules. It defines the functionality between the two modules.

(iv) Low-Level Design:

Low-level Design defines the architecture/design of individual components.

(v) Coding:

Code development is done in this phase.

b) Validation Phase:

(i) Unit Testing:

Unit testing is performed using the unit test cases that are designed and is done in the Low-level design phase. Unit testing is performed by the developer itself. It is performed on individual components which lead to early defect detection.

(ii) Integration Testing:

Integration testing is performed using integration test cases in High-level Design phase. Integration testing is the testing that is done on integrated modules. It is performed by testers.

(iii) System Testing:

System testing is performed in the System Design phase. In this phase, the complete system is tested i.e. the entire system functionality is tested.

(iv) Acceptance Testing:

Acceptance testing is associated with the Requirement Analysis phase and is done in the customer's environment.

Advantages of V – Model:

- It is a simple and easily understandable model.
- V –model approach is good for smaller projects wherein the requirement is defined and it freezes in the early stage.
- It is a systematic and disciplined model which results in a high-quality product.

Disadvantages of V-Model:

- V-shaped model is not good for ongoing projects.
- Requirement change at the later stage would cost too high.

#3) Prototype Model

The prototype model is a model in which the prototype is developed prior to the actual software.

Prototype models have limited functional capabilities and inefficient performance when compared to the actual software. Dummy functions are used to create prototypes. This is a valuable mechanism for understanding the customers' needs.

Software prototypes are built prior to the actual software to get valuable feedback from the customer. Feedbacks are implemented and the prototype is again reviewed by the customer for any change. This process goes on until the model is accepted by the customer.

COCOMO Model

Boehm proposed COCOMO (Constructive Cost Estimation Model) in 1981.COCOMO is one of the most generally used software estimation models in the world. COCOMO predicts the efforts and schedule of a software product based on the size of the software.

The necessary steps in this model are:

1. Get an initial estimate of the development effort from evaluation of thousands of delivered lines of source code (KDLOC).
2. Determine a set of 15 multiplying factors from various attributes of the project.

3. Calculate the effort estimate by multiplying the initial estimate with all the multiplying factors i.e., multiply the values in step1 and step2.

The initial estimate (also called nominal estimate) is determined by an equation of the form used in the static single variable models, using KDLOC as the measure of the size. To determine the initial effort E_i in person-months the equation used is of the type is shown below

$$E_i = a*(KDLOC)b$$

The value of the constant a and b are depends on the project type.

In COCOMO, projects are categorized into three types:

1. Organic
2. Semidetached
3. Embedded

1.Organic: A development project can be treated of the organic type, if the project deals with developing a well-understood application program, the size of the development team is reasonably small, and the team members are experienced in developing similar methods of projects. **Examples of this type of projects are simple business systems, simple inventory management systems, and data processing systems.**

2. Semidetached: A development project can be treated with semidetached type if the development consists of a mixture of experienced and inexperienced staff. Team members may have finite experience in related systems but may be unfamiliar with some aspects of the order being developed. **Example of Semidetached system includes developing a new operating system (OS), a Database Management System (DBMS), and complex inventory management system.**

3. Embedded: A development project is treated to be of an embedded type, if the software being developed is strongly coupled to complex hardware, or if the stringent regulations on the operational method exist. **For Example:** ATM, Air Traffic control.

For three product categories, Bohem provides a different set of expression to predict effort (in a unit of person month)and development time from the size of estimation in KLOC(Kilo Line of code) efforts estimation takes into account the productivity loss due to holidays, weekly off, coffee breaks, etc.

Detailed COCOMO Model: Detailed COCOMO incorporates all qualities of the standard version with an assessment of the cost driver?s effect on each method of the software engineering process. The detailed model uses various effort multipliers for each cost driver property. In detailed cocomo, the whole software is differentiated into multiple modules, and then we apply COCOMO in various modules to estimate effort and then sum the effort.

The Six phases of detailed COCOMO are:

1. Planning and requirements
2. System structure
3. Complete structure
4. Module code and test
5. Integration and test
6. Cost Constructive model

The effort is determined as a function of program estimate, and a set of cost drivers are given according to every phase of the software lifecycle.

