

# **GOKARAJU RANGARAJU INSTITUTE OF ENGINEERING AND TECHNOLOGY**

## **USABILITY DESIGN OF SOFTWARE APPLICATIONS LAB**

**Course Code: GR22A4075**

**L/T/P/C: 0/ 0/ 2/ 1**

**IV Year I Semester**

### **Course Outcomes:**

1. Identify a project such as a website or mobile app to redesign
2. Analyze the existing project using Discovery and brainstorming
3. Implement the project using design life cycle such as define, design, implement and testing.
4. Understand the use of prototypes while designing the project
5. Understand the way of testing and presenting the project.

### **LIST OF EXPERIMENTS:**

#### **TASK 1:**

Group Project identification: Design Thinking Technique

#### **TASK 2:**

Group Project identification: Discovery

#### **TASK 3:**

Group Project identification: brainstorming

#### **TASK 4:**

Redesign project: Discovery

#### **TASK 5:**

Redesign project: Define

#### **TASK 6:**

Redesign project: Design

#### **TASK 7:**

Project Prototyping Iteration 1

#### **TASK 8:**

Project Prototyping Iteration 2

#### **TASK 9:**

Implement (Design Prototype)

#### **TASK 10:**

## **TASK 11:**

Presentation of project:

## **TASK 12:**

Review and feedback

## **TEXTBOOKS:**

1. Observing the User Experience, Second Edition: A Practitioner's Guide to User Research. Elizabeth Goodman, Mike Kuniavsky, Andrea Moed
2. Interaction Design: Beyond Human-Computer Interaction, 4<sup>th</sup> Edition, Jenny Preece, Helen Sharp and Yvonne Rogers

## **REFERENCES:**

1. The Elements of User Experience: User-Centered Design for the Web and Beyond. 2nd Edition, Jesse James Garrett
2. Understanding Design Thinking, Lean, and Agile -

## TASK 1

### **Group Project identification: Design Thinking Technique**

#### **Aim: To Project identification of Design Thinking Technique**

Design thinking is a problem-solving methodology that involves a human centered approach to innovation. It focuses on understanding the needs and experiences of users to develop creative and practical solutions to complex problems. The design thinking process involves five stages: Empathize, Define, Ideate, Prototype, and Test.

For our group project, we have identified the following problem:

**Problem:** Lack of accessibility for people with disabilities in public spaces Using the design thinking technique, we will work together to develop a solution that addresses this problem.

**Empathize:** The first step is to understand the needs and experiences of people with disabilities who face accessibility challenges in public spaces. We will conduct interviews, surveys, and observations to gather insights and understand the problem from their perspective.

**Define:** Based on our research, we will define the problem statement and identify the key issues and pain points that need to be addressed. We will also analyze the data and create personas to represent the different types of users who will benefit from the solution.

**Ideate:** We will brainstorm and generate ideas to solve the problem. We will use various ideation techniques such as mind mapping, brain writing, and reverse brainstorming to come up with creative and practical solutions.

**Prototype:** Using the ideas generated in the ideation stage, we will create prototypes of our solution. We will use low-fidelity and high-fidelity prototypes to test and refine our ideas.

**Test:** We will test the prototypes with users and gather feedback to evaluate the effectiveness of the solution. Based on the feedback, we will refine and iterate the solution until we have a viable and effective solution that addresses the problem.

Overall, our group project using the design thinking technique will focus on developing an accessible solution for people with disabilities in public spaces. We are excited to work together and apply the design thinking methodology to create a meaningful and impactful solution.

Design thinking, DEFINED.

Design thinking is a process that can be used to solve problems and develop creative solutions. As the name suggests, design thinking focuses on the creative process through the methodical application of creative thinking skills.

One way to think about design thinking is as a problem-solving framework that encourages you to be more creative in your approach. Rather than simply coming up with solutions to problems, design thinking helps you identify the problem itself and then come up with a solution that meets the needs of all stakeholders involved.

## WHY USE DESIGN THINKING IN PROJECT MANAGEMENT?

While design thinking is often associated with the field of design, it can also be applied to other fields, such as project management. Approaching projects with a design mind set can be appealing for a variety of reasons, including increased clarity, enhanced creativity, and the potential for reduced risk.

By applying this way of thinking to project management, project managers can stay focused and on track by developing creative solutions to common problems that revolve around product usability.

The cool thing is design thinking can be used at any stage of a project, from coming up with the initial idea to making sure it's executed successfully. It's a great way to get everyone on the same page and make sure all the bases are covered.

There are many reasons why project managers might want to use design thinking in their work, including:

- Improved clarity: Design thinking can help you to clarify your project's goals and objectives. When everyone is on the same page, it's easier to make sure that the project is heading in the right direction.
- Enhanced creativity: Design thinking encourages out-of-the-box thinking. This can be a great asset when trying to come up with creative solutions to complex problems.
- Reduced risk: By using design thinking at the early stages of a project, you can mitigate the risk of things going wrong later on. This is because it allows you to spot potential issues and adapt your plans before they become unmanageable.
- Better stakeholder engagement: Design thinking can also help you to build better relationships with your clients and stakeholders. When you take the time to understand their needs, it's easier to keep them happy and engaged throughout the project.

Ultimately, design thinking can be a powerful tool for any project manager looking to maximize their team's performance and create successful projects. Whether you're just getting started with design thinking or have been using it for years, there are always new ways to use it and new benefits to be gained.



### The five steps of the design thinking process

Design thinking is a well-defined technique, with defined phases. And it can be applied to just about any area of project management. It can be broken down into five basic steps:

#### **Step 1: Empathize**

Empathizing with your users is the first step in design thinking. To empathize with your consumers, you must first get inside their heads and see things through their eyes. You can accomplish this through discerning the underlying motivations such as the wants, desires, and goals of your end-users.

One way to get into your users' shoes is to conduct user research. This can be done through surveys, interviews, google trends, and focus groups. You can ask basic questions like:

- What are your user's needs and wants?
- What are their pains and frustrations?
- What motivates them?

Basically, you want to understand how people feel about a problem, on a human level. This generally entails submerging the project team members in customers' experiences or watching how they are affected.

User research will help you to understand your users on a deeper level, which is essential for developing creative solutions that meet their needs. Once you have a good understanding of your users' needs, you can

begin to empathize with them.

## Step 2: Define

The second step of design thinking involves taking everything you've learned about your users and turning it into a solid definition of the problem at hand.

This process involves conducting interviews, surveys, and other forms of research to gather information about what your users are struggling with and what they hope to achieve through your product or service.

Ultimately, this step allows you to design products and services that are not only high quality but also truly valued by your customers. In short, by properly defining the users' problems through design thinking, project managers can ensure success in their projects.

To define the problem, start by outlining all the variables that might be involved, including user needs, business requirements, constraints, assumptions, and other relevant factors. Be as specific as possible – this will help to guide your ideation process and will make it easier to come up with solutions that really address the problem.



## Step 3: Ideate

Ideation is all about generating creative solutions to the problem at hand. This step is where your team's creativity and ingenuity will come into play.

This involves thinking outside of the box, generating new ideas based on your understanding of the problem at hand, and tapping into your creativity in order to come up with multiple possible outcomes.

Ideation is an essential part of design thinking. By fostering innovation and coming up with unique approaches to problems, project managers can more effectively tackle any challenges that they encounter throughout the process.

Whether it's looking for ways to optimize resources or finding new ways to engage stakeholders, ideation plays a vital role in helping project managers achieve success.

To generate ideas, it can be helpful to use brainstorming techniques such as mind mapping or lateral thinking. It's also important to encourage wild and crazy ideas during this phase – the more out-of-the-box, the better. The goal is to come up with as many potential solutions as possible, without judging or evaluating them at this stage.

Ultimately, being able to innovate through ideation is what sets great project managers apart from those who struggle in their roles.

#### **Step 4: Prototype**

In the fourth step, prototyping, you put your theories into practice by creating a model of your proposed solution. This is useful for testing purposes and helps you to fine-tune your design. This stage involves taking your ideas and creating a rough mockup or blueprint of the solution. You may need to use tools like software, 3D printers, or other prototyping technologies to create an effective prototype.

However you do it, the goal is to turn your brainstormed ideas into something tangible so that you can test them out and see how it works in the real world. Creating a prototype is an important step in design thinking because it allows you to test your assumptions and get feedback from users early on in the process. This helps to ensure that you're on the right track and prevents you from wasting time and resources on solutions that don't work.

Ultimately, prototyping is a key component of effective project management, since it allows you to test and refine your ideas while ensuring that the final product meets users' needs.

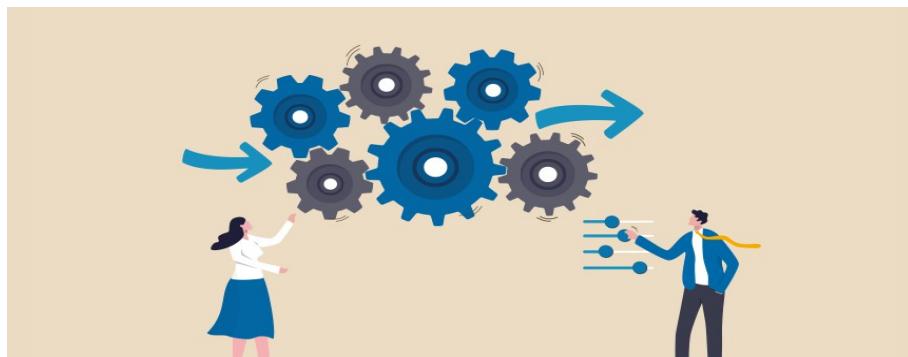
#### **Step 5: Test**

After you've created a prototype of your solution, it's time to test it out in the real world. This helps you to gather feedback and ensure that your design works as intended. Testing can be done in a number of ways, depending on the nature of your prototype. For<sup>5</sup> example, if you've created a new software program or website, you might test it out with users to get their feedback.



If your prototype is more physical in nature, you may need to conduct interviews or surveys in order to get input from real-world users. In any case, the goal of testing is to get feedback from those who will be using the final product so that you can make any necessary adjustments before moving forward with implementation. For project managers, testing your prototype is an integral part of the design thinking process. Not only does it ensure that you're on track to meet users' needs, but it also helps you fine-tune your solution so that it's as effective as possible.

By taking the time to test your design, you can avoid potential problems down the road and increase the chances of success for your project.



Putting it all together – Design principles meet project management.

There are many different applications of design thinking principles in the world of project management. For example, one creative strategy might be to approach problems from multiple perspectives. This can involve thinking about a challenging project from the perspective of your users, stakeholders, or even a potential competitor. By considering a project from diverse viewpoints, you can gain new insights and come up with innovative solutions that may not have been possible otherwise.

Another useful strategy for applying design thinking principles to your projects is to focus on collaboration and iteration. Rather than working alone or only making incremental changes at a time, try involving different members of your team in the design process at various points. This can help to generate new ideas and feedback, as well as foster trust and accountability among team members.

Additionally, by constantly iterating and making small adjustments along the way rather than waiting until the end of the project, you can ensure that your final design will be well-adapted to user needs and expectations.

As you design new projects or tackle complex problems, it's important to be flexible and adaptive in your thinking. Embrace uncertainty by trying out different approaches and trusting your intuition, and you'll be more likely to succeed in your work.

## **TASK 2**

### **Group Project identification: Discovery**

#### **Aim: To perform Project identification**

Discovery is the process of identifying new ideas, concepts, and opportunities. It involves exploring and researching new areas to gain insights and knowledge that can be used to create innovative solutions. For our group project, we have identified the following opportunity:

Opportunity: Increasing access to mental health resources for college students

Many college students experience mental health challenges, such as stress, anxiety, and depression, but may not have access to the resources they need to cope with these challenges. Our group project will focus on discovering innovative solutions to increase access to mental health resources for college students.

#### **Discovery Process:**

1. Identify the Problem: We will begin by conducting research to identify the key challenges and barriers that college students face in accessing mental health resources. We will review existing research studies and reports to gain insights into the problem.
2. Conduct Interviews: We will conduct interviews with college students to gain a deeper understanding of their experiences and challenges related to mental health. We will also interview mental health professionals and other stakeholders to gain insights into the current state of mental health resources for college students.
3. Gather Data: We will gather data on the current state of mental health resources for college students, including the types of resources that are available, the level of accessibility, and the effectiveness of these resources.
4. Analyze Data: We will analyze the data we have gathered to identify patterns and trends that will help us understand the problem and inform our solution.
5. Brainstorm Ideas: Using the insights and knowledge gained from our research, we will brainstorm and generate ideas for innovative solutions that address the challenges and barriers identified.
6. Evaluate Ideas: We will evaluate the feasibility and potential impact of the ideas generated, considering factors such as scalability, cost-effectiveness, and social impact.
7. Refine Solution: We will refine and develop the most promising solution, considering feedback from stakeholders and users, and iteratively improving the solution until we have a viable and effective solution.

## 6 Essential Elements of The Project Discovery Phase



Ever had to hold off on a project nearing completion because you didn't have the resources or information available from the client?

Project discovery is one of the most crucial elements of effective project management. It plays an integral role in the success of your digital agency.

Too many agency owners make the mistake of jumping into a project headfirst instead of taking the time to research, figure out the requirements and key deliverables, and set the appropriate milestones.

There are plenty of reasons why agency owners forego the discovery phase:

- Pressure to deliver
- The excitement of getting things started
- Inexperience
- The feeling that you already have everything you need to complete the project.

But that results in mishaps and substandard work. And the last thing you'd want is to deliver a half-baked product and risk losing the sale. Especially if you're working with high-ticket clients.

For your agency to succeed, you must ensure that project discovery becomes routine in all departments working with clients. Let's see how to do that effectively!

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What is the Project Discovery Phase?

The discovery phase, also known as the scoping phase, is a process in which information is collected and analyzed about the project. This helps clarify the project's goals, limitations, and overall scope.

McKinsey reports that 17% of all projects turn out to be so terrible that they eventually result in the demise of their companies. In the same report, the company also states that almost 45% of the projects exceed the original budget. For digital agency owners, this can spell disaster. That's why the discovery stage is so important. Typically, agencies operate with a 5-stage project management plan. That includes:

- Stage 1: Initiation
- Stage 2: Planning
- Stage 3: Execution
- Stage 4: Monitoring and Control
- Stage 5: Closing



However, by adding the project discovery stage before this, an agency can make matters much easier for itself. The discovery stage will allow the agency to identify the vision, goals, and scope of the project. Knowing all this will be super helpful before you can initiate the project.

The project discovery phase is important for several reasons:

- Helps agency owners make decisions based on actionable information and data instead of blindly following assumptions
- The discovery phase of a project helps deliver value to clients
- Results in a better user experience overall
- Allows the project managers to involve specialists from an early stage to help figure out a viable solution to the challenge being posed
- The discovery phase of a project reduces the odds of making expensive alterations as the development process advances
- Increases ROI
- Helps streamline work processes in the company
- Ensures the client and the agency are on the same page before work begins.

If you skip project discovery altogether, you may have to deal with the following issues:

- Missed deadlines because of unclear milestones.
- The quality of the project is compromised and it fails to meet the expectations of both the client and the agency.
- A steep increase in costs due to improper budgets (or none at all) greatly affects the company's ability to maintain its profit margins. Scope creep is one of the biggest problems of project management. It occurs because measurable targets were not set before the project began, and clients usually ask for extensions or more work. Ultimately, this just delays the work considerably.

## **The 6 Essential Elements of the Discovery Phase**

If you can successfully carry out the project discovery phase, it will become much easier for you to deliver the rest of the project. You must focus on essential elements, starting with a cross-functional team. The project manager usually knows the client's requirements before the initial discovery phase. They are responsible for ensuring all key deliverables are assigned to the designated staff.

### **1. Creating the Discovery Team**



The discovery team should ideally include people with diverse interests and specialties. Their inclusion within the team depends on the kind of project and expertise they bring to the table.

Normally, the discovery team shall include the following:

1. A project manager
2. A UX/UI designer
3. A technical expert/developer
4. Project analyst

Conducting stakeholder interviews is the first step.

The project manager's job is to discuss the project details with the client and then sit with the Discovery Team to ensure that all of their queries are answered. Make sure everyone is on the same page and that roles are appropriately defined. This will set the tone for the project and ensure everyone knows what they are supposed to do right from the project's discovery phase.

## **2. Gather Requirements**



Taking input from the clients is important for any project to have smooth sailing. However, many agencies

haste their way into getting projects and thus don't gather the requirements thoroughly. As a result, there face miscommunications and confusion as the project progresses.

It's best to document all the requirements from your clients and then take time to process them. This will also clarify things for you and help you analyze what it'll take to complete the project successfully. You can plan the required resources, estimated timeline, and costs by having the requirements. Never proceed with the project without comprehensively gathering requirements from your clients. Once that's done, you are set to move into the next stage, "Research."

### 3. Research



Research is a critical part of the project discovery phase. It helps give the managers and staff a better idea about the work on different project elements.

**Research can be further divided into 4 different categories:**

#### a. Client/Customer Interviews

Most agencies use various agency management tools for correspondence and client reporting.

Before starting anything, hold detailed interviews with the customer to determine how the work is supposed to progress.

This is the part where questions are asked, and doubts are cleared.

Interviews with the customer are of critical importance, as they help set the expectations for the project and ensure that the agency doesn't have to worry about scope creep later on.

#### b. Market/Industry Research

What's the industry doing about similar projects?

From running market surveys to reviewing similar projects produced within the industry, this is when you set project expectations and create benchmarks. By conducting industry research, an agency can better establish the project's goals. More importantly, this also helps the project managers understand where the agency can add more value to the project.

#### c. Competitor Research

Whereas market research deals with the industry, competitor research focuses on other digital agencies operating in a similar niche. During this part of the project discovery phase, the onus lies in finding out the standard of quality that your competitors maintain and the kind of products they make.

The discovery phase of project management will also give you a better idea about the variation in pricing and allow you to charge a competitive fee from clients. Also, through competitor research, you can find gaps for improvement that your competitors are missing.

#### *d. Think Like a User*

Getting into the shoes of the ideal audiences of your clients is crucial. While your interviews with the clients will give you a fair idea of their target audience, you'll also need to conduct research to understand their target audience. This will help you produce something that your clients' audiences will appreciate. And isn't that truly the end goal of any project?