Once the requirement gathering is done, the quick design is created and the prototype which is presented to the customer for evaluation is built.

Customer feedback and the refined requirement is used to modify the prototype and is again presented to the customer for evaluation. Once the customer approves the prototype, it is used as a requirement for building the actual software. The actual software is build using the Waterfall model approach.

Advantages of Prototype Model:

- Prototype model reduces the cost and time of development as the defects are found much earlier.
- Missing feature or functionality or a change in requirement can be identified in the evaluation phase and can be implemented in the refined prototype.
- Involvement of a customer from the initial stage reduces any confusion in the requirement or understanding of any functionality.

Disadvantages of Prototype Model:

- Since the customer is involved in every phase, the customer can change the requirement of the end product which increases the complexity of the scope and may increase the delivery time of the product.

#4) Spiral Model

The Spiral Model includes iterative and prototype approach.
Spiral model phases are followed in the iterations. The loops in the model represent the phase of the SDLC process i.e. the innermost loop is of requirement gathering &

analysis which follows the Planning, Risk analysis, development, and evaluation. Next loop is Designing followed by Implementation & then testing.

Spiral Model has four phases:

- Planning
- Risk Analysis
- Engineering
- Evaluation

(i) Planning:
The planning phase includes requirement gathering wherein all the required information is gathered from the customer and is documented. Software requirement specification document is created for the next phase.

(ii) Risk Analysis:
In this phase, the best solution is selected for the risks involved and analysis is done by building the prototype.

For Example, the risk involved in accessing the data from a remote database can be that the data access rate might be too slow. The risk can be resolved by building a prototype of the data access subsystem.
(iii) Engineering:
Once the risk analysis is done, coding and testing are done.

(iv) Evaluation:
Customer evaluates the developed system and plans for the next iteration.

Advantages of Spiral Model:

- Risk Analysis is done extensively using the prototype models.
- Any enhancement or change in the functionality can be done in the next iteration.

Disadvantages of Spiral Model:

- The spiral model is best suited for large projects only.
- The cost can be high as it might take a large number of iterations which can lead to high time to reach the final product.

#5) Iterative Incremental Model

The iterative incremental model divides the product into small chunks.

Phases of Iterative & Incremental Development Model:

- Inception phase
- Elaboration Phase
- Construction Phase
- Transition Phase

(i) Inception Phase:
Inception phase includes the requirement and scope of the Project.

(ii) Elaboration Phase:
In the elaboration phase, the working architecture of a product is delivered which covers the risk identified in the inception phase and also fulfills the non-functional requirements.

(iii) Construction Phase:
In the Construction phase, the architecture is filled in with the code which is ready to be deployed and is created through analysis, designing, implementation, and testing of the functional requirement.

(iv) Transition Phase:
In the Transition Phase, the product is deployed in the Production environment.

Advantages of Iterative & Incremental Model:

- Any change in the requirement can be easily done and would not cost as there is a scope of incorporating the new requirement in the next iteration.
- Risk is analyzed & identified in the iterations.
- Defects are detected at an early stage.
- As the product is divided into smaller chunks it is easy to manage the product.

Disadvantages of Iterative & Incremental Model:

- Complete requirement and understanding of a product are required to break down and build incrementally.

#6) Big Bang Model

Big Bang Model does not have any defined process. Money and efforts are put together as the input and output come as a developed product which might be or might not be the same as what the customer needs.

Big Bang Model does not require much planning and scheduling. The developer does the requirement analysis & coding and develops the product as per his understanding. This model is used for small projects only. There is no testing team and no formal testing is done, and this could be a cause for the failure of the project.

Advantages of Big Bang Model:

- It's a very simple Model.
- Less Planning and scheduling is required.
- The developer has the flexibility to build the software of their own.

Disadvantages of the Big Bang Model:

- Big Bang models cannot be used for large, ongoing & complex projects.
- High risk and uncertainty.

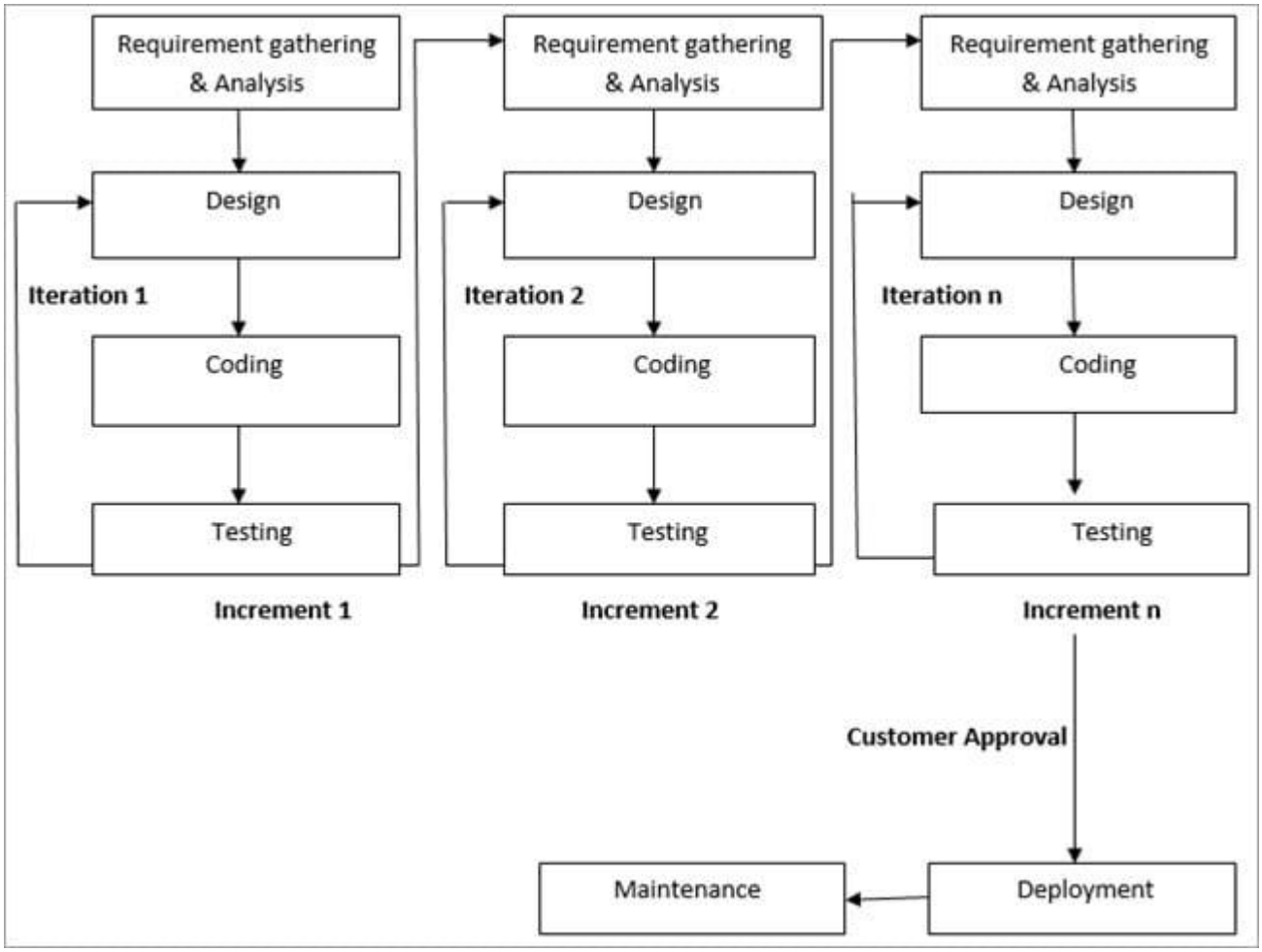
#7) Agile Model

Agile Model is a combination of the Iterative and incremental model. This model focuses more on flexibility while developing a product rather than on the requirement.

In Agile, a product is broken into small incremental builds. It is not developed as a complete product in one go. Each build increments in terms of features. The next build is built on previous functionality.