### **4. Presenting the Solutions**



Once the initial research has been carried out during the project discovery phase and solutions have been identified, you must present your findings to the client. Create a comprehensive presentation and an overview of the dashboards that will be monitored throughout the project (if any custom ones are created).

The project manager will present the solution and the value offered by the agency during the discovery phase of project management. To communicate their idea better, project managers use a variety of visual aids, such as wireframes. Numerous web design tools can be used to create wireframes and detailed outlines.

### **5. Establishing the Timeline and Budget**



One of the most critical steps in the project discovery phase is the establishment of milestones and detailed budget estimations.

During this stage, identify any potential bottlenecks that may delay the project or lead to problems and create a comprehensive timeline for all the different stages of the project. Along with that, the agency is responsible for presenting a detailed budget highlighting all of the costs likely to be incurred throughout the project's duration. If an accurate budget cannot be created, use an estimation instead. It's important for the project manager to present the timeline and the budget to the clients and get them to sign off on it.

It'll help greatly with client management and allow the agency to allocate resources accordingly. Moreover, once you have a preliminary agreement in place, you will have the peace of mind that the client isn't going to renege on their word.

## 6. Identify and Agree on Next Steps



Once you've finalized the details of the project discovery phase, you can share these with the client and start discussions about starting the project.

- This is a formality in most cases, but you never know when a client might pitch in with one of their

own ideas or ask you to change things.

- Collaborate closely with the clients and let them know where the project stands and how you plan to proceed. If they have a suggestion, you can incorporate it to save precious time and money.
- Become a Cloud ways Partner & Woo Your Clients
- Our agency partners enjoy peace of mind, on boarding discounts and marketing opportunities.

## How to Nail the Discovery Phase

One of the best ways to nail the discovery phase is to create a detailed project map. This map will highlight the different stages of the project and the key deliverables. You can then create a comprehensive dashboard that makes it easy for all parties associated with the project to monitor it whenever they like. Once you have done extensive research, share it with the clients and get their feedback.

Nail the discovery phase by collaborating closely with your clients. Incorporate their suggestions, and ensure both parties are on the right track. If you haven't yet signed the agency contract, now might be the right time to plan and create one. Build a copy for the client's perusal and get them to sign off on that. This way, you will have everything down before the project formally gets under way. Above all, you will have the assurance that the client is on board with the journey map you have created.

### The Project Discovery Checklist

The following project discovery checklist will make it easy for you to figure out whether you have covered all essential elements during the discovery phase:

- Have all relevant requirements for the project been taken down?
- Have you calculated the resources to be used for the project?
- Have the resources been allocated appropriately?
- Has the timeline been created? Have you added a few days of leeway in case of unforeseen circumstances?
- Have appropriate budget estimations been created, checked, and verified?
- Have detailed research reports been produced regarding competitor and market research?
- Has the client been presented with a journey map for how the project will proceed?
- Have the client's suggestions been incorporated into the project?
- Has the company created detailed dashboards to monitor the project's performance?
  - Have relevant contracts been signed? Some Tools for a Project Discovery Phase

There are project frameworks available that you can use as tools to formulate the project discovery

document for your agency and the client.

Let's explore them down yonder:

- SWOT analysis: This tool offers you a matrix that you can fill in to clarify the project discovery phase. Strengths, Weaknesses, Opportunities, and Threats are the 4 compartments of the matrix. Fill in each area with the information available to you. You can also request clarity from your client if the need arises.
- SOAR analysis: SOAR has two primary differences when compared to SWOT. A and R stand for Aspirations and Results, respectively. This can often be a better-suited matrix for agencies and clients because it focuses on aspirations and outcomes rather than weaknesses and threats.
- Mind mapping: A tool to visualize the project's journey and the final results and carefully scribbling points that'll help you get there.

## **Task 3**

### **Group Project identification: brainstorming**

#### **Aim: To perform Group Project identification: brainstorming**

Brainstorming is a group creativity technique that involves generating a large number of ideas to solve a specific problem or challenge. For our group project, we will use brainstorming to identify potential solutions to the following challenge:

**Challenge:** Reducing plastic waste in a local community

Using the brainstorming technique, our group will work together to generate a list of potential solutions to reduce plastic waste in a local community.

#### **Brainstorming Process:**

**1. Define the Problem:** We will begin by defining the problem and setting clear objectives for the brainstorming session. In this case, our objective is to identify potential solutions to reduce plastic waste in a local community.

**2. Set the Rules:** We will set some ground rules for the brainstorming session, such as encouraging everyone to contribute their ideas, avoiding criticism or judgment of ideas, and building on each other's ideas.

**3. Generate Ideas:** We will generate a large number of ideas, using techniques such as free association, mind mapping, and word association. We will encourage everyone to contribute as many ideas as possible, even if they seem unrealistic or unconventional.

**4. Categorize Ideas:** Once we have generated a large number of ideas, we will categorize them into themes or groups based on their similarity or relevance.

**5. Evaluate Ideas:** We will evaluate the ideas generated, considering factors such as feasibility, cost-effectiveness, and potential impact on reducing plastic waste in the local community.

**6. Select the Best Ideas:** We will select the best ideas that have the potential to make a meaningful impact on reducing plastic waste in the local community.

**7. Refine the Solution:** We will refine and develop the selected ideas into a viable and effective solution, considering feedback from stakeholders and users, and iteratively improving the solution until we have a practical and feasible solution.

#### **6 Steps Your Team Can Take for an Effective Brainstorming Process**

The brainstorming process is an effective method for developing solutions to the challenges your team faces at work. Participants can not only generate new ideas but share and build upon them through team collaboration. When you understand the brainstorming process and its steps, you can implement it in the workplace to help your team form more effective and creative solutions. In this article, we explain the brainstorming process steps and the differences between individual and group brainstorming. What is the brainstorming process?

Brainstorming refers to a problem-solving technique used by teams or individuals. In this process, participants generate various ideas or solutions, then begin discussing and narrowing them down to the best options.

Typically, brainstorming incorporates exercises aimed at developing as many ideas as possible or more



creative solutions. This environment encourages all participants to share their ideas, no matter how unusual or infeasible they may seem. The varying perspectives of group brainstorming can enable a team to develop those ideas further to make them more realistic.

## **Six steps in the brainstorming process**

When performing the brainstorming process, you likely will conduct it within a group. However, you can incorporate elements of individual brainstorming to make the process more effective. Use the following steps to help build your team's next brainstorming process:

### **1. Create the environment**

For group brainstorming, try to limit yourself to under 10 participants. You want to ensure everyone has a chance to participate in discussions. Try to be mindful of who will be attending—try to include participants from different backgrounds, disciplines or perspectives to add more depth and creativity to the process. The group should appoint one person to record the ideas shared during the session, ensuring that nothing gets lost or forgotten.

Make sure you choose a location that has enough room for everyone to remain comfortable. Keeping the room well-lit can also ensure that your participants stay alert throughout the process. You can use various brainstorming techniques for this process, so provide any materials or resources participants may need to perform them. For example, you may need to provide paper, writing tools or a whiteboard to enable participants to write down and share their ideas.

### **2. Identify the problem**

Once you have gathered participants, outline the goal of the brainstorming session. Typically, these sessions aim to come up with as many potential solutions as possible. While not all solutions will seem possible, having a larger quantity gives you more options from which to choose. And through group discussion, everyone can participate in developing seemingly non-feasible ideas into realistic solutions. Even an idea people think is "bad" can spark a good or creative idea.

Brainstorming sessions use various techniques and exercises to generate ideas. One effective method is to start by having participants take time as individuals to brainstorm ideas. This step can be as simple as having everyone write a list of ideas on a piece of paper.

Explain to participants that they have the freedom to write down anything they believe represents a potential solution, no matter how impossible or strange they may seem. At this point, feasibility does not play a large role because you can develop ways to make these ideas more feasible during the group discussion phase.

Having participants develop ideas individually ensures everyone participates in the process. If you solely use group brainstorming, the more <sup>21</sup> shy participants may find it difficult to speak up and share their ideas in front of the group. It can also be distracting as individuals try to come up with ideas and listen to others share their ideas simultaneously. They may focus on one person's



solution, and then the group ends up with fewer options than if everyone had shared at least a few solutions they came up with individually.

### **3. Share ideas**

Once the participants have come up with their ideas, bring the group together to share and discuss them. Set rules for this discussion, stating that participants cannot criticize or judge others' ideas. There are various techniques for generating and developing ideas, but make sure that whatever you choose provides sharing opportunities for everyone to share. Try to keep the conversation focused on one idea at a time, allowing participants to discuss what they like about the idea and build onto it to make it even better or more feasible.

How you share and collaborate on ideas will vary on the brainstorming exercises or techniques you use. You may discuss each idea verbally or write down the list of ideas on a whiteboard. Some exercises have individuals write their idea on a piece of paper, then move it onto the next person to have them build upon it. Research the different techniques and incorporate ones that you believe can help spur creativity and active participation amongst your team.

### **4. Narrow the list of ideas**

Now that everyone has shared and discussed the ideas generated, the group must narrow the list down to the two or three best solutions. The best solutions represent ideas that help solve the problems you outlined at the start of the session. One way to cull down the list is to discuss and assess each one on how it needs your needs, then have participants vote on their top three choices. Whichever ideas garner the most votes represent the team's best ideas, and then you can prioritize them in order of importance or feasibility.

This step requires the team to make judgment calls on the feasibility of the options. Depending on your situation, the group can ask questions about each idea to determine its potential. For example, you can ask whether you can implement each idea as is or if it would require additional resources or time. You can also ask how easily you can gain buy-in from relevant stakeholders or whether the solution would require making significant changes to the organization's culture or workflow.

### **5. Make an action plan**

Once you have drafted the list of your top two to three ideas, you must develop a plan on what to do next. These steps vary depending on your situation, but you may need to present your ideas to management or relevant stakeholders before implementing any solutions. You may also need to conduct further research to ensure your solutions are feasible.

The questions you asked yourselves to determine your top ideas can serve as support or evidence when presenting your recommendations to stakeholders. If you share how you came to these conclusions, it demonstrates to your management team that you carefully assessed each of the solutions your team developed and determined why these ideas would work best. Once you

receive approval, you can create a project team to begin testing or implementing their chosen

solution.

Individual vs. group brainstorming Participants can conduct the brainstorming process alone or within a group. Often, brainstorming sessions may combine the two—participants may start by brainstorming as individuals, then come together as a group to discuss their ideas and choose the most feasible solutions to pursue. While both methods are effective, they differ in some ways:

### **Distraction**

Individual brainstorming provides participants complete focus to develop as many ideas of their own as they can. With group brainstorming, participants may focus more on what others say rather than coming up with as many as they would have on their own. Groups can sometimes have difficulty maintaining adherence to the rules or staying on task with so many individuals participating and sharing ideas at once.

### **Perspective**

Individual brainstorming only brings the perspective of one person when developing ideas. Group brainstorming enables more diversity of ideas, as each participant can bring a unique perspective. These varying perspectives can help add depth to solutions, as everyone can provide suggestions and build on an idea to improve it. Combining the two methods can be effective for this reason, as the group can take an individual's idea and transform it or combine it with others' ideas to make an even better solution.

### **Freedom**

Individual brainstorming gives participants more freedom to generate ideas without worrying about what others may think. While group brainstorming urges participants not to judge or criticize others' ideas, some individuals may still feel nervous speaking in front of others. When brainstorming alone, they may write down ideas that they otherwise would feel worried about bringing up in a group. This approach can allow them to explore more unusual ideas.

### **Teamwork**

Individual brainstorming is a solitary process, while group brainstorming allows people to collaborate to solve a problem. When team members work together, each participant gains a sense of contribution toward devising the solution. Through their discussion, they also gain opportunities to learn more about one another. It can make the process more fun as different people provide different perspectives and solutions.

## Redesign project: Discovery

### Aim: To perform Redesign project discovery

Redesigning the Discovery project can involve several aspects such as improving the user experience, enhancing the project's functionality, and updating the design to meet current trends and standards. Here are some potential redesign ideas:

1. Simplify the Navigation: One of the essential components of a user-friendly website is the navigation system. Redesign the Discovery project's navigation to make it more intuitive and user-friendly. This can include organizing the menu items more logically, making it easier for users to find what they are looking for.
2. Improve Search Functionality: Users rely heavily on search functionality to find the content they are interested in. Redesign the search function to make it more accurate and comprehensive, including implementing features like predictive search and autosuggest.
3. Update the Design: A fresh design can breathe new life into a website. Consider redesigning the Discovery project's website to reflect current design trends, making it more visually appealing and engaging for users.
4. Incorporate Multimedia Elements: Adding multimedia elements such as videos, images, and audio can enhance the user experience and make the website more engaging. Consider incorporating multimedia elements to complement the written content on the site.
5. Streamline the Content: Review the content on the Discovery project's website and consider streamlining it to make it more focused and user-friendly. This can include restructuring the content to make it easier to read and understand, as well as removing any outdated or irrelevant information.
6. Enhance Accessibility: Consider implementing accessibility features, such as alt tags for images and transcripts for audio and video content, to make the Discovery project's website more accessible to users with disabilities.

10 tips you should know when redesigning a project



## **1. Embrace challenges**

Redesigns aren't about changing everything in a product. I believe many designers have faced similar challenges: the product has shipped and users are already comfortable using it. Getting them to switch to an entirely new system — one they'd have to spend time learning how to use — takes some convincing in the form of data. Don't back out. Embrace the challenges and stand by the users. Do what you can to improve the experience in any possible way without asking people to adopt an entirely new system.

## **2. Understand the importance of data**

The best time to propose redesign ideas is when you have convincing data in hand. Have you ever wondered why your redesign ideas get rejected? Perhaps this feedback sounds familiar to you:

- Our development team doesn't have the bandwidth for this redesign — they're way too busy building new features
- Why do we need a redesign? I don't see any problems.
- Are you sure a redesign is better than what we already have? Is it worth making the investment in time and effort?

Well, redesign projects can be successfully proposed if you understand the importance of data. Without compelling data, don't expect the naysayers to change their minds.



## **3. Use data — and make it convincing**

To get a redesign project started, you'll need data and a well-defined set of problems to support your redesign ideas. For example, I had to convince everyone that we really did need to completely redesign our CRM contacts list view and not just make quick improvements. I got the data by going to our online community and searching for related questions and suggestions for improvement. I categorized them and identified problems, and then I sat down with product managers to go over the findings and my suggestions. Only after I backed up my ideas with data

was I able to start the redesign project.

#### 4. Get developers onboard

A redesign can't happen without developers, so get them involved at the very beginning. I know how exciting it feels to just start drawing out ideas. But wait until you are told that there will be developers assigned to your project. In the past, I have worked on projects that ended up nowhere because I just assumed the leadership was as serious as I was. As a result, this time I had to ensure there will be developers assigned to my project, and have a good understand of which release it is going to be a part of.

Communicate with your leadership to understand where you are and what the scope of your project is. After all, you wouldn't want to invest on redesign projects without knowing the new changes will be implemented.



#### 5. Visualize ideas

Visualize your redesign ideas and make them understandable to non-designers. For my redesign project, I went through many rounds of sketches in order to define the best idea. Learn more of my design progress at [Things you can learn from redesigns](#).

#### 6. Conduct user tests

Here's a checklist for user tests:

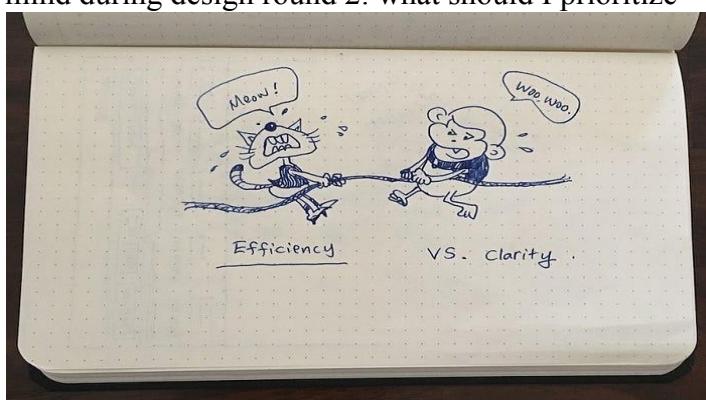
- Have a prototype ready — doesn't matter if it's online or offline, in person or remotely.
- Understand the goals. You need to create moderator guidelines, list out your study goals, and write down the questions you'll ask.
- Recruit participants. You can't do user test without participants. Make sure the group of participants match your study criteria (age, roles, web sessions, etc.).
- Pre-test the prototype. To avoid embarrassing moments with participants, pre-test your prototype with colleagues and friends to make sure everything works as expected.
- Analyze data. Don't forget to analyze all findings with your team to highlight top issues and successes.
- Create a report. A user testing report helps everyone understand your redesign progress. It shows what you've achieved and what the next steps are.



You might think the checklist seems too long and that you don't necessarily need to be in charge of user research work. However, it is valuable to spend some extra time learning and absorbing from your user research team. Because when they are too busy dealing with other important projects, you might need to take over the user research responsibilities and finish up the project on time on your own.

## 7. Leverage Design Principles

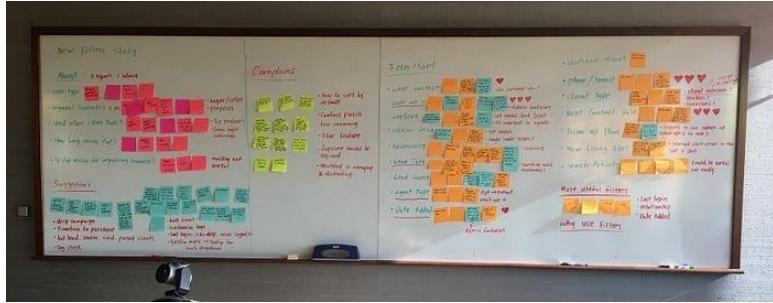
Design struggles can happen during different design phases. For example, I couldn't make up my mind during design round 2: what should I prioritize — efficiency or clarity?