In agile iterations are termed as sprints. Each sprint lasts for2-4 weeks. At the end of each sprint, the product owner verifies the product and after his approval, it is delivered to the customer.

Customer feedback is taken for improvement and his suggestions and enhancement are worked on in the next sprint. Testing is done in each sprint to minimize the risk of any failures.



Advantages of Agile Model:

- It allows more flexibility to adapt to the changes.
- The new feature can be added easily.
- Customer satisfaction as the feedback and suggestions are taken at every stage.

Disadvantages:

- Lack of documentation.
- Agile needs experienced and highly skilled resources.
- If a customer is not clear about how exactly they want the product to be, then the project would fail.

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What is Budgeting? What is a Budget?

Budgeting is the process of creating **a plan to spend your money**. This spending plan is called **a budget**. Creating this spending plan allows you to determine in advance whether you will have enough money to do the things you need to do or would like to do.

Budgeting is simply balancing your expenses with your income. If they don't balance and you spend more than you make, you will have a problem. Many people don't realize that they spend more than they earn and slowly sink deeper into debt every year.

If you don't have enough money to do everything you would like to do, then you can use this planning process to prioritize your spending and focus your money on the things that are most important to you.

Why is Budgeting so Important?

Since budgeting allows you to create a spending plan for your money, **it ensures that you will always have enough money for the things you need** and the things that are important to you. Following a budget or spending plan will also keep you out of debt or help you work your way out of debt if you are currently in debt.

What about Budget Forecasting and Planning?

Once you create your first budget, begin to use it and get a good feel for how it can **keep your finances on track**, you may want to map out your spending plan or budget for 6 months to a year down the road. By doing this you can easily forecast which months your finances may be tight and which ones you'll have extra money. You can then look for ways to even out the highs and lows in your finances so that things can be more manageable and pleasant.

Extending your budget out into the future also allows you to forecast how much money you will be able to save for important things like your vacation, a new vehicle, your first home or home renovations, an emergency savings account or your retirement. Using a realistic budget to forecast your spending for the year can really help you with your long term financial planning.

You can then make realistic assumptions about your annual income and expense and plan for long term financial goals like starting your own business, buying an investment or recreation property or retiring.

What is Capital Budgeting?

Capital Budgeting is defined as the process by which a business determines which fixed asset purchases or project investments are acceptable and which are not. Using this approach, each proposed investment is given a quantitative analysis, allowing rational judgment to be made by the business owners.

Capital asset management requires a lot of money; therefore, before making such investments, they must do capital budgeting to ensure that the investment will procure profits for the company. The companies must undertake initiatives that will lead to a growth in their profitability and also boost their shareholder's or investor's wealth.

Features of Capital Budgeting

Capital Budgeting is characterized by the following features:

- There is a long duration between the initial investments and the expected returns.
- The organizations usually estimate large profits.
- The process involves high risks.
- It is a fixed investment over the long run.
- Investments made in a project determine the future financial condition of an organization.
- All projects require significant amounts of funding.
- The amount of investment made in the project determines the profitability of a company.

How Capital Budgeting Works

It is of prime importance for a company when dealing with capital budgeting decisions that it determines whether or not the project will be profitable. Although we shall learn all the capital budgeting methods, the most common methods of selecting projects are:

1. Payback Period (PB)
2. Internal Rate of Return (IRR) and

3. Net Present Value (NPV)

It might seem like an ideal capital budgeting approach would be one that would result in positive answers for all three metrics, but often these approaches will produce contradictory results. Some approaches will be preferred over others based on the requirement of the business and the selection criteria of the management. Despite this, these widely used valuation methods have both benefits and drawbacks.

Investing in capital assets is determined by how they will affect cash flow in the future, which is what capital budgeting is supposed to do. The capital investment consumes less cash in the future while increasing the amount of cash that enters the business later is preferable.

Keeping track of the timing is equally important. It is always better to generate cash sooner than later if you consider the time value of money. Other factors to consider include scale. To have a visible impact on a company's final performance, it may be necessary for a large company to focus its resources on assets that can generate large amounts of cash.