Based on our design principles (clarity first), I decided to prioritize clarity over efficiency. It meant that I had to make sure users can easily scan and discover information *before* they're asked to do any tasks. Users won't mind extra clicks as long as the system provides accurate feedback. If you had difficulty making design trade-offs, don't panic — leverage your design principles. Design principles can vary depending on your product, there are no fixed rules. If your team doesn't have any principles, check out [Design Principles FTW](#) for inspiration.

## 8. Follow the Development Cycle

You need to be patient and go through the stages of product creation: analysis, design, development, and testing. For example, I validated my redesigns through user testing, users gave great feedback about what we can do to make it even better. I applied what I learned from user testing and iterated. Every redesign project should follow the development cycle: analyze user data and improve the designs, build the new designs, and test them out again, define and analyze the new findings to plan out the next steps and iterate on designs.



## 9. Be your own advocate

While working on a project, you may have experienced this not-so-fun scenario: Your design decisions are suddenly no longer in line with what your manager wants. What do you do? *Stand up for yourself.* As I mentioned before, use data to back up your ideas and get your team's support. As designers, our goal shouldn't just be to make our boss happy — it should be to create a better experience for users and a better product that generates more revenue.

## 10. Sharing Is Caring

Always summarize your learnings and achievements when you finish a redesign project. I like to share my learning on Medium and believe that they are milestones of my design journeys and will reflect how much more I can grow later on. If you have ideas, don't be shy and share them with your team and other designers! Don't be afraid of being judged! What you've learned and achieved might not always interest others, but you might discover more learning and improvement opportunities along the way! So why not?

## **TASK 5**

### **Redesign project: Define**

**Aim: To perform definition Redesign project**

Redesigned Project: Define Now

**Overview:** Define Now is a web-based dictionary and thesaurus platform that aims to provide users with a comprehensive and user-friendly tool for understanding and exploring the English language. The platform will feature a range of features designed to facilitate the search for definitions, synonyms, and antonyms, and to provide additional context and resources to users seeking to improve their language skills.

#### **Features:**

1. Comprehensive Definitions: The platform will provide definitions for a wide range of words, including specialized terms and idiomatic expressions. Definitions will be sourced from reputable dictionaries and curated to provide the most accurate and useful information.
2. Synonyms and Antonyms: In addition to definitions, the platform will provide lists of synonyms and antonyms for each word, allowing users to expand their vocabulary and explore the nuances of the English language.
3. Pronunciation Guides: The platform will feature audio recordings of each word's pronunciation, as well as phonetic transcriptions and guides to stress and intonation patterns.
4. Example Sentences: The platform will provide examples of each word's usage in context, allowing users to see how words are used in everyday speech and writing.
5. Language Resources: The platform will feature additional language resources, such as articles on grammar, usage guides, and vocabulary-building exercises, to provide users with a comprehensive tool for language learning and exploration.

**Design:** Define Now will have a clean and intuitive design, with a focus on ease of use and accessibility. The landing page will feature a search bar that users can use to look up words, along with options to browse by category and access additional language resources.

The search results page will feature a clear and concise definition of the searched word, along with lists of synonyms and antonyms, example sentences, and pronunciation guides. Users will be able to click on each item to access more information, and they will also be able to save words to their own personalized list for later reference. The platform will be optimized for mobile devices, allowing users to look up words on the go. The mobile design will be tailored to ensure that the browsing experience is just as intuitive and enjoyable as on desktop.



**Marketing:** To promote Define Now, we will utilize targeted online advertising to reach potential users who may be interested in language learning and exploration. We will also leverage social media platforms to reach a wider audience and engage with users who are already interested in language-related content.

To incentivize users to use the platform regularly, we will offer a free trial period and provide exclusive language resources to subscribers. We will also collaborate with language experts and educators to produce original content for the platform and promote it to their followers.

#### What is Redesign and Why Redesign?

When you design a product and unleash it for use, probably there are areas of the product that would appeal much to the respective users. Again, there could be some elements in your design that users aren't amused and bring down the user experience. It might be because the user needs have rapidly evolved and those features are slowly losing taste or are outshone by competitors. Since user experience is a very sensitive element, you are obliged to fine-tune your original product to meet the customer's needs and take their user-experience to a good level. This is now what we refer to as redesign. A redesign is not just about making the product more eye-catching but rather making high-quality changes that improve the product look and feel for a better user experience. You cannot just wake up and decide to redesign your app. It should be driven by concrete reasons that would improve your product. This process should be meticulously done to avert pulling your product down thinking you are doing positive fine-tuning.

#### Why You Need Redesign

As aforementioned, product redesign can't just come from nowhere. There should be genuine compelling factors before pulling the trigger. While some may be more compelling than others, the general consensus is that every redesign process aims to polish and ensure that the product is a better version of the previous one. Some of the reasons why you need a redesign include:

1. **Need to expand Reach/Audiences** When you first designed the product, perhaps you targeted a certain group of audiences. With time, you realized you needed to incorporate other audiences to grow your product more. Here, you are obliged to add more capabilities to the old product to make it accommodate other audiences as well.
2. **Declining Customer Satisfaction** One of the most crucial elements of every product is to ensure good customer satisfaction. If customers aren't satisfied, they drift away from your product and subscribe to those of your competitors. This could be because some features are outdated or competitors offer better versions of those features. So you need to redesign them to make them suit their need.
3. **To upgrade Security** With small businesses and entrepreneurs being more vulnerable to cyberattacks, you need to fortify your cyber security. Customers are comfortable with secure products and maybe you need

to redesign by adding more security features. Other reasons could be an unresponsive product, the need for better product control, unmet expectations, and need for updates among others.

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### The Best Tool for Redesign

Wondershare Mockitt is a powerful design, prototyping, and collaboration tool leveraged by a multiplicity of people across the continents. It is a reliable, fast, and easy to use tool that transforms how you create designs and collaborate with team members. This tool has plenty of design resources ranging from diverse templates to a plethora of icons and widgets.

Users simply pick these design resources, edit them, and save them in their widget library for reuse. With Wondershare Mockitt, users can transform static designs into interactive designs with the help of transitions and animation features. This way, you seamlessly steal the client's glances and win the contest. Besides design and prototyping, Wondershare Mockitt is also a wonderful collaboration tool. It allows team managers, developers, and designers to meet and work on the project on the same page. It doesn't matter the location or time because you can sync all your team members and have them comment and receive feedback in real-time. This streamlined communication accelerates the project's pace thus saving you both time and energy.

- It has plenty of templates that suit different fields and industries and hence you don't need to start your design from scratch.
- It offers a wide range of widgets, icons, and several components to make your interface more appealing. You can use the built-in widgets, fast widgets, MyWidget library, and icons.
- This program supports animated and interactive prototyping.
- Wonder share Mockitt allows team members to work together on the same page by editing, commenting, and getting feedback in real-time.
- It allows users to test their prototypes directly and share them with friends using the project link and QR code.
- Users can hand over the prototype to developers by generating the respective CSS code on the program.

Conclusion: Now that you understand every relevant aspect of redesign, it is time you considered redesigning your product/website to meet the changing needs and skyrocket customer satisfaction. When you redesign, remember you need the best redesign tool to get the best redesign experience and result.

# **TASK 6**

## **Redesign project: Design**

### **Aim: To perform Redesign project**

Overview: Design Now is a web-based platform that aims to provide a collaborative and user-friendly tool for designers and creatives to create, share, and receive feedback on their designs. The platform will offer a range of features designed to facilitate the design process and make it easy for users to collaborate and iterate on their work.

### **Features:**

- Design Tools: The platform will offer a range of design tools, including vector graphics software, image editors, and layout tools, to enable users to create designs from scratch or import existing designs for further editing.
- Collaboration Features: The platform will allow users to collaborate on designs in real-time, with the ability to share designs, comment on them, and suggest changes. Users will be able to work together on the same design, or share their work for feedback from the community.
- Design Feedback: The platform will have a built-in feedback system, allowing users to receive constructive criticism and suggestions for improvement from the community. Users will be able to rate and comment on designs, and receive feedback from other designers and creatives.
- Design Library: The platform will feature a library of design assets, including templates, fonts, and stock images, to make it easier for users to find and incorporate design elements into their work.
- Design Challenges: The platform will offer design challenges and competitions, with prizes for the best designs, to encourage users to push their creative boundaries and explore new ideas.

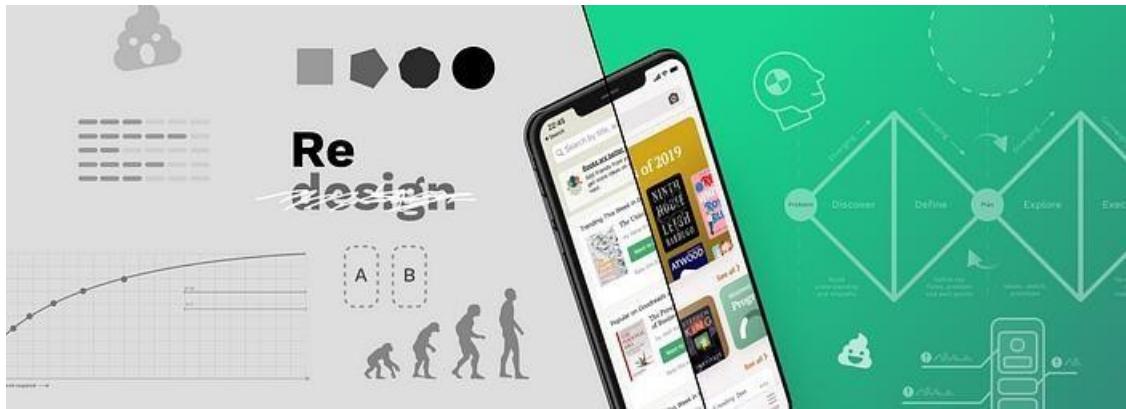
Design: Design Now will have a clean and intuitive design, with a focus on ease of use and collaboration. The landing page will feature a search bar that users can use to search for designs, along with options to browse by category and access additional design resources.

The design editor page will feature a range of design tools, with a clean and user-friendly interface. Users will be able to collaborate on designs in real-time, with the ability to share designs, comment on them, and suggest changes. The feedback system will be integrated into the design editor, allowing users to receive feedback on their work as they create it. The platform will be optimized for mobile devices, allowing users to create and edit designs on the go. The mobile design will be tailored to ensure that the design experience is just as intuitive and enjoyable as on desktop.

Marketing: To promote DesignNow, we will utilize targeted online advertising to reach potential users who may be interested in design and creativity. We will also leverage social media platforms to reach a wider audience and engage with users who are already interested in design-related content.

To incentivize users to use the platform regularly, we will offer design challenges and competitions, with prizes for the best designs. We will also collaborate with design experts and influencers to produce original content for the platform and promote it to their followers.

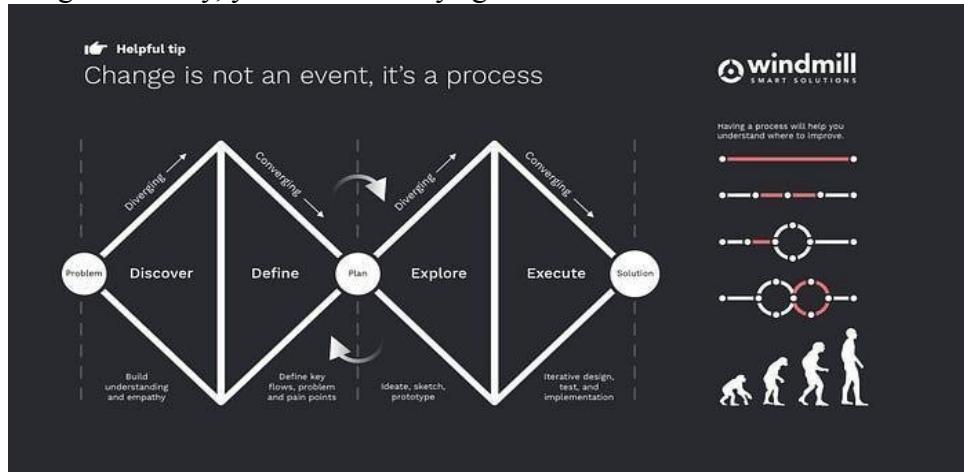
How to redesign, step by step guide Avoid pitfalls and deliver value fast.



The process described in this article will work for various scopes of redesign — from a feature or view level to full application redesigns. These recommendations will help you avoid pitfalls and deliver value fast, and are based on the experience we gained from hundreds of redesigns, bumps, and bruises along the way.

Change is not an event; it's a process

Let's clarify one thing from the start; this article is not a strict walkthrough. When designing a product today, it's both impossible and unsensible to set up a rigid process and follow it for every situation; we need to be agile and quick to adapt. It is necessary to have an outline of the design process you will follow. If the results are not satisfactory, you can go back and analyze what you did wrong and improve the process. If you did things randomly, you would always get random results.



A great place to start is what many of you know as the “double diamond” process. It takes you through four main phases to get from the problem to the solution:

- Discovery — building shared understanding and empathy
- Definition — identifying key flows, challenges and pain points

- Exploration — ideate, sketch, low fi prototype
- Execution — iterative design, test, and implementation

A redesign is never really done; it's a continuous effort to keep experience relevant.

Start with building shared understanding

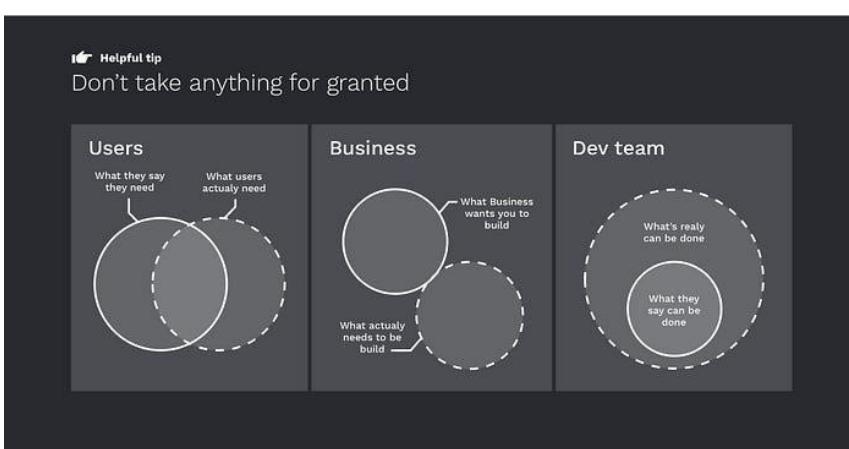
As a designer, your role is to bring everyone on the same page and unite over one common goal. First, interview stakeholders to understand what and why we are trying to achieve for the business and on what timeframe. Check their expectations regarding look and feel, functionality, and target audience. Interviewing dev and support teams it's also a good idea to get more insight into what are



problem areas.

But your primary target is users. Specifically, you need to be interested in the following:

- Why you chose this product over other alternatives?
- What you love most about this product/flow/feature?
- What you hate most about this product?



## Define Jobs to Be Done

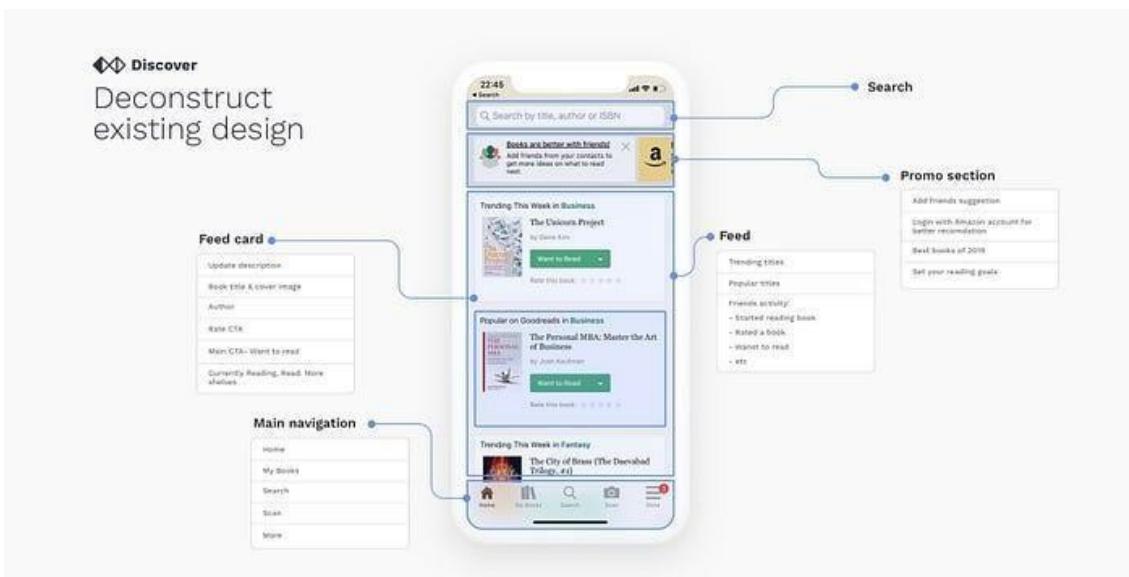
There are many activities you can do to understand users better, build empathy. User journeys and value propositions are beneficial, but there is not always time to do them when we are talking about something small. Personas, on the other hand, are fluffy and fake and have very little practical application. An essential thing that you can do is to list Jobs to be done. This will help you

When... Situations	I want to... Motivation	So i can... Expected outcome
... I'm looking for the next book to read	... get recommendations and check reviews	... make sure I would like it and don't waste my time
... I'm in the bookstore checking what is on the shelves	... get books rating and info quickly with a cover scan	... do it fast, without need to type and search for it
... I'm in the bookstore	get books rating and info	do it fast, without need to

understand the user's motivations and expectations.

## Deconstruct existing design

The number one mistake that designers do during the redesign process is that they completely ignore and disregard the current design. The worst thing you can do is to take the current design and create a new one based on your personal preferences. There was probably a ton of thinking and research that went into the creation of the original solution. Your goal is to carefully inspect the



current design, try to understand how it works, and the intention behind each decision.

## Review analytics

Once you narrowed down your focus to some key areas, you need to know the performance of the design. Since we are doing a redesign, we have a luxury of learning from analytics and checking the real design performance without subjective judgments.

Usage data is the most persuasive argument you will have when you need to justify your design decisions with stakeholders and a baseline that you can use to compare the new design

The screenshot shows a digital marketing dashboard titled "Review analytics". It is divided into three main sections:

- Pageview and traffic analysis:** Tracks visitors' entry and exit pages, browser and screen size, and where they are coming from. It includes a line chart showing pageviews over time and a table of visitor statistics.
- Behavioral flowchart:** Understands user behavior and common journeys. It displays a complex flowchart with multiple paths and user segments.
- Timing and conversion. Funnel creation and analysis:** Analyzes conversion and creates baseline metrics to compare new designs. It includes a funnel diagram and a line chart showing conversion rates over time.

performance.

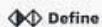
### Page view and traffic analysis

Tracks your visitors' entry and exit from different pages, what browser and screen size they are using, and where they are coming from. Behavioral flowchart It helps you to understand how users behave and common journeys.

Timing and conversion. Funnel creation and analysis Analyzes conversion and creates baseline metrics to compare the new design.

### Review competition

It's one of the first natural questions that should come to mind. "Well, what are others doing?" As your customers will have to choose between your product and its alternatives, you need to analyze the experience they provide to customers. When reviewing both direct and indirect competition, look for commonalities, similar flows. Define what is considered a standard experience for your case. You can collect all of your findings in the In Vision board or any similar tool.



## Review competition



## Understand where you stand

Competitor analysis allows you to find out if there are any gaps in the market. If you have more time, start creating a simple matrix where you will list the core information about the competition. Understand what each competitor product is targeted at, how advanced their features are, what is their revenue model and market presence. Comparing it to your product will give you a high-level overview of where you stand.



## Understand where you stand

PRODUCT	Goodreads: Book Reviews	Wattpad	Google Play Books	Apple Books	Audible audiobooks	Bookmate.
OVERVIEW	.....	.....	.....	.....	.....	.....
TARGETED AT	.....	.....	.....	.....	.....	.....
FEATURE 1	.....	.....	.....	.....	.....	.....
FEATURE 2	.....	.....	.....	.....	.....	.....
FEATURE 3	.....	.....	.....	.....	.....	.....
FEATURE 4	.....	.....	.....	.....	.....	.....
FEATURE 5	.....	.....	.....	.....	.....	.....
FEATURE 6	.....	.....	.....	.....	.....	.....
KEY CONSIDERATION	.....	.....	.....	.....	.....	.....

## Explore beyond your domain

Fresh ideas and innovation are never coming from competitor analysis. As everyone keeping a close eye on each other, you can only learn what is considered to be a standard. For inspiration, look beyond your domain. There are hundreds of amazing products that deal with similar problems that you are trying to solve in a different context.



## Identify key problem areas

Once you have understood everything clearly with the help of data from analytics, you can start identifying key problem areas with the existing design. Those problems can range from usability issues to visual flows, bugs, inconsistencies, wrong patterns applied, or exotic solutions without any reason. For usability check, you can use ten usability heuristics as a cheat sheet to find out whether the design ticks all boxes. <https://www.nngroup.com/articles/ten-usability-heuristics/>

**◆◆ Define**

### Identify key problem areas

- Cards call to actions are not very usable**

The actions positioning falls out of standard patterns we expect of feeds nowadays.
- Social elements are not exposed enough**

It looks like a missed opportunity to hide users' social engagement experience. Instead, we could encourage some new social features.
- Home is not engaging**

Overall because of bland feed structure home fails to engage users. Content is presented in very uniform way.
- No gamification and rewards**

Gamification is important factor of building user habits. We missing lever basic tools in place.
- Promo section looks like series of ads**

Using the wrong patter to engage with users. It really happens especially in mobile. Specifically, if those CTAs are looking like add you see in mobile games.
- Dated ui**

It's not surprising as a surprise that the first thing that catches designed attention is the UI that is quite dated and not in line with neither latest guidelines nor overall trends.

## And find improvement opportunities

Once you found out the issues, the next step is to find solutions for each identified problem. Competitive research and exploration should give you enough inspiration.

## Define

And find improvement opportunities

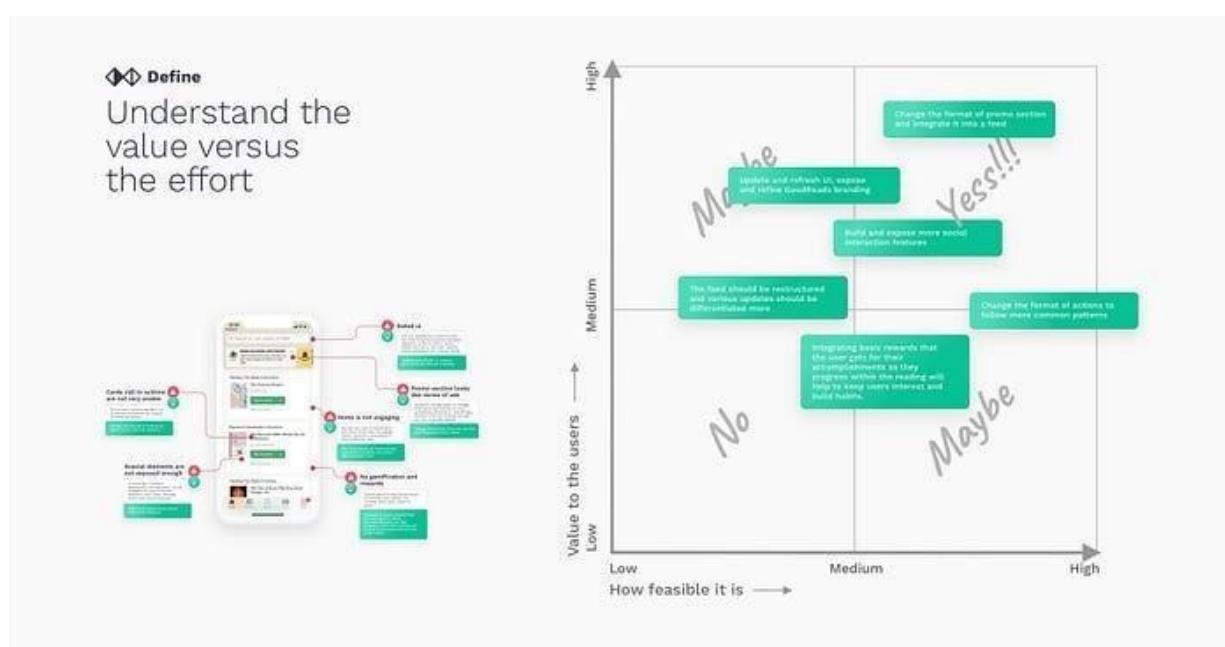


Understand the value versus the effort

Having a list of problems and ideas on how to solve them is a good thing, but it needs prioritization. We need to understand what are the low hanging fruits. For each opportunity, we need to understand what it will take to deliver it and how much value we will add for the end-

## Define

Understand the value versus the effort

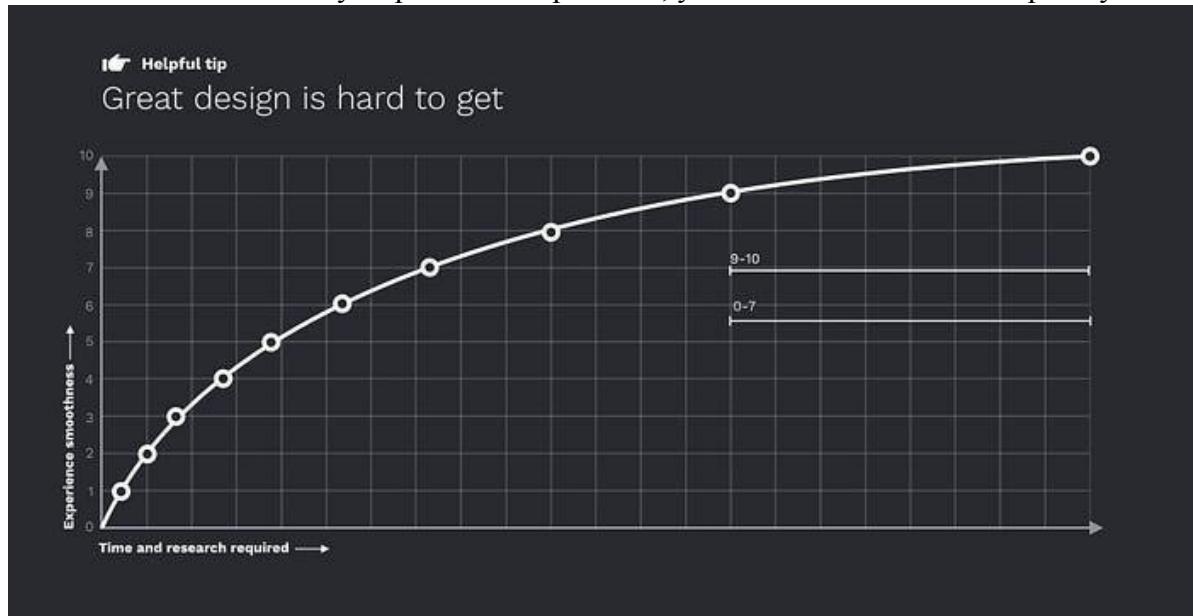


user. Ideally, we want to focus on the upper right quadrant in the graph below.

Great design is hard to get

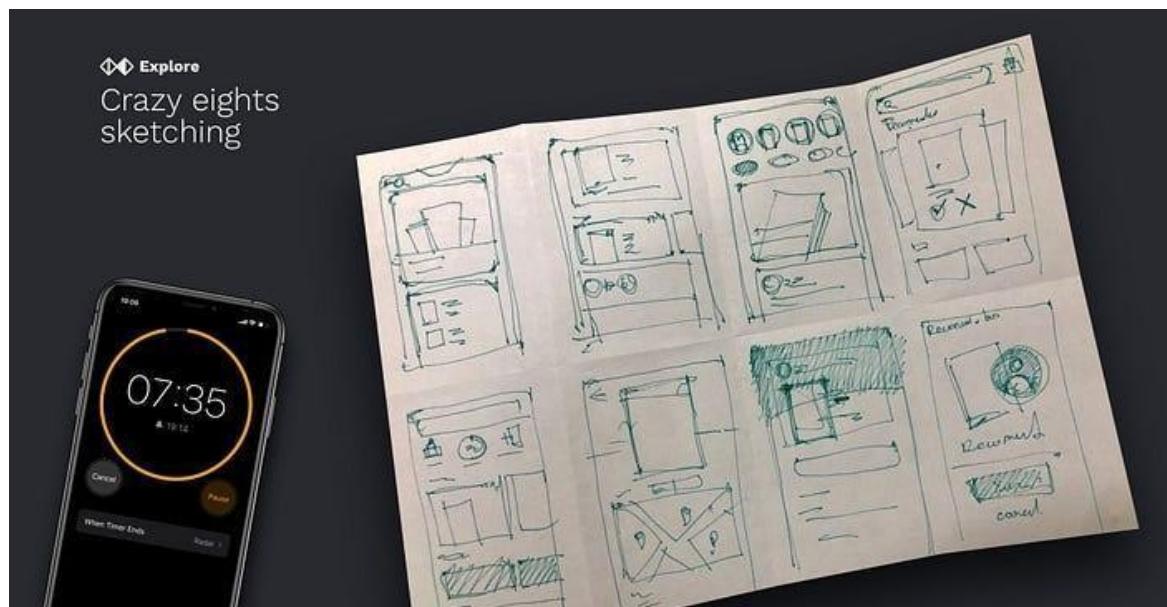
There are no perfect designs, and there is always space for improvement. But excellent user experience comes at great cost. Creating a marginal improvement in already great design will require exponentially more resources invested<sup>42</sup> than taking something bad and turning it into an average design. But don't let this discourage you, in the great book "Zero to One: Notes on

Startups" author Peter Thiel explains that marginal improvements will only get us so far. Sometimes to substantially improve the experience, you need to reinvent it completely.



### Sketch on paper first

Hand sketches are great ways to start offloading some of the ideas from your head into the physical world. You can use a technic called Crazy eights sketching to force yourself to generate eight ideas in 8 minutes. This is a great way to force yourself out of one variant and explore other crazy ideas. It will be perfect if you can do it with stakeholders and event devs. Some ideas that come out of those



sketches are unique and creative.

### Get feedback fast, with low-fi storyboarding

Each hour spent on low fidelity will save 10 hrs from being spent on high fidelity work later. Try to sketch a very rough idea of flow, have a quick validation, and add a layer of fidelity. Starting feedback sessions with presentation of high fidelity work may show your stakeholders that there is

no space for changes, and their opinion was not taken in the account.

### ❖❖ Explore

Get feedback fast, with low-fi storyboarding

**1. Land on a new home**  
After landing on the home I see the feed of recommended content. Friends books reviews, Curated best books listings, recommended and other updates.

**2. Review recommendations**  
I see new book recommendations based on my previous reading history and trending algorithms. I tender-like pattern in swipe through them.

**3. Check book details**  
One recommendation is really interesting. I need to learn more about it. Once I made my mind to get the book, I click on the buy button.

**4. Find out how to get it**  
I see the list of various options. I can order online and here are the best prices. Also, there are physical bookstores nearby that I can pick it up. And finally, there are some people in my circle who I can borrow it.

If you are not testing with users, you're wasting time

It is as simple as that. Everyone can confidently say that they know better than the users, and “users don't know they need it till they get it.” That statement is true only in a very rare case.

### ❖❖ Execute

If you not testing with users, you're wasting time

Completion Rate				Number of Errors					
	Task 1	Task 2	Task 3	Task 4		Task 1	Task 2	Task 3	Task 4
User 1	✗	✓	✗	✓	User 1	2	0	0	2
User 2	✗	✓	✓	✓	User 2	3	3	0	3

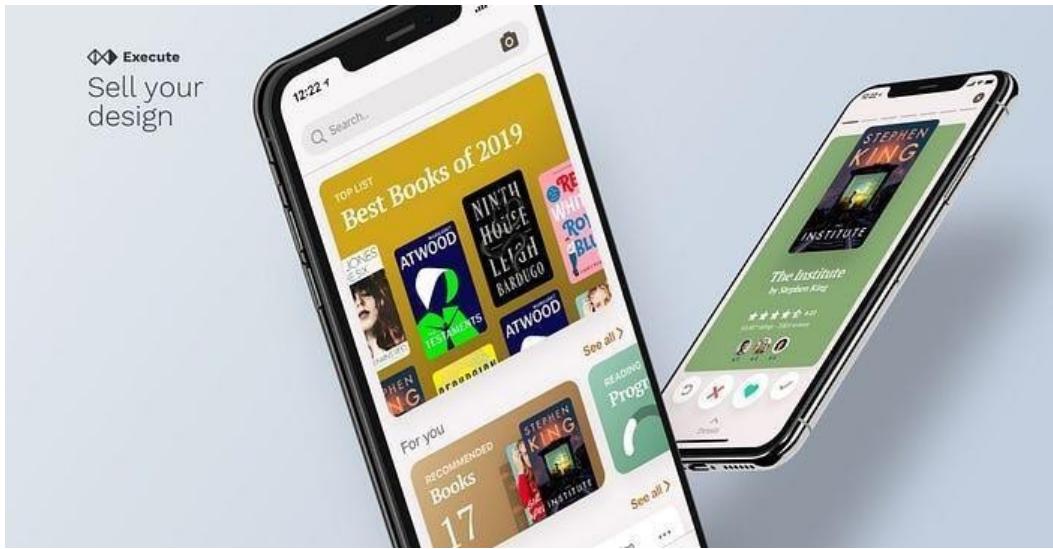
  

Time-Based Efficiency				Task Level Satisfaction					
	Task 1	Task 2	Task 3	Task		Task 1	Task 2	Task 3	Task 4
User 1	45 sec	13 sec	7 sec	123 sec	User 1	2	6	1	5
User 2	65 sec	32 sec	9 sec	234 sec	User 2	4	5	2	3

Don't forget that everything you are doing is for users.

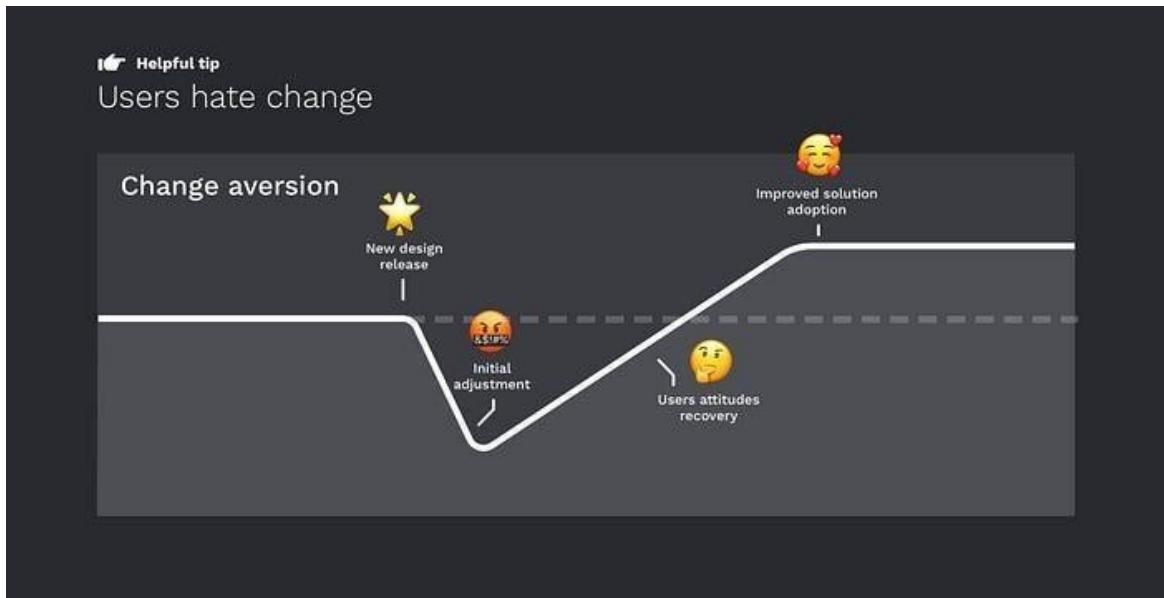
Sell your design

This is basic advice, even though so many people seem to miss it. Like in a fancy restaurant, presentation is as important as the dish itself. If you spend months crafting a design, spend sometime on presentation. And remember you are not selling new styles, clean fonts. Create a newstory, a story about newly empowered users, because humans are fascinated by stories and visions.