In smaller businesses, a project that has the potential to deliver rapid and sizable cash flow may have to be rejected because the investment required would exceed the company's capabilities.

The amount of work and time invested in capital budgeting will vary based on the risk associated with a bad decision along with its potential benefits. Therefore, a modest investment could be a wiser option if the company fears the risk of bankruptcy in case the decisions go wrong.

Sunk costs are not considered in capital budgeting. The process focuses on future cash flows rather than past expenses.

Techniques/Methods of Capital Budgeting

In addition to the many capital budgeting methods available, the following list outlines a few by which companies can decide which projects to explore:

Payback Period Method

It refers to the time taken by a proposed project to generate enough income to cover the initial investment. The project with the quickest payback is chosen by the company.

Formula:

Payback Period =	***Initial Cash Investment***
	Annual Cash Flow

Example of Payback Period Method:

An enterprise plans to invest $100,000 to enhance its manufacturing process. It has two mutually independent options in front: Product A and Product B. Product A exhibits a contribution of $25 and Product B of $15. The expansion plan is projected to increase the output by 500 units for Product A and 1,000 units for Product B.

Here, the incremental cash flow will be calculated as:

(25*500) = 12,500 for Product A

(15*1000) = 15,000 for Product B

The Payback Period for Product A is calculated as:

1		
2	Initial Cash Investment	$100,000
3	Incremental Cash Flow	$12,500
4	**Payback Period of Product A (Years)**	**8**

Product A = 100,000 / 12,500 = 8 years

Now, the Payback Period for Product B is calculated as:

1		
2	Initial Cash Investment	$100,000
3	Incremental Cash Flow	$15,000
4	**Payback Period of Product A (Years)**	**6.7**

Product B = 100,000 / 15,000 = 6.7 years

This brings the enterprise to conclude that Product B has a shorter payback period and therefore, it will invest in Product B.

Despite being an easy and time-efficient method, the Payback Period cannot be called optimum as it does not consider the time value of money. The cash flows at the earlier stages are better than the ones coming in at later stages. The company may encounter two projections with the same payback period, where one depicts higher cash flows in the earlier stages/years. In such as case, the Payback Period may not be appropriate.

A similar consideration is that of a longer period, potentially bringing in greater cash flows during a payback period. In such a case, if the company selects the projects based solely on the payback period and without considering the cash flows, then this could prove detrimental for the financial prospects of the company.

Net Present Value Method (NPV)

Evaluating capital investment projects is what the NPV method helps the companies with. There may be inconsistencies in the cash flows created over time. The cost of capital is used to discount it. An evaluation is done based on the investment made. Whether a project is accepted or rejected depends on the value of inflows over current outflows.

This method considers the time value of money and attributes it to the company's objective, which is to maximize profits for its owners. The capital cost factors in the cash flow during the entire lifespan of the product and the risks associated with such a cash flow. Then, the capital cost is calculated with the help of an estimate.

Formula:

Net Present Value (NPV) =
t ***= time of cash flow*** ***i = discount rate***

R_t **= *net cash flow***

Example of Net Present Value (with 9% Discount Rate):

For a company, let's assume the following conditions:

Capital investment = $10,000

Expected Inflow in First Year = $1,000

Expected Inflow in Second Year = $2,500

Expected Inflow in Third Year = $3,500

Expected Inflow in Fourth Year = $2,650

Expected Inflow in Fifth Year = $4,150

Discount Rate = 9%

Year	Flow	Present Value	Calculation
0	-$10,000	-$10,000	-
1	1,000	9,174	$1,000/(1.09)^1$
2	2,500	2,104	$2,500/(1.09)^2$
3	3,500	2,692	$3,500/(1.09)^3$
4	2,650	1,892	$2,600/(1.09)^4$
5	4,150	2,767	$4,000/(1.09)^5$
Total		**$18,629**	

Net Present Value achieved at the end of the calculation is:

With 9% Discount Rate = $18,629

This indicates that if the NPV comes out to be positive and indicates profit. Therefore, the company shall move ahead with the project.