Users hate change

Once the newly redesigned product is delivered to end-users, everyone expects massive excitement and a stream of praise from grateful users only to find out the effect may be the opposite. This stage requires patience and persistence. Users hate change, doesn't matter how bad was the original design, they got used to it, and now they need to learn something new. Monitoring analytics post-release and keep in mind users will need to go through some initial adjustment. Give them some time to recover attitudes and fall in love with a new design. Support easy feature



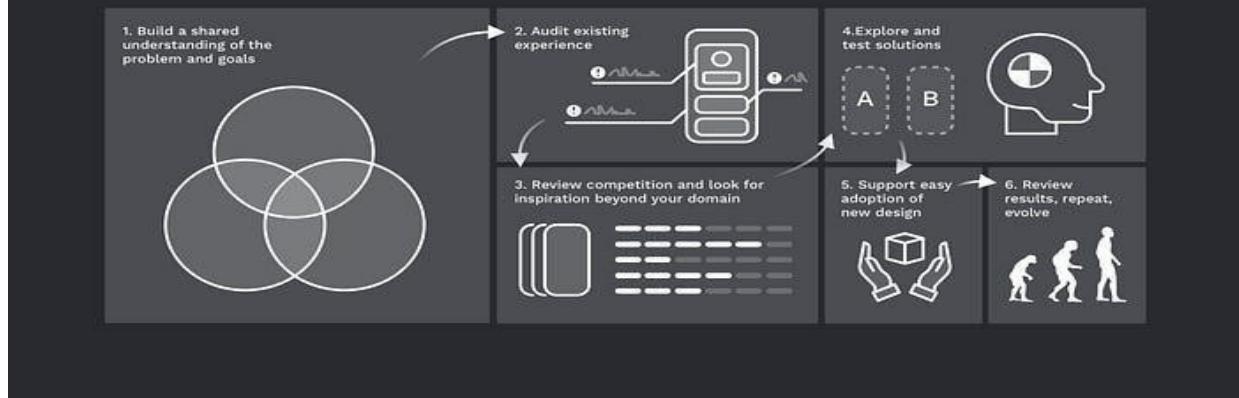
adoption with some contextual help and guidance.

There is always space for improvement

The design process never stops. New patterns emerge, more tools become accessible by users. Smooth user experience comes when you truly understand the problem you are solving and help users solve it effortlessly.

#### Helpful tip

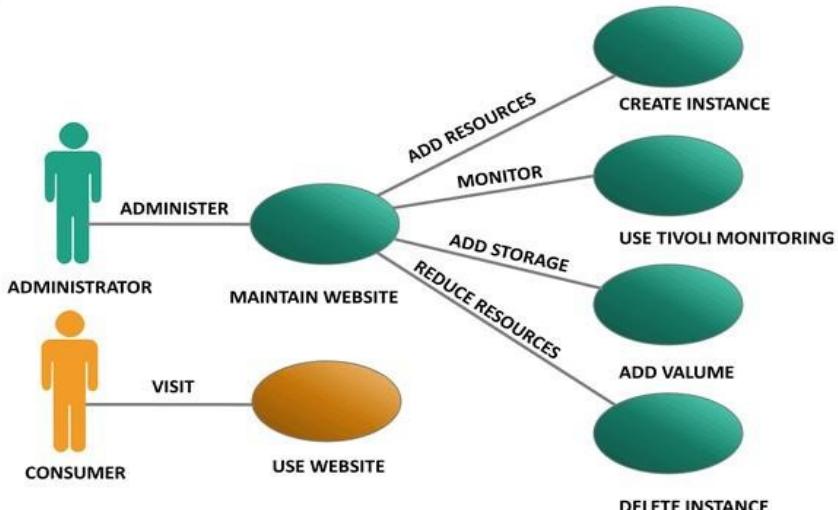
So, how we redesign?



Leave your responses on what are your tips for a successful redesign. Follow for more design content in the future.

## USE CASES DIAGRAM

Enter your sub headline here



**TASK 7-8**  
**Project Prototyping Iteration 1**  
**Project Prototyping Iteration 2**

**Aim:** To perform project Prototyping Iteration

What Is Meant by the “Iterative Process”?

The **iterative process** is an approach to continuously improving a concept, design, or product. Creators produce a prototype, test it, tweak it, and repeat the cycle with the goal of getting closer to the solution. Anyone can use the iterative process, but designers, developers, educators, scientists, and mathematicians most often utilize it. The concept and the solution eventually converge, such as in a math function or a scientific discovery, because you progress toward your desired result each time you iterate on the product.

The iterative process is widespread across many industries. Most Agile projects use an iterative approach, incrementally improving the product with each cycle or sprint. The end of one iteration becomes the starting point for the next round. For example, think of Microsoft or Apple products. Using an iterative approach, these products are regularly updated with new features or benefits, minus some of the problems of previous editions. Even writers, musicians, and cooks use the iterative process to refine their creative work. You can also use the iterative process when the final output or decision cannot be easily revoked (such as a jury verdict when many votes have to be taken to reach agreement) or if the consequences of revoking the outcome could be emotionally and financially costly (such as a marriage) or have long-term implications (such as war).

What Is an Iterative Procedure?

The iterative process refines a product through repeated adjustment cycles. In math, an *iterative procedure* identifies the solution to a problem based on an initial guess. Then, you introduce a sequence of algorithms to find the answer.

You can adapt this math procedure for any problem that requires a specific solution. While you may not have the right answer initially, you can start with a guess, review your solution, refine your guess, review the revised solution, and repeat until you get the correct answer.

Imagine you are trying to duplicate a dessert you enjoyed at a restaurant. You know it contains chocolate, but can't identify the secret ingredient that makes it taste unique. You take a guess,  
47 cook the dish, and taste it to see how close you are to the original. Then, you adjust the ingredients and the quantities, and try again. Each iteration gets you closer to your goal: the perfect dessert.



## Why Use an Iterative Process?

The iterative model is an alternative to the Waterfall approach, which relies on sequential steps. When using Waterfall, it's difficult to quickly address development or design inefficiencies, but iteration gives developers more flexibility to swiftly incorporate changes. NASA adopted the iterative model in the 1960s with Project Mercury and has continued its use through the Space Shuttle project, as well as for working with the U.S. Air Force to develop the X-15 hypersonic aircraft. The approach has also spread to other industries.

In the 1970s, IBM began using the iterative model in computer system design. And, in the 1990s Canada developed its air traffic control system with an iterative approach. Today, businesses ranging from software applications and engineering to design, marketing, and education use an iterative approach for developing products and meeting market needs.

The iterative process gives you the ability to refine and revise a product quickly, especially if you have an initial version of a product but still need to identify detailed features and functions. This approach assumes that you don't already have all the answers or that the environment for your product, as well as the needs of your customers, will change during the development timeline. An iterative model takes into account the changing landscape, allows you to plan for changes as you create your product, and helps you produce deliverables that are tailored to your market. Here are some of the specific benefits:

- It's efficient. You can build your product step-by-step, rather than having to rework an entire plan as changes occur. In addition, the workload of the team is spread out more effectively throughout the project's development lifecycle.
- It's timely. The first iteration allows you to develop the top priority in functionality. Each iteration is based on any improvements identified in the past cycle, and continual testing gives you a clear picture of the status of your project. You can see the results early and often because each iteration is a managed milestone.
- It's cost-effective. Any changes to the project's scope or requirements, which are common in most projects, are less costly than with a Waterfall approach.
- It's collaborative. You can present the results of each iteration to stakeholders and clients. They can see the evolution of the project and ensure that you are meeting their requirements.
- It improves usability. Testing and debugging are easier with smaller iterations, as you can identify defects early in the process and users and customers are involved with each iteration.
- It eliminates confusion. You can detect inconsistencies or flaws in requirements, design, code, and

other implementations with each iteration, so you can avoid misunderstandings.

- It's easier to manage risk. You tackle the high-risk portions of a project first, and every iteration lets you identify and resolve risks.
- It offers continual improvement. Each iteration allows the team to easily incorporate any lessons learned from previous runs and continually improve the development process.

## What Is the Iterative Process Model?

The *iterative process model* is a cyclical process in which you make and test incremental adjustments. It is popular in technology, engineering, software development, design, qualitative research, project management, and other industries.

Here is some information on how companies use the iterative process model:

- Website Wikis: These types of websites allow users to aggregate, update, or improve on content. For example, Wikipedia relies on user-generated content that allows reviewers to add relevant information or delete content that is outdated or no longer useful. A wiki is never finished. In the iterative process model, the site continually evolves with new information.
- Human-Computer Interfaces: Many consumers had difficulties using early computers. Programmers had a specific set of skills and knowledge, but they did not represent everyday consumers. Using the iterative process model, designers gathered feedback, adjusted the interface based on that feedback, and released an updated version. These refinements continue today. Computer interfaces and software continue to evolve based on consumers' feedback and needs. The process of improving usability now extends to a range of mobile devices and smartphones.
- Computing and Computer Programming: Iteration is a key computer science technique for creating algorithms and developing software. With the iterative process model, a computer program runs a sequence of instructions or math operations over and over. The program loops to repeat some part of the program or code until it reaches a predetermined event or completes the desired number of repetitions. For example, a website could use code that repeatedly refreshes a page until the user clicks a button. Or, a computer program could run an algorithm to rearrange letters in a word (or the entire alphabet) until it forms all the possible combinations. Iteration is similar to recursion in computer programming. Both repeatedly follow a set of instructions and can be used for the same effect.
- Project Management: The iterative approach<sup>50</sup> helps organizations (and project managers) handle the uncertainty inherent in many projects. Rather than assuming that all requirements, use cases,



and business needs can be identified before the project starts (typical in a Waterfall approach), the iterative model assumes that user expectations and business needs will change during the development timeframe. By creating a product in chunks that are refined and adapted in subsequent cycles, the iterative process responds to the unpredictable nature of projects, as well as customer needs and engagement.

- Education: The iterative process model focuses on students learning from their mistakes as they solve problems. Think of this approach as “practice makes perfect.” Students reflect, refine, and revise their work as part of the learning process. Unlike computing and math, educational iterations are not focused on a single, predetermined “right” solution. The iterative approach in education creates a culture that fosters a continual cycle of learning.
- Legal Systems: The foundation of common law is *stare decisis*, the concept that rulings are based on previous legal decisions. *Stare decisis* is Latin for “to stand by things decided.” Following the iterative process model, this means that any legal precedent builds and rests upon previous decisions.
- Evolution Science: The fossil record shows the iterative process record. Repeated evolution over generations shows a change in characteristics of biological species. Some characteristics become more common or rarer as parents pass genes to offspring.

### How Does the Iterative Process Work?

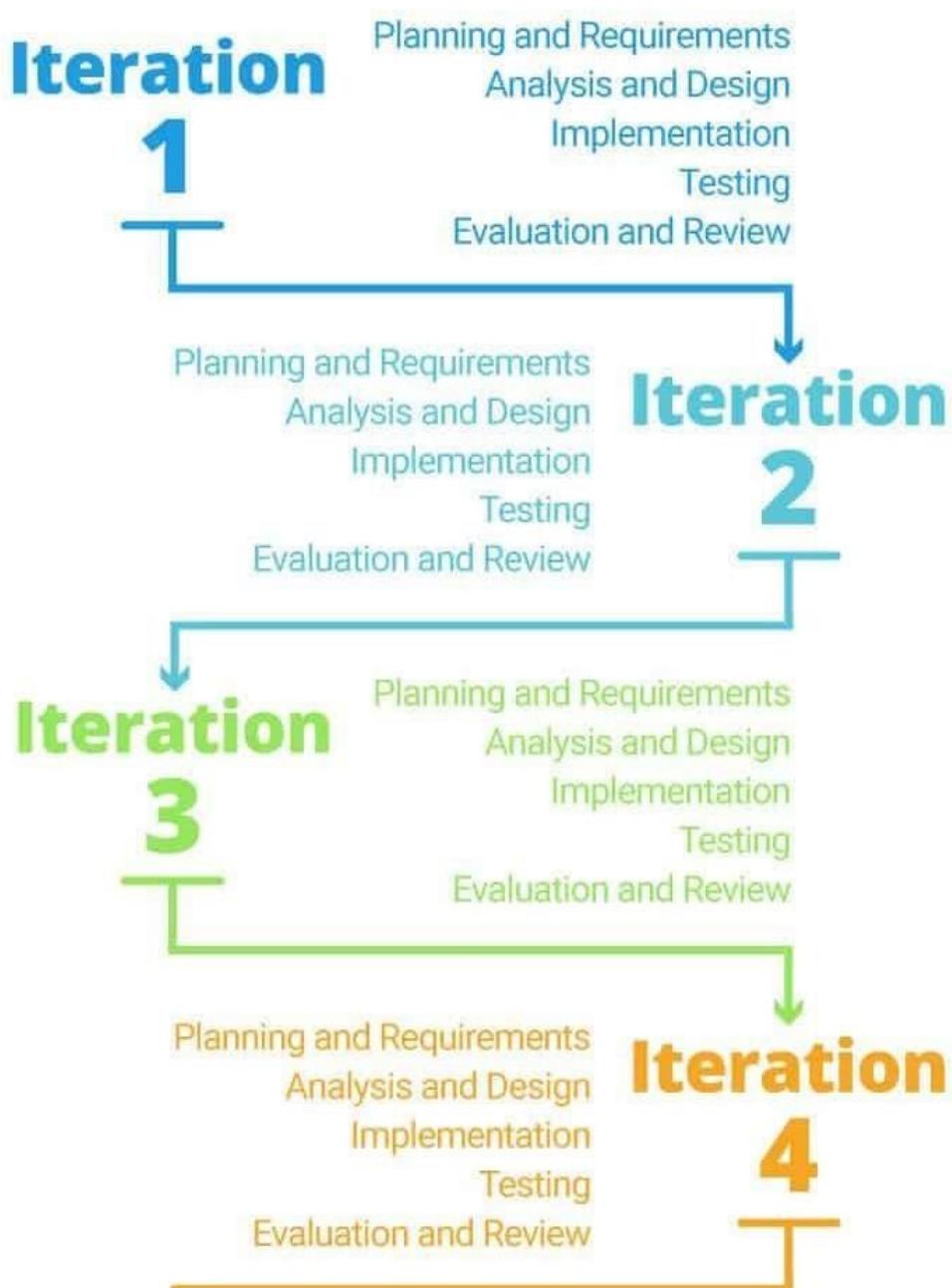
The iterative process involves a continuous cycle of planning, analysis, implementation, and evaluation. Each cycle produces a segment of development that forms the basis for the next cycle of iterative improvement.

You’ll start with initial planning and defining overall requirements. Implement your initial development work, and then refine it by trial and error. Once you complete the first cycle, this

work segment forms the next chunk of the project. Each cycle should ideally improve the overall product. There is no standard pace of development; rather, the product requirements and your resourcing will define how efficiently you move through the iterative cycle.

# Iterative Process

These five steps can be repreated as many times as needed.



**Step One: Planning and Requirements:** In this stage, map out the initial requirements, gather the related documents, and create a plan and timeline for the first iterative cycle.

**Step Two: Analysis and Design:** Finalize the business needs, database models, and technical requirements based on the plan. Create a working architecture, schematic, or algorithm that satisfies your requirements.

**Step Three: Implementation:** Develop the functionality and design required to meet the specifications.

**Step Four: Testing:** Identify and locate what's not working or performing to expectations. Stakeholders, users, and product testers weigh in with their experience.

**Step Five: Evaluation and Review:** Compare this iteration with the requirements and expectations.

After you complete these steps, it's time to tackle the next cycle. In the iterative process, the product goes back to step one to build on what's working. Identify what you learned from the previous iteration. This iterative development, sometimes called *circular* or *evolutionary development*, is based on refining the first version through subsequent cycles, especially as you gather and include requirements. It allows you to remain flexible as you identify new needs or unexpected business issues.

### What's the Difference Between Iterative and Incremental Development?

Iterative development relies on a series of repetitive or cyclical loops in which you revise and improve a product based on feedback from users and stakeholders. While the term can be used interchangeably with *incremental development*, there's a fine difference.

With incremental development, you layer in new functionality in small sections with each iteration. But it's more than simply improving the product through iteration. You methodically add new features with each cycle in a step-by-step process, develop different sections of the product or system at various times and rates, and add them to the full product as you complete them.

Many projects use both approaches at the same time to complete a project. For example, Agile and Scrum methodologies are based on an iterative and incremental approach. They are iterative



because one version is refined in subsequent runs. They are incremental because sections of work are delivered throughout the project.

### What Is the Iterative Development Process?

Many software and web applications rely on the iterative development process because it gives developers more flexibility. Typically, the *system development life cycle (SDLC)* uses iterative development alongside incremental development. As the system is developed, SDLC becomes increasingly complex.

This approach offers several benefits. It allows project managers to divide the overall project into smaller chunks that build upon one another, and start with the issues or components that are most critical to the project. It also allows the development team to focus on one part of the project at a time, shielding them from business issues that could divert or distract them. And

Stakeholders can see concrete progress through the lifecycle of the software application or system. In the iterative model, development starts with a small set of requirements for a small section of the project, rather than a complete list for the entire project. The team designs, develops, tests, and refines the code in repeated cycles. They can add more features in subsequent cycles until the complete software application is ready to go to market.

**Step One: Requirements.** Because you are working on one section — or iteration — of the product, you need to identify the software or hardware requirements for this section. Be clear about who is going to use the system and how will they use it. Identify the objective or task of the product you're developing, especially if you are working from a project control list. Define what qualifies as a successful outcome for this new section of software.

**Step Two: Analysis.** Review the requirements to identify and resolve any incomplete, ambiguous, or contradictory expectations. Know what data you should include to produce the software and what data the software will output.

**Step Three: Design.** Use the final requirement specifications to design the software. Construct the schematics that describe the software behavior, business process, interface layout, and functionality.

you identified in the requirements and analysis.

Once you complete the first section, seek user feedback to identify any bugs, glitches, or deficiencies. Each cycle (or iteration) relies on feedback and, in some ways, failure — learning from your mistakes. This heuristic planning, or trial-and-error learning, lets you tweak the results until you get the performance you want. Then you can move to the next iteration to add features and functions. Follow this process until the software, application, or system is completed.

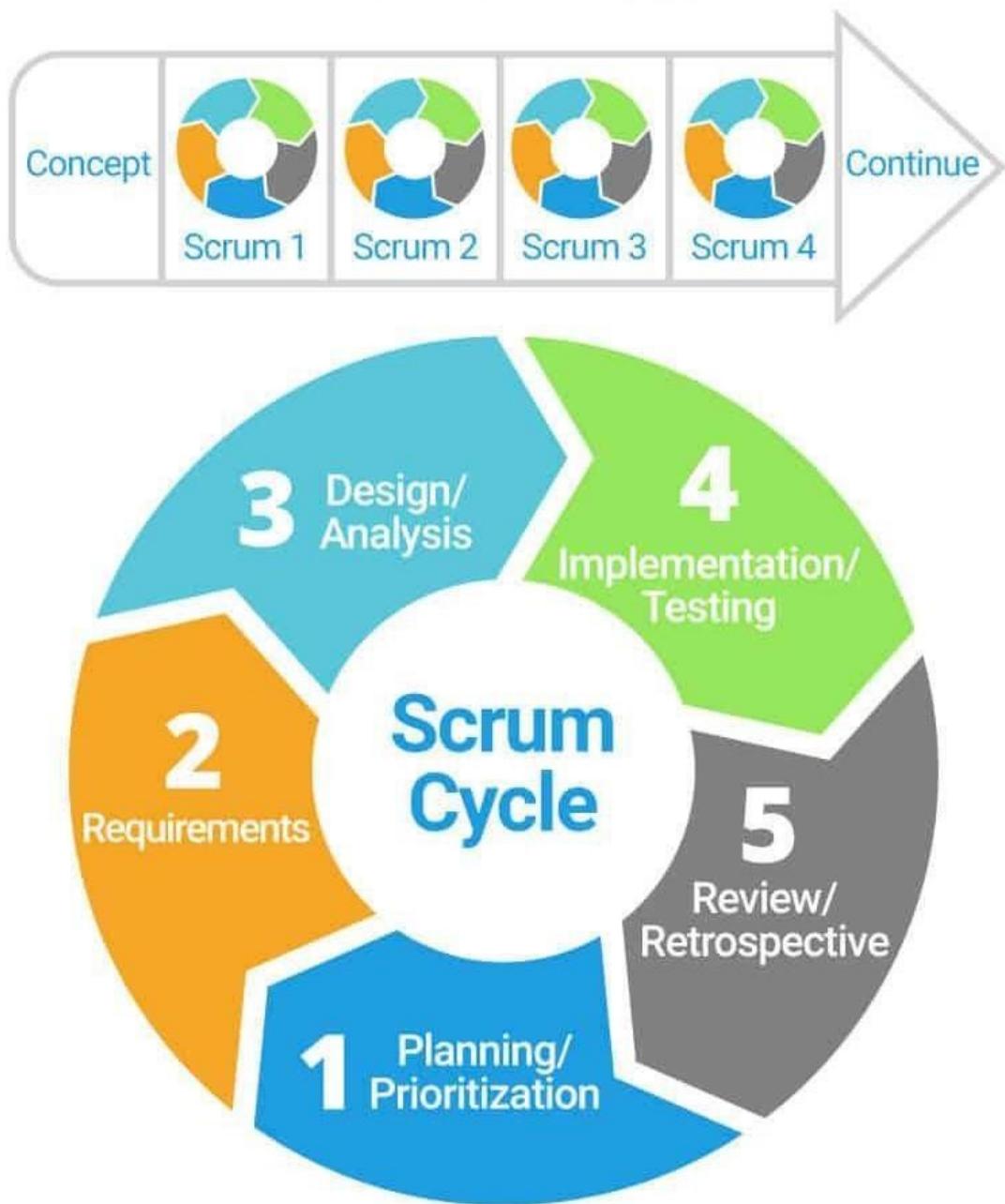
The key to success in iterative software development is to be rigorous in validating the requirements and testing. As you develop new iterations, conduct a systematic review to ensure the new versions are compatible with previous iterations. Be prepared for any backward engineering to integrate new iterations with previous versions.

### What Is the Iterative Process in Scrum?

The iterative process drives the Scrum methodology of development, where the goal is to deliver maximum business value in the minimum amount of time.

In Scrum, each iteration is called a sprint and typically lasts 2-4 weeks. Each sprint starts with a planning meeting that evaluates the list of tasks, prioritizes them, and identifies the work to be done in the iteration. Then the team finalizes requirements, analysis, and design. They implement and test the work. The iteration ends with a sprint review and retrospective that form the foundation for the next sprint. Scrum blends all the iterative process steps into each iteration.

# Iterative Scrum Process



Like all iterative approaches, Scrum recognizes that the goals and scope of a project evolve, because customers may not be able to fully identify what they need at the beginning of the project and the team will face challenges that they could not predict at the start of the project.

acknowledges that you cannot identify the full scope at the beginning and offers a framework that allows the team to nimbly adapt to changes.

## What Is the Iterative Design Process?

A variation of the iterative model, the *iterative design process* allows designers to create, test, analyze, and refine ideas quickly during any phase of the design process.

Designers start with a solution for their product based on initial observations and research. They can then explore and validate their assumptions through the process of ideation, prototyping, testing, analyzing, and refining. This process, called *rapid prototyping* or *spiral prototyping*, allows designers to find success more quickly and involve stakeholders and clients more effectively.

Step One: User Observation and Research. The first question designers ask: "What is the problem we are trying to solve?" You must understand users and analyze their habits to know what you will design and develop. User research, such as focus groups, interviews, or A/B testing, will help you identify user needs and behavior, as well as offer insight into the emotional reactions to your product. This provides the user context you need to begin brainstorming solutions.

You'll learn more about how the customer engages with the product, environmental information (such as where and with whom they use it), and other resources they might have around them. You might consider creating flowcharts, diagrams, or other visual helpers to capture information. Words may not be able to describe the problem the way a picture can.

Step Two: Ideate. In this phase, you and your team can start generating ideas that address the problem you identified through your research. Armed with information about users, their emotional approaches to your product, and the context in which they use it, try brainstorming to explore solutions that delight your users. As you develop ideas, make sure you are thinking about the meaning — the "why" — of your product. What will speak to users? What will delight them? You want to articulate the soul of your product using thoughtful, strategic design.

Step Three: Prototype. In this "build" phase, your team creates an early example of your product. You will use this to test concepts or systems that you are considering for the final design. The prototype should outline how the product will be used, whether it's basic software functionality, wireframes, or even paper mock-ups of your visual design. These are easier and cheaper to produce



than an entire system, and they allow you to test and refine your design quickly.

Step Four: Analyze. It's time to gather feedback about your design. Ask users to test the prototype, gather feedback on what works and what doesn't, and evaluate how well your assumptions met their needs. Usability testing will help validate your assumptions about your design and guide the next iteration. Take what you've learned, amend your design, and start the next design cycle.

Research proves the iterative design process works. Peter Skillman, of Palm, Inc., invented the Marshmallow Challenge, which started as a team-building exercise to offer lessons in collaboration and creativity. In the challenge, teams are given 20 sticks of spaghetti, one yard of string, one yard of tape, and one marshmallow. They have 18 minutes to build a tower that will hold the marshmallow on top. The team that builds the tallest tower wins.

A group of kindergarteners and a group of business school graduates faced off in the first challenge. The kindergarteners won. Time after time, numerous teams have repeated this challenge. The kindergarteners continue to win. It seems they are more inclined to start with a simple design, test the prototype, and iterate until they find a solution that works. The adults tend to spend their time competing for leadership of the project, arguing about the right plan, and then running out of time to build the tower. Tom Wujec from Autodesk talks about the research in this [TED talk](#).

By focusing on how users think and behave, iterative design helps design teams reduce usability issues, especially in the early stages of a project when the cost of eliminating mistakes is modest. You can improve your effectiveness when you clearly organize assets, protocols, and documentation for each iteration. But the iterative design process has some limitations, and product development should include other skill sets.

- Iterative design focuses on incremental or cyclical improvement. If you are looking for true innovation, consider using the strategic design process to help you discover the unmet needs of users.
- The user feedback you gather in the iterative design process can help you identify usability problems. But users rarely can tell you how to fix those issues because they may not know the answer. Iteration based on user feedback will help you tweak, but may not solve the problem. As you iterate, include interaction design experts to help you create products that feel intuitive.
- Some aspects of product design, such as color, form, typography, and wording, create an emotional

connection with users. Designers who specialize in these features know how to create a delightful product experience. This is a unique skill that cannot be duplicated through the iterative design process.

Many companies experiment with *design Darwinism*, the idea that products, like evolution, will cycle through a series of incremental changes and nearly design themselves. Iterative design supports rapid and responsive design. But without other layers in the process, such as strategic design and interaction design, these products may fail because they don't address the real needs of users. Companies such as Google and Microsoft experiment with creating new products solely through design Darwinism. Your company will benefit if product planning includes strategic design to create something that is meaningful to users.

### What Is a Non-iterative Process?

The *non-iterative process* takes an unmodified Waterfall approach to product design and development. Progress flows linearly to deliver one complete product. The planning, requirements, specifications, and documentation during the project are highly controlled.

The non-iterative process also assumes that requirements can be locked down, which makes it difficult (and costly) to handle changes. It doesn't contain a feedback loop that uses testing and feedback to refine the product. Instead, progress is measured by the completion of intermediate work products. By comparison, the iterative approach produces smaller cycles or iterations, is highly flexible and adaptable, and regularly delivers work products.

For example, most construction and architectural projects rely on a non-iterative process. First, you gather requirements, and then plan the design and break it up into phases. After you complete construction, you review the structure for safety and maintain it. The plan is fully mapped out at the beginning of the project, and most changes are costly, either in time or money.

## Iterative Architecture Process

Rather than focusing on a final, completed project, work in iterations that focus on completed subparts. Designers can apply the lessons learned in each subpart to subsequent iterations. In effect, the overall architecture will respond better to changes.

The iterative architecture process allows designers to overcome one of architecture's major challenges: creating a complete plan at the beginning of the project. Creating a finished plan can be difficult because project plans cannot shift easily to accommodate changing market forces or business needs. That being said, when applied to architecture, the iterative process helps to defeat this obstacle.

### What Does an Iterative Process Mean in Research?

Research methods are inherently iterative. Scientists design a hypothesis, test it, note their conclusions, and then use those insights to influence the next hypothesis. Researchers begin with an observation and verify their findings, which lead to new research questions.

### What Is the Iterative Process in Qualitative Research?

*Qualitative research* is a process that gathers data through observations, interviews, surveys, and documents to find the "human" side of a topic. Because this approach involves people's opinions, values, and behaviors, it requires the flexibility of the iterative process.

Researchers adjust their methodologies, data collection processes, and questions during the project based on what they learn. For example, a researcher may revise interview questions based on the responses of previous subjects. The researcher may categorize responses using one framework early on, but may adjust the categories as data reveal more context or shades of meaning. Qualitative researchers in social sciences, healthcare, education, and business typically utilize the iterative process.

### What Does the Iterative Process Mean in Psychology?

Psychological assessments are iterative. Information is gathered and evaluated, symptoms are identified, and outcomes or treatments are<sup>63</sup> suggested. Clinicians later evaluate their patients' changes and adjust treatments. Iteration occurs by reviewing the data and connecting it to



emerging insights.

The iterative reprocessing model hypothesizes that emotional episodes (such as anger or joy) are created as information flows through certain centers of the brain. The brain integrates a person's goals, values, desires, and intentions to shape an emotional instance. Different patterns of neural activity can create different emotional events.

At the heart of all science is the iterative process, with the goal of getting closer to the truth through research over time. Research relies on the credibility of previous findings so that iteration can occur. According to recent article in Nature, psychology faces a replicability crisis. Researchers tried to reproduce the findings of 21 experiments, but had limited success. Other factors may be at work, however. Because it involves human emotion, psychology is extremely complicated and experiments can be difficult to duplicate.

### Challenges of the Iterative Process

One major threat to the iterative process is scope creep, which can occur due to the lack of firm deadline or defined solution. To avoid scope creep, project managers should maintain a list of priorities and benchmarks.

Timelines can also be a challenge. Team members want to keep tweaking to improve a product. This can make stakeholders and clients restless. Project managers may need to pay more attention to the team, be firm about the requirements that need to be addressed in the iteration, or be willing to say a product is good enough for testing and evaluation.

If you are working with vendors on any project, you need to be clear about the requirements and timeline. In the iterative model, clear contracts and expectations are essential. At the beginning of any contract, ensure that you have a hourly or market rate if the project veers too far off scope or time. Even if the project changes for good reasons, both you and the vendor must be willing to be flexible rather than stick to a schedule or scope that defeats the whole point of iterating.

### Improve the Iterative Design Process with Smartsheet for Project Management

Empower your people to go above and beyond with a flexible platform designed to match the needs of your team — and adapt as those needs change.

The Smartsheet platform makes it easy to plan, capture, manage, and report on work from anywhere, helping your team be more effective and get more done. Report on key metrics and get real-time visibility into work as it happens with roll-up reports, dashboards, and automated workflows built to keep your team connected and informed.

## **TASK 9**

### **Implement (Design Prototype)**

#### **Aim: To perform Prototype Design Pattern**

Prototype allows us to hide the complexity of making new instances from the client. The concept is to copy an existing object rather than creating a new instance from scratch, something that may include costly operations. The existing object acts as a prototype and contains the state of the object. The newly copied object may change same properties only if required. This approach saves costly resources and time, especially when object creation is a heavy process.

The prototype pattern is a creational design pattern. Prototype patterns are required, when object creation is time consuming, and costly operation, so we create objects with the existing object itself. One of the best available ways to create an object from existing objects is the clone() method. Clone is the simplest approach to implement a prototype pattern. However, it is your call to decide how to copy existing object based on your business model.

#### **Prototype Design Participants**

1) Prototype : This is the prototype of an actual object.

Prototype registry : This is used as a registry service to have all prototypes accessible using simple string parameters.

2) Client : Client will be responsible for using registry service to access prototype instances.

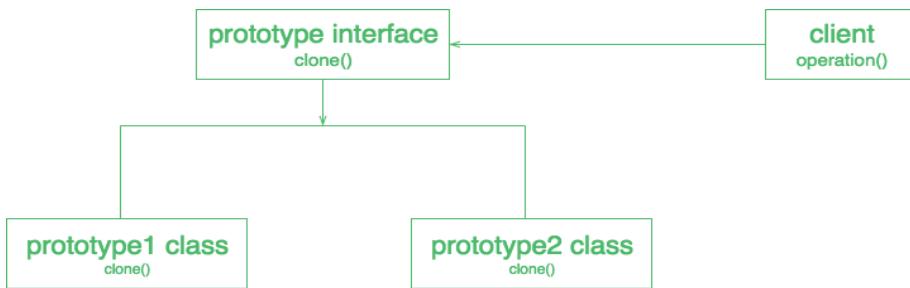
#### **When to use the Prototype Design Pattern**

When a system should be independent of how its products are created, composed, and represented and When the classes to instantiate are specified at run-time. For example,

- By dynamic loading or To avoid building a class hierarchy of factories that parallels the class hierarchy of products or

When instances of a class can have one of only a few different combinations of state. It may be more convenient to install a corresponding number of prototypes and clone them rather than instantiating the class manually, each time with the appropriate state.

## The UML Diagram of the Prototype Design Pattern



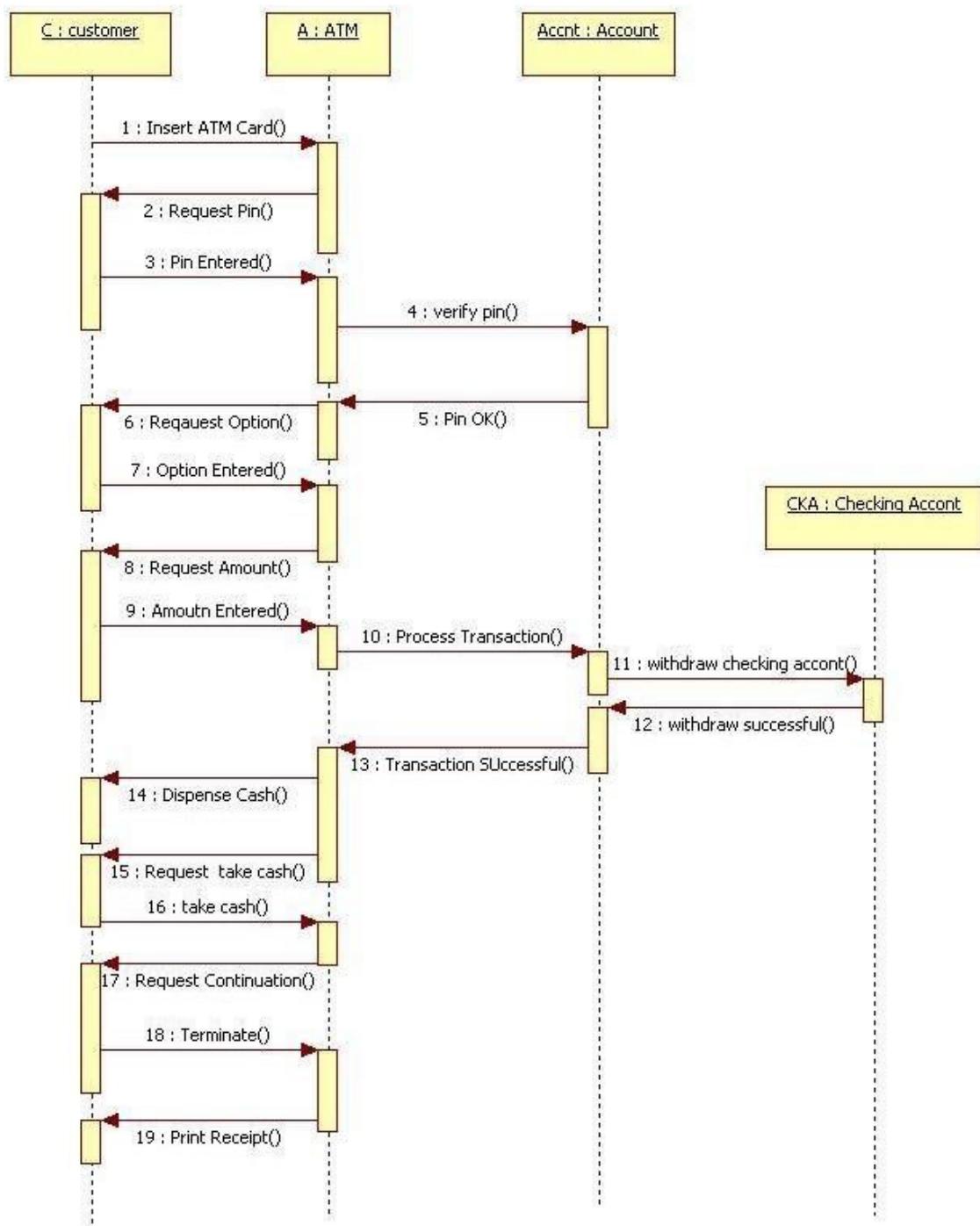
### Advantages of Prototype Design Pattern

- Adding and removing products at run-time – Prototypes let you incorporate a new concrete product class into a system simply by registering a prototypical instance with the client. That's a bit more flexible than other creational patterns, because a client can install and remove prototypes at run-time.
- Specifying new objects by varying values – Highly dynamic systems let you define new behavior through object composition by specifying values for an object's variables and not by defining new classes.
- Specifying new objects by varying structure – Many applications build objects from parts and subparts. For convenience, such applications often let you instantiate complex, user-defined structures to use a specific subcircuit again and again.
- Reduced subclassing – Factory Method often produces a hierarchy of Creator classes that parallels the product class hierarchy. The Prototype pattern lets you clone a prototype instead of asking a factory method to make a new object. Hence you don't need a Creator class hierarchy at all.