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Deskera Books

Through Deskera Books, reminders can be set with the invoices that are not being paid out, which are then sent out to the customers. Even in the case of recurring invoices, Deskera Books will become very handy especially with a payment link added to the invoice.

All in all, the follow-up system for all the invoices can be passed on to the system of Deskera Books and it will look into it for you. You can have access to Deskera's ready-made Profit and Loss Statement, Balance Sheet, and other financial reports in an instant. Such cloud systems substantially improve cash flow for your business directly as well as indirectly

What is 'Interest rate'

Interest Rates
A charge on profits is not always welcomed, but all appreciate income in any form. Interest is income earned on the funds utilized by the person holding the same.

What is Interest Rate?
Interest rate is the amount charged over and above the principal amount by the lender from the borrower. In terms of the receiver, a person who deposits money to any bank or financial institution also earns additional income considering the time value of money, termed as interest received by the depositor.

Interest rates on borrowings and deposits may defer considering the purpose and to whom the amount is given.

Interest Rate on Borrowings
Borrowing has become prevalent in terms of the smooth functioning of trade practices and proper regulation of money in the economy, and the process of borrowing money has also been relaxed to help businesses grow.

Borrowings not only ease money problems but also helps the borrower in planning the finances better.

Interest rates on borrowings are fixed depending on the type of borrower

and the credit rating associated with him. Suppose the borrower has a low credit rating. In that case, it might be possible that banks might not lend money at all or by charging extreme interest rates or keeping the double amount of collateral security.

Private lenders also provide loans to borrowers, but their terms and conditions might differ from the conventional loans obtained from banks or financial institutions. They might charge hefty interest on the sum lent with certain other additional conditions.

In the event of default, banks or financial institutions stop charging interest and reclassify the assets in their books. In the event of pre-payment, a penalty and interest are charged from the borrower to avoid the loss of regular income considering the time value of money.

Interest rates on deposits
People deposit excess money in banks and financial institutions to earn additional income as interest depending on the time value of money and the compounding effect.
Interest can be earned as simple interest and compound interest.

Simple Interest
It is a simpler form of computing interest on the principal amount as the term of the loan is considered for that year only, and interest is charged or provided every year on the same original sum deposited or lent, as applicable.

It is easier to calculate, and a layman can also understand its calculation.

For example, if the original principal amount is $100 and the interest rate is 10% per annum for one year, then the interest will be computed as under-

= $ 100 * 10% * 1

= $ 10

I.e. Principal Amount * Interest Rate * Time (Duration of loan/deposit)

So, as per the above calculation, $110 will be paid or received by the borrower or depositor at the end of one year.

Compound Interest
Compounding, as defined in the dictionary, refers to “reckoning interest on

previously accumulated interest". A layman might not well receive it as it might sound a bit complicated compared to simple interest computation.

Let's have a look at the formula by which compound interest is computed-

= Principal Amount * [(1 + Interest Rate) n – 1]

Where n= number of compounding periods

It might still not be clear to many. But by closely analyzing the formula and the definition of compounding, one can ascertain the meaning.

Interest rates are useful when compounded as it considers the time value of money as interest is also provided or charged on the amount already received as well as on the principal amount, so there is no loss of interest on the deposited sum.

Interest on interest is the main benefit of compounding and can be beneficial for the depositors as interest rates on deposits are generally lower than interest on borrowings.

Certain lenders also tend to charge interest on a compounding basis depending on their policy or the borrower's credit rating.

Debt vs Equity
Equity is the owned funds of the company, and the company is not liable to its owners for such funds. Debt is the borrowed funds of the company on which the company pays interest mandatorily on the pre-defined interest rates.

Companies should not rely a lot on borrowed funds as it puts significant doubt on the company's ownership. Debt-equity ratio ranging between 0.5-1.5 is considered ideal in the industry, but it can change depending on other factors.

What are the factors affecting interest rates?
Interest rates are affected based on the credit score of the borrower, income ratio, market factors, inflation, etc.

What is the main difference between simple and compound interest?
Simple interest differs from compound interest mainly in terms of charging interest on the accumulated funds that are done in compounding and are ignored in simple interest calculation.