### Disadvantages of Prototype Design Pattern

- Overkill for a project that uses very few objects and/or does not have an underlying emphasis on the extension of prototype chains.
- It also hides concrete product classes from the client
- Each subclass of Prototype must implement the `clone()` operation which may be difficult, when the classes under consideration already exist. Also implementing `clone()` can be difficult when their internals include objects that don't support copying or have circular references.

## Design sequence diagram



## Task 10

### Usability Testing

#### Aim: To perform Usability Testing

Usability Testing also known as User Experience (UX) Testing, is a testing method for measuring how easy and user-friendly a software application is. A small set of target end-users, use software application to expose usability defects. Usability testing mainly focuses on user's ease of using application, flexibility of application to handle controls and ability of application to meet its objectives. This testing is recommended during the initial design phase of SDLC, which gives more visibility on the expectations of the users.

#### Why do Usability Testing

Aesthetics and design are important. How well a product looks usually determines how well it works. There are many software applications/websites, which miserably fail, once launched, due to following reasons –

- Where do I click next?
- Which page needs to be navigated?
- Which Icon or Jargon represents what?
- Error messages are not consistent or effectively displayed
- Session time not sufficient.

Software Engineering, Usability Testing identifies usability errors in the system early in the development cycle and can save a product from failure.

#### Usability Testing Test Cases

### *Usability Testing*

determines whether an application is



- Is the system is easy to learn?
- Is the system useful and adds value to the target audience?
- Are Content, Color, Icons, Images used are aesthetically pleasing?

### **Efficiency**

- Little navigation should be required to reach the desired screen or webpage, and scrollbars should be used infrequently.
- Uniformity in the format of screen/pages in your application/website.
- Option to search within your software application or website.

### **Accuracy**

- No outdated or incorrect data like contact information/address should be present.
- No broken links should be present.

### **User Friendliness**

- Controls used should be self-explanatory and must not require training to operate
- Help should be provided for the users to understand the application/website
- Alignment with the above goals helps in effective usability testing

How to do Usability Testing: Complete Process Usability testing process consists of the following phases



Phase 1) Planning: During this phase the goals of usability test are determined. Having volunteers sit in front of your application and recording their actions is not a goal. You need to determine critical functionalities and objectives of the system. You need to assign tasks to your testers, which exercise these critical functionalities. During this phase, the usability testing method, number & demographics of usability testers, test report formats are also determined

Phase 2) Recruiting: During this phase, you recruit the desired number of testers as per your usability test plan. Finding testers who match your demographic (age, sex etc.) and professional (education, job etc.) profile can take time.

Phase 4) Data Analysis: Data from usability tests is thoroughly analyzed to derive meaningful inferences and give actionable recommendations to improve the overall usability of your product.

Phase 5) Reporting: Findings of the usability test is shared with all concerned stakeholders which can include designer, developer, client, and CEO

Methods of Usability Testing: 2 Techniques

There are two methods available to do usability testing –

1. Laboratory Usability Testing
2. Remote Usability Testing

**Laboratory Usability Testing:** This testing is conducted in a separate lab room in presence of the observers. The testers are assigned tasks to execute. The role of the observer is to monitor the behavior of the testers and report the outcome of testing. The observer remains silent during the course of testing. In this testing, both observers and testers are present in a same physical location.

**Remote Usability Testing:** Under this testing observers and testers are remotely located. Testers access the System Under Test, remotely and perform assigned tasks. Tester's voice , screen activity , testers facial expressions are recorded by an automated software. Observers analyze this data and report findings of the test. Example of such a software – <http://silverbackapp.com/>



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Research (Virzi, 1992 and Nielsen Landauer, 1993) indicates that 5 users are enough to uncover 80% of usability problems. Some researchers suggest other numbers. The truth is the actual number of the user required depends on the complexity of the given application and your usability goals. Increase in usability participants results into increased cost planning , participant

management and data analysis. But as a general guideline, if you on a small budget and interested in DIY usability testing 5 is a good number to start with. If budget is not a constraint its best consult experienced professionals to determine the number of users.

### UX Testing Checklist

The primary goal of this testing is to find crucial usability problems before the product is launched. Following things have to be considered to make a testing success:

- Start the UX testing during the early stage of design and development
- It's a good practice to conduct usability testing on your competitor's product before you begin development. This will help you determine usability standards for your target audience
- Select the appropriate users to test the system(Can be experts/non-experts users/50-50 of Experts and Non-Experts users)
- Use a bandwidth shaper . For instance , your target audience has poor network connectivity , limit network bandwidth to say 56 Kbps for your usability testers.
- Testers need to concentrate on critical & frequently used functionalities of the system.
- Assign a single observer to each tester. This helps observer to accurately note tester's behavior. If an observer is assigned to multiple testers, results may be compromised
- Educate Designers and Developers that this testing outcomes is not a sign of failure but it's a sign of Improvement

### Usability Testing Advantages

As with anything in life, usability testing has its merits and de-merits. Let's look at them

- It helps uncover usability issues before the product is marketed.
- It helps improve end-user satisfaction
- It makes your system highly effective and efficient
- It helps gather true feedback from your target audience who actually use your system during a usability test. You do not need to rely on "opinions" from random people.

### Usability Testing Disadvantages

- Cost is a major consideration in usability testing. It takes lots of resources to set up a Usability Test Lab. Recruiting and management of usability testers can also be expensive

## **Presentation of project:**

### **Aim: To perform Presentation of project:**

With the right project presentation deck, you can win and keep your audience's attention long enough to explain project details and why it's sure to succeed.

Before you dive into the main details of your project presentation, you want to answer these questions:

- What is your project set out to achieve?
- Why is it important for you and your team to achieve your set goals?
- How do you plan to communicate your goals to your audience?

If you have to make long guesses before answering these questions, you've got a lot of work to do.

Here's what you should know. Beautiful or well-articulated project presentations aren't a substitute for project planning. Without clear goals, your project is already set up to fail. And your investors might think, "why bother listening?" Many project managers tend to rush through the goal-setting phase, but we don't recommend this. That's because you could be setting yourself up for failure.

Once you clearly define your project goals, you can get stakeholders to buy into them.

Now the question is, how do you set goals for your project and achieve them? One way to do that is by using the SMART goal setting method.

Setting SMART Project Goals SMART is an acronym that stands for Specific, Measurable, Achievable, Relevant and Time-Bound. SMART goals are a staple for planning and executing successful projects. It takes a deeper look into the finer details your audience care about, such as:

- Project plan and schedule,
- Resources,
- Project timelines,
- Milestones,
- Potential roadblocks and more

For example, let's say your project aims to improve customer experience on web and mobile devices. Notice this example describes the end goal. But it doesn't specify how you'll work to enhance customer experience.

Here's how using SMART goals provides direction for your planned project.

**Specific** When setting your goals, be clear and specific about what you want to achieve in the end.

A specific goal could be: "We want to build a responsive website and mobile app for our company to improve customer experience. This project will require inputs from our product design,

software and marketing department”.

**Measurable** What metrics will you use to determine if you meet the goal?

How will you know you're on the right track?

Having metrics in place will help you evaluate your project. Plus, you'd be able to monitor progress and optimize your project to achieve better results. It doesn't matter if you're planning a short-term or long-term project. Ensure you set metrics and milestones that count towards your goal.

From our earlier example, a measurable goal could be to have:

- Over 100,000 mobile app downloads on Google Playstore and Apple App Store.
- A 20% bounce rate on your website and a 15% conversion rate on mobile and web.

*Attainable* One of the most critical questions you want to ask during goal-setting is, "Can we achieve our set goal?" Do we have the resources to accomplish the goal within the available time frame?

If the answer is no, then you'd have to consider what it would take to achieve those goals. This may require adjusting your goals or the resources needed to achieve your goal. Although it's okay to be ambitious, you should also be realistic. For example, getting 200,000 app downloads in one week could be overly ambitious if you've just launched your app. However, if you set out to achieve that goal in three months, that could make your project practicable. and sinking in



## Relevant

Your project goals need to align with your broader business goals. Are your goals relevant to the growth and success of the company? Are they worth allocating resources for?

For instance, if your company is B2B and doesn't plan to expand to the B2C market, launching an e-commerce website would be an irrelevant goal.

### Time-Bound

Regardless of your project type and size, you should set time frames. Setting target dates for deliverables creates a sense of urgency and motivates you to hit your goals.

From our example above, a time-bound goal could be "We aim to achieve 100,000 mobile app downloads and a 15% conversion rate by the end of the fiscal year. Our company will launch the mobile app by Q3 with a robust marketing campaign that will run through the end of next fiscal year."

Setting SMART goals doesn't have to be a challenging task. Use the template below to set project goals that position your business for success.



The image shows a template for setting SMART goals. At the top, the words "SMART GOALS" are written in large, bold, purple letters, followed by "WORKSHEET" in smaller purple letters. Below this, there are five horizontal bars, each containing a large letter (S, M, A, R, T) and a corresponding definition. The first bar (S) is dark blue, the second (M) is purple, the third (A) is light purple, the fourth (R) is dark blue, and the fifth (T) is purple. The definitions are: S - SPECIFIC: Be specific and concise, of the goal you wish to accomplish; M - MEASURABLE: Keep track of your progress; A - ATTAINABLE: What are the key challenges that you want to overcome?; R - RELEVANT: Why is the goal relevant? What are the benefits?; T - TIMELY: When will you complete the goal? When will you work it? At the bottom of the template, there is a section labeled "GOALS" with four blank lines for writing down specific goals.

### Communicate Project Goals to Your Team Members

After you've set your goals, your team will play a key role in helping you achieve them. So you

ensure they understand these things:

- Why the project goals are in place
  - What it's supposed to deliver for your business and customers
  - How their role, team and department contributes to the success of the project
- Unless you're clear on this, the project can derail and move in all sorts of unwanted directions.

Rather than slam the goals you've set on your team, make it a collaborative effort. Spend time talking to your team and stakeholders about the project goals.

Don't limit your communication to people within your department. You can reach out to people in other departments like sales, operations, finance, etc., to see how well your goals align with theirs.

## TIMELINE



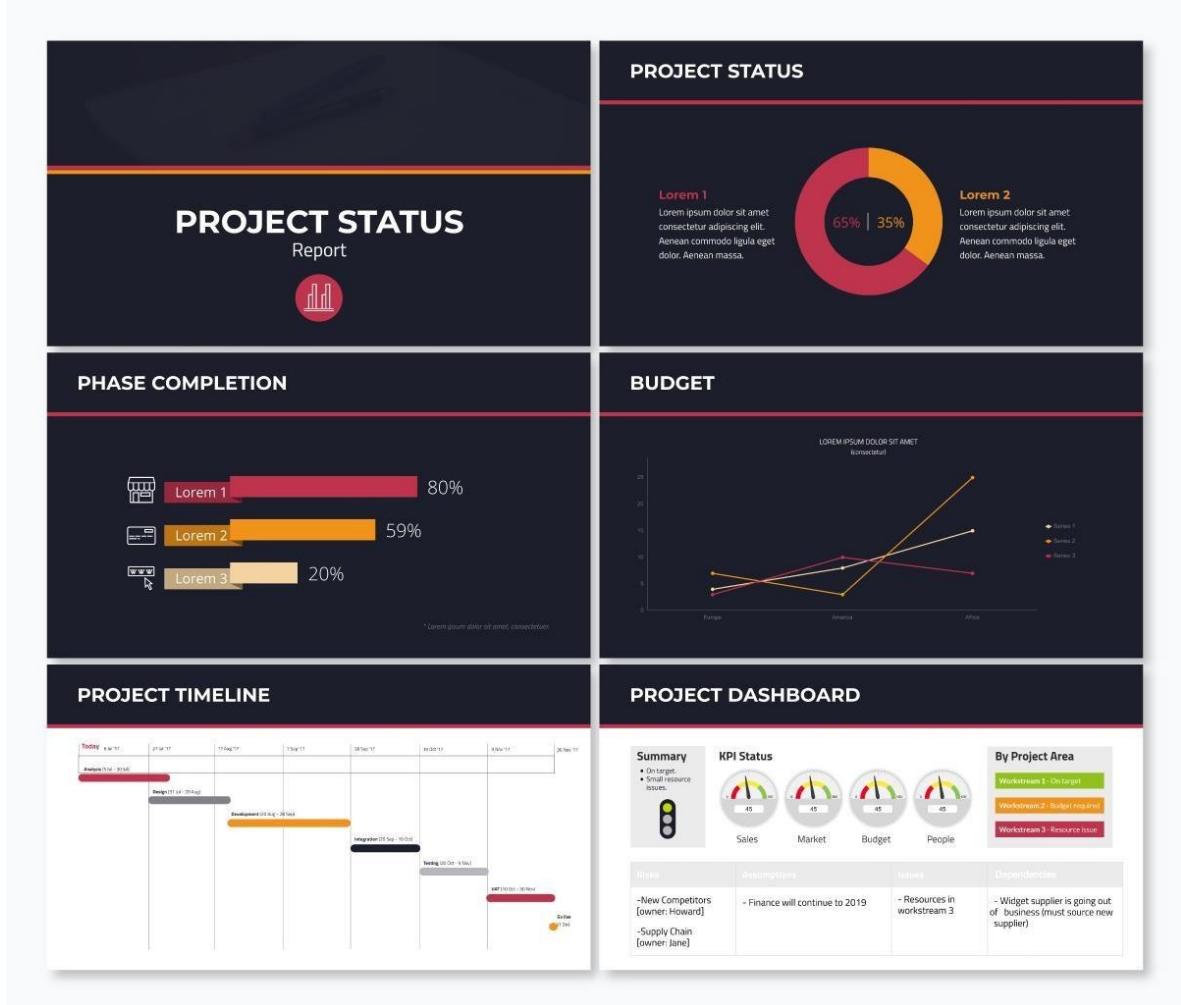
MARKETING SOLUTIONS LLC



To give your team a better understanding, you can communicate your project goals in a variety of ways, including:

- Visuals (videos, images, charts, infographics, etc.)
- Verbal presentation
- Models
- Documentations

By doing that, you're sure to get their valuable feedback, buy-in and commitment to the project. Plus, getting your team on board with your project plan will up your chances of successful execution.



## 2 Lay Out Your Project Plan

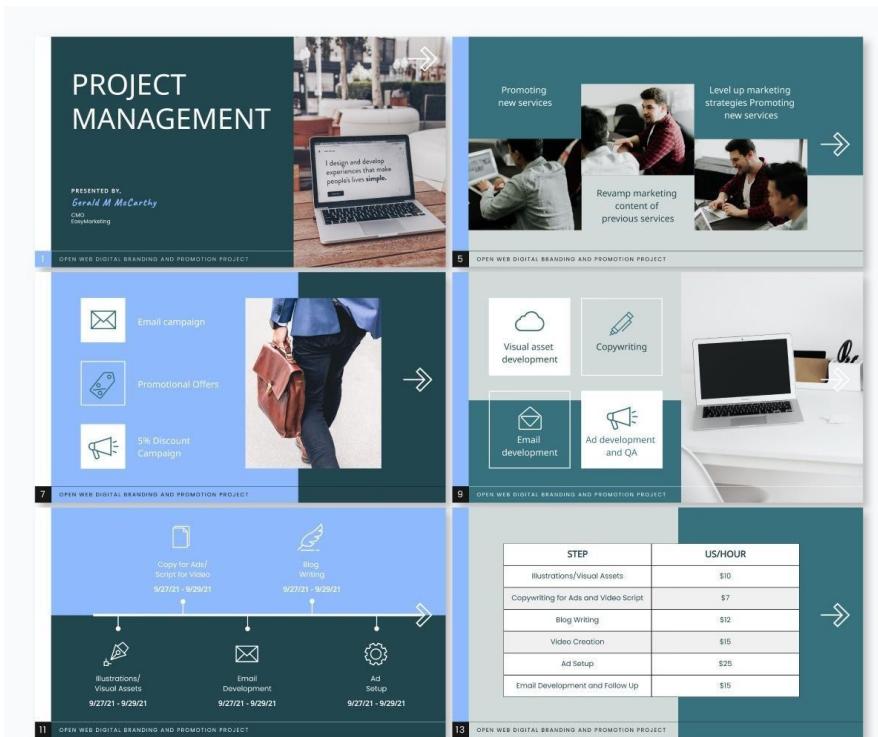
Once you've set your goals, the next big step is to outline how you'll achieve them. An excellent place to start is by organizing your project into an actionable plan and steps for execution. You might wonder why this step is important for creating a successful project presentation.

Whether you're planning a small or big project, writing a detailed plan, structure and layout puts everything into perspective. It eliminates vagueness and helps your audience grasp the project roadmap without missing the points.

Your project plan should contain the technical and non-technical project details. Therefore, you want to give yourself an edge by using a project presentation template that clearly explains all the activities and steps. Not only that, your presentation structure should be simple and easy to follow.

Depending on the project type, your plan could include key details such as:

- The goals and objectives you've outlined earlier
- Your project scope, methodology and framework
- Project milestones, deliverable and acceptance criteria
- Project schedule and timelines
- Resources and budget estimates, etc.



There's no hard and fast rule for laying out your project plan. However, if you want to create a memorable plan that will keep your audience engaged, you could break it down into three parts, including:

- Introduction
  - Body
    - Conclusion and key takeaways
- Introduction our introduction should provide a brief overview of what you're going to talk about and why it's relevant to your audience. You could start by writing down the project name and the executive summary.

Think of your executive summary as an abridged version of the project plan.

If your audience read only your executive summary, would they have all the information they

need about your project? If the answer is yes, your executive summary has served its purpose. The length of your executive summary will depend on what you intend to cover in your project plan. However, we recommend keeping your executive summary one or two pages long. You can include key information such as:

- Objectives of the project
- Key points of the project plan
- Results, conclusions and project recommendations

Keep in mind that not everyone will have the time to dive into the details of your project plan.

Having a snapshot of your project brings clarity to key stakeholders and collaborators. It also enables people who aren't actively involved in the project to understand it at a glance.

## Body

body of your project plan is where you have the full project details and everything relevant to its success. Here you can break your project into deliverables, tasks, milestones and schedules (start and end dates).

Ensure you precisely define the resources you need to complete the project, including finances, team, time, technology, physical resources and more.

## Conclusion

This is the part where you sum up your project plan with key takeaways. Your conclusion should include what you expect from your audience, including key action points and next steps. Writing your intro, body and conclusion may sound like a lot of information.

But instead of writing multiple pages of text, incorporating visuals can make your project presentations more effective. By using images, videos, info graphics and charts, you can capture all the vital information and help your audience understand your message better.

### **Slide 1: Title Slide**

- The title slide includes the name of the project, the date, and the presenter's name.

### **Slide 2: Introduction**

- The introduction slide briefly explains the purpose of the project and its objectives. It also provides an overview of what the presentation will cover.

### **Slide 3: Project Scope**



- This slide outlines the scope of the project, including the timeline and budget. It also provides a high-level overview of the project's goals.

#### **Slide 4: Key Challenges**

The key challenges slide outlines the challenges faced during the project and how they were overcome. This slide also provides an opportunity to highlight any creative solutions that were developed.

#### **Slide 5: Methodology**

This slide describes the methodology used to complete the project, including the tools and techniques that were employed. It also provides a high-level overview of the project timeline.

#### Slide 6: Results

The results slide provides an overview of the project outcomes and how they align with the project's objectives. This slide can include graphs, charts, and other visual aids to help illustrate the results.

#### Slide 7: Conclusion

The conclusion slide summarizes the key points of the presentation and emphasizes the project's success. It also provides a clear call to action for the audience.

#### Slide 8: Thank You

The final slide includes a thank-you message and contact information for the presenter. This slide provides an opportunity for the audience to ask questions or provide feedback.

## TASK 12

### Review and feedback

When you're new to giving project feedback, it can seem like an incredibly daunting task. However, like any skill, giving effective feedback can be improved and polished over time.

Project feedback is a conversation about a team member's performance that should result in a clear next step toward their improvement. This type of feedback is typically shared by a project manager, who may or may not be the team members' direct manager. By focusing on specific project details—rather than broad-scale career-level feedback—you can build trust between yourself and your project team. When done well, project feedback can be instrumental in improving deliverables and fast-tracking your team's professional growth.

The seven steps below offer some effective project feedback examples to help you nail the feedback process and set your team up for success.

#### 1. Choose the right time

Timing is a key consideration when offering project feedback. In order to get this right, ask your team members when they prefer to get feedback. Do they like to get feedback immediately? Would they rather meet late in the week to discuss ongoing projects?

When giving feedback, imagine you're leading a brainstorm. Encourage your team to bring ideas and share their thoughts during the feedback session. A well-timed and planned project feedback session can generate new ideas that drive the project forward.

Strive for a healthy balance of face-to-face feedback and asynchronous communication, or offline communication. You might think face-to-face feedback is always better, but some teammembers prefer to see feedback in writing first, and then talk about it. Ask team members if they have a preference, and how you can create a positive feedback experience for them. This is especially relevant in the era of remote work, where you might not see team members in person every day.

[Free 1:1 meeting template](#)

#### 2. Use the correct type of feedback

Knowing what type of feedback to give is half the battle of the feedback process. Different scenarios call for different types of feedback, and as a team lead, you need to recognize what type is most appropriate for the situation.

Not every type of feedback is relevant or even appropriate for you to give. If you're leading a project team but not actually managing the people you work with, you may want to steer clear of some heavier types of feedback, like performance evaluations. On the flip side, if you're simultaneously the project lead and the team manager, it's up to you to decide whether you want

to bundle project, professional, and performance feedback, or separate those into different feedback

sessions.

## The 6 types of feedback

- Formal feedback: This type of feedback is appropriate for planned meetings that you specifically designate for feedback, like quarterly reviews. Both sides should know the conversation topics and come prepared with thoughts and questions.
- Informal feedback: Informal feedback can range from offering kudos on a job well done to making a quick edit on a project. This type of project feedback is trickier because it can be spontaneous, so consider your setting before giving informal feedback.
- Positive feedback: Positive feedback is just as vital as constructive feedback. You should ensure you're praising team members for impressive work. By doing so, you'll remind your team that you notice both the positives and the negatives.
- Encouragement feedback: Similar to positive feedback, you can use encouragement feedback to give your team member a pick-me-up. Have they been working through a difficult project seem a little burned out? Remind them of their value and how appreciated they are. It'll go a long way.
- Forward feedback: Forward-looking feedback focuses on future solutions rather than past corrections. This type of feedback is more of a proactive approach for improvement based on past observations. For example, if a team member is struggling with time management, you might want to recommend a calendar organization tool rather than dwelling on a late project.
- Constructive feedback: Constructive criticism is the best type of feedback for helping team members grow. Offering constructive criticism involves analyzing a project, identifying an opportunity for improvement, and providing a detailed recommendation on how to improve.  
[Read: 15 types of employee performance reviews \(with templates and examples\)](#)

### 3. Be direct

Being direct doesn't mean being harsh. Rather, it shows you're invested in helping your team members grow.

Try to avoid the feedback sandwich. This is an approach where you "sandwich" constructive criticism between praise. Instead, be direct with your feedback. This will help foster healthy collaboration amongst your team. Being direct doesn't mean being brutally honest. Always include examples, and share your feedback in "I" statements. This helps you focus on specific details and how you perceived them, so you and your team member can focus on identifying and implementing solutions to the feedback. 86

### 4. Give specific recommendations for improvement

The best kind of project feedback is actionable, meaning that you give the team member a recommendation that is applicable to future projects. Giving recommendations is truly what makes the criticism constructive—rather than destructive.

The “why” in project feedback is key. Say you’re glancing at an email that a team member is about to send and you recommend altering the language. In this case, be sure to explain the reason you structure emails a certain way, or why you avoid certain words.

#### 5. Encourage upward feedback

For team members, a feedback session should end with a thorough understanding of how they can improve. Therefore, as a project manager, you should always open the floor for questions after giving feedback.

You should also be gauging positive feedback on project manager responsibilities, like timeliness and clarity. Remember that feedback goes both ways, and you should always be encouraging upward feedback from your team. When getting project manager feedback, don’t be afraid to ask questions like:

- Was my feedback helpful?
- Is there anything else I can provide in future feedback?
- Is there a specific way you prefer to get feedback?

Check with team members regularly to see if you can improve how you give feedback.

#### 6. Follow up with a recap

You should always follow up with a recap of big takeaways after formal feedback meetings and performance reviews. A recap will help both you and the team member digest information better.

An example follow-up might look like this:

“Hi\_\_\_\_,

Thanks for taking the time to speak with me today regarding your performance. To give a quick recap of the major takeaways, we discussed:

- Point A
- Point B
- Point C
- Point D

If any of this is unclear, please let me know. And as always, please don't hesitate to reach out if you have any questions or feedback for me.

Thanks for all your hard work. Have a great day!"

An email like this confirms that both sides are on the same page and that all the feedback is understood.

## 7. Encourage continuous feedback

Once you master the art of giving effective feedback, it won't feel so much like "feedback" anymore, but instead an ongoing collaboration between yourself and your team.

Whenever you meet with individual team members, ask questions about what's on their plate or if any projects have been particularly challenging. These types of questions will tell you if team members are overloaded with work or could benefit from more internal training. Asking these simple questions will give you huge insights into your team's happiness and productivity. By following these steps, you'll begin to see project feedback baked into your day-to-day process.

### Effective and ineffective feedback strategies

Project managers employ a number of techniques and initiatives when providing project feedback to their teams.

#### Do, Try, and Consider framework

The Do, Try, and Consider framework breaks down project feedback into three different categories, each intended to elicit different responses from project team members.

- "Do" feedback: This type of feedback is mandatory and you will use it for projects that have larger implications for the organization. As a result, administer "do" feedback sparingly, and only when the impact of the project goes beyond your team or has irreversible effects.
- "Try" feedback: "Try" feedback suggests a possible next step for a project but leaves the decision-making up to the team. Examples include exploring potential downsides to a project or digging deeper into research. Use this strategy when you think the deliverable is good but could be stronger or more polished.
- "Consider" feedback: The most empowering of the three, "consider" feedback simply asks your team to ponder alternate ways of thinking. Whether or not your team elects to take your suggestion to heart is completely up to them.

#### McKinsey feedback model

The management consulting firm McKinsey & Company designed this feedback model to add structure to project feedback so it can easily flow both upwards and downwards. The McKinsey model states that feedback should be:

- Specific
- Fact-based
- Less personal
- Irrefutable
- Actionable

Using the attributes above, you should structure your feedback the following way:

“When you did [X], it made me feel [Y]. In the future, I would recommend that you do [Z].” By combining a specific action with a resulting feeling and suggested reaction, you’re able to incorporate all the elements above. While this language applies mostly to conflict resolution, you can tweak it to your specific feedback needs.

#### SMART feedback

You’ve likely heard of SMART goals already, but did you know you can apply these principles to project feedback too? As a refresher, the acronym stands for:

- Specific
- Measurable
- Achievable
- Realistic
- Time-bound

All these attributes relate to constructive feedback, as it should be specific to the project, measurable, achievable, realistic, and time-bound.

The next time you give project feedback, run through the SMART acronym in your head first to make sure you’re checking all the boxes. If something’s off, you may need to tweak your feedback strategy.

#### The COIN method

COIN stands for Context, Observation, Impact, and Next steps. The model is helpful in structuring feedback sessions so they feel less confrontational and more constructive. The process breaks down into 4 steps:

1. Context: The “context” step allows you to set the scene and explain why the conversation is happening. In this step, emphasize the end goal of the project so there’s an understanding of why the feedback is important.
2. Observation: Next, tell your team member what you’ve *observed* in their work. This can consist of both positive feedback and constructive criticism, but be sure to stay direct throughout.
3. Impact: The “impact” stage digs deeper into the value of the feedback. Explain how your suggestions will help drive the project closer to the stated goal.



4. Next steps: Perhaps the most important phase, the “next steps” should outline some actionable ways for the team member to improve. Try to be as specific as possible with these, like encouraging collaboration with another team or recommending a new tool to try. Benefits of feedback in project management Project feedback is important because it expedites processes, helps team members grow, leads to stronger results, and can help build trust amongst teams. Implementing a regular feedback loop into your day-to-day operations guarantees increased productivity and sharper deliverables. Read on to learn about the benefits of a feedback cycle for your team. Saves time in the long-run If project feedback is included in your day-to-day, then you won’t have to worry about projects getting off track due to revisions. Including feedback throughout the project life cycle will help limit oversights and keep workflows running smoothly. By consistently checking for quality, you’ll avoid setbacks due to large revisions.

### **Improves team culture**

Communication and collaboration are at the heart of good project feedback. If your team is regularly giving feedback to each other, you’ll notice a tighter-knit culture within your team and working environment. And an added bonus? Team members will have insight into each other’s projects, thus helping them generate new ideas for their individual work.

Creates a better end product When it comes to creating a successful product, the more minds, the better. Project feedback allows for more brainstorming and collaboration in the creation process, which in turn will always lead to a strong end result. Helps professional growth Providing good and constructive feedback can do wonders for junior team members trying to sharpen their skills and reach different milestones in their careers. When done well, project feedback should teach the recipient something broader about what success looks like on the team. This knowledge is vital in spurring professional growth. Leads to clearer communication

As a team lead, you set the precedent for communication amongst your team. If you deliver clear and honest feedback on a regular basis, you’ll notice this trickle down into your team’s everyday workplace communication.

Communication is an integral part of any company culture, so it’s imperative that you model clear communication through your feedback. Amplify performance with project feedback Regular feedback is key when it comes to producing strong results. Not only does feedback ensure quality in deliverables, but it also allows constant collaboration and shared insights. Implementing feedback into the project life cycle will work wonders in your team’s process and professional growth. It’s never too late to implement a feedback loop into your day-to-day operations. If giving regular project feedback is a new step for your team, a <sup>91</sup>work management tool like Asana can help you create an action plan and get your feedback strategy off the ground.



**Gokaraju Rangaraju Institute of Engineering and  
Technology(Autonomous)Department of Artificial Intelligence and Machine  
Learning Engineering**



**Title of the Project**

**Under the Guidance of:  
Dr. / Mr. / Ms. Faculty  
Name, Designation of  
the Faculty**

**Presented by:  
1. Mr. Example (20241A67XX)**

## Timeline of the Project

Deliverables	Present atio n
Confirmation of Title & Abstract ( <b>Review 0</b> )	
Exploration & Drawbacks of Existing Methods, Proposed Method's Architecture Diagram and Modules Description ( <b>Review 1</b> )	
Implementation of Modules with Experimental Results ( <b>Review 2</b> )	
Final Presentation and Submission of Documentation with Plagiarism Report <b>(Review 3)</b>	
Submission of Manuscript for Publication with Plagiarism Report	
Project Road Show	

**\* Venue: Respective Computer Labs**

# **Font Type and Size**

## **Font Type and Size Details: (HEADING)**

- **Times New Roman**
  - **Size: 32 - 36**

## **Font Type and Size Details: (Normal TEXT in the SLIDES)**

- **Times New Roman**
  - **Size: 24 - 28**

# **Abstract / Objective of the Project**

## **Abstract**

- **Should contain the compete details of your implementation such as**
- **Introduction (2-3 Sentences)**
- **Problem Statement & Objective (2-3 Sentences)**
- **Methods / Approaches Adopted (2-3 Sentences)**
- **Dataset adopted (1 Sentence)**
- **Experimental Results (2-3 Sentences)**
- **Future enhancements (1 Sentence)**

## **Abstract / Objective of the Project**

- **Abstract should be represented in a paragraph.**
- **Objective should be represented in bullet forms.**
- **Always should start with the word “To”**
- **For example: To implement, To explore, To enhance the performance, To improve the accuracy, To segment the tumour region.**
- **Important Note:**
- **While representing the content in the bullet form, please see to that, it should have maximum of two lines of content.**

**Existing Approaches**

**(Literature Survey)**

**Software & Hardware**

**Requirements Proposed**

**Method: Architecture**

**Diagram Proposed**

**Method: Modules**

**Proposed Method:**

**Experimental Results**

**References**

**Sample Referencing Style for a Journal**

S. Kumar, P. Tiwari and M. Zymbler, “Internet of Things is a Revolutionary Approach for Future Technology Enhancement: A Review”, Journal of Big Data, Vol. 6, Article No. 111, pp. 1-21, 2019. <https://doi.org/10.1186/s40537-019-0268-2>

**Note: URL of the above manuscript is provided for your kind information.**

<https://journalofbigdata.springeropen.com/articles/10.1186/s40537-019-0268-2>

References (Cont..)

**Sample Referencing Style for a Conference Paper**

G. Madhupriya, N. M. Guru, S. Praveen and B. Nivetha, “Brain Tumor Segmentation with Deep Learning Technique”, 3<sup>rd</sup> International Conference on Trends in Electronics and Informatics (ICOEI), Tirunelveli, India, pp. 758-763, 2019, doi: 10.1109/ICOEI.2019.8862575.,

## References (Cont..)

### Sample Referencing Style for a Webpage

“Introduction To IoT | What Is IoT.” [Online]. Available: [https://www.leverge.com/iot-ebook/what-is-iot#:~:text=%E2%80%9CThe%20Internet%20of%20Things%20\(IoT,%2Dto%2Dcomputer%20interaction.%E2%80%9D](https://www.leverge.com/iot-ebook/what-is-iot#:~:text=%E2%80%9CThe%20Internet%20of%20Things%20(IoT,%2Dto%2Dcomputer%20interaction.%E2%80%9D).

**Note: URL of the above LINK is provided for your kind information.** [https://www.leverge.com/iot-ebook/what-is-iot#:~:text=%E2%80%9CThe%20Internet%20of%20Things%20\(IoT,%2Dto%2Dcomputer%20interaction.%E2%80%9D](https://www.leverge.com/iot-ebook/what-is-iot#:~:text=%E2%80%9CThe%20Internet%20of%20Things%20(IoT,%2Dto%2Dcomputer%20interaction.%E2%80%9D)

## Image Referencing Style

- While using the exiting diagrams from the other Authors work in your documentation, the following referencing style should be adopted.
- For example, if you are interested to reuse the **CNN Architecture** from the exiting article specified as 10<sup>th</sup> Reference, the following notation should be adopted:  
“Figure  
1. CNN  
Architect  
ure  
(Courtesy  
: Source  
[10])”

**Figure 1. CNN Architecture (Courtesy: Source**

