

Design Thinking:

A Customer-Centric Process
for Rapid Innovation



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Overview of Design Thinking

- Key Concepts
- Main Phases and Steps of Design Thinking
- Definitions of Each Step



Some Key Design Thinking Concepts

All businesses are confronting multiple environmental disruptions and the need to innovate at unprecedented speed.

“Innovating can make life difficult, especially for those whose job it is to control budgets and monitor timelines. The natural tendency of most organizations is to favor the obvious and the incremental.”

—Brown and Wyatt,
“Design Thinking and Social Innovation”

Disruption is happening around us and often to us. We can bury our heads in the sand and allow events to determine our future... Or we can take action and create new or better products, services and systems that add value to our organization, customers, or community.

“Innovation in today’s environment means reconciling the seemingly irreconcilable!”

—Blade Kotely, Senior Lecturer, MIT Gordon Leadership Program

Innovation today must focus on the customer/user’s experience.

“Traditionally, many of our product organizations would start with a problem and then—based on intuition about what our customers want—race toward a solution. Today, they actively engage customers along the way, with an iterative process of failing and learning fast as part of the journey.”

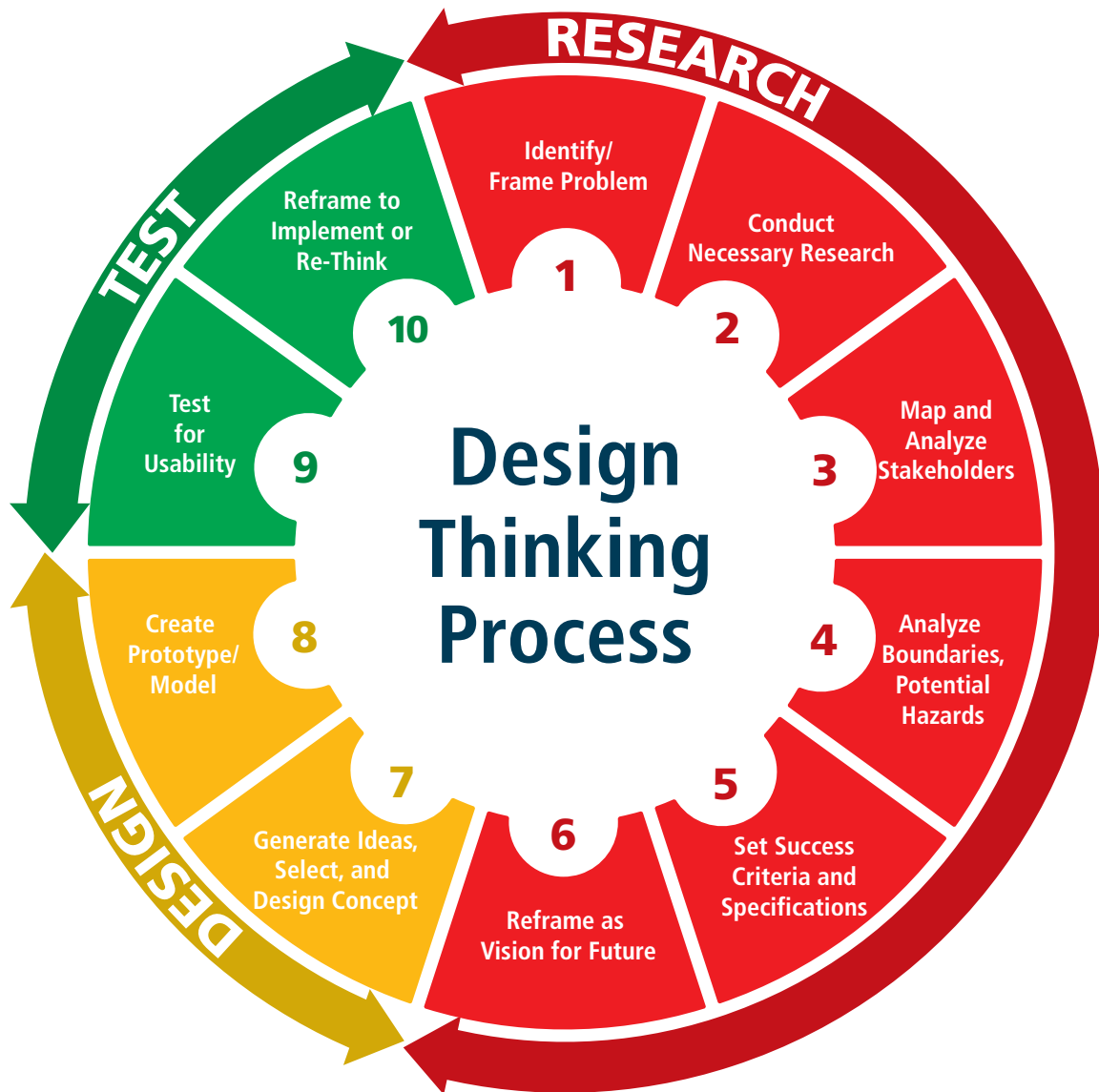
—Catherine Courage, VP, Ads and Commerce User Experience, Google;
former Sr VP Customer Experience, Citrix

Design Thinking is a collaborative process that engages many people with diverse backgrounds and viewpoints in creating innovative solutions, products and experiences.

The focus is on creating a desired future by understanding the experience of the end user or customer—from their perspective.

The process starts with questions: What’s the underlying problem? Why? Who? Why does it matter? What’s the gap between current situation and desired solution or goal? Who is the user whose experience will be altered or transformed by what you create?

Main Phases and Steps of Design Thinking



10 Steps of Design Thinking Defined

Phase I Research		
1	Identify and Frame Problem	What's the underlying problem? Why? Who? Why does it matter? What's the gap between current situation and desired solution or goal? Who is the user whose experience will be altered or transformed by what you create?
2	Conduct Necessary Research/ Gather Information	Where/how will you gather information to learn more about the problem and the people affected? Who do you need to interview, observe, meet with? What data is available to review? What can inform us about this problem (e.g., what do you need to know about the gap between the current and desired situation, technology, markets, data, users, etc.)?
3	Map and Analyze Stakeholders	Who are the Stakeholders? Who benefits? Who is impacted? Who is interested? Who might be disruptive and why? Why would solving this problem matter to them? Benefits of a solution to them? How do you map stakeholders and decide how to involve them based on current/potential impact, etc.
4	Analyze Boundaries and Potential Hazards	What can you do in the time you have? With the resources you have? What boundaries and constraints do you need to consider? What are you limited by (budget, time, resources, decision-making authority, etc.)? What hazards might your users or customers encounter by solving this problem? What can go wrong (breakdowns, process, physical usage, financial, etc.)? How do you avoid serious errors? Recover from known or anticipated errors? What parameters must your solution work within?
5	Set Success Criteria and Specifications	Before you focus on how to solve the problem or achieve an innovative goal, what do you know about parameters, metrics, or subjective views and attitudes that any final idea or solution must meet?
6	Reframe as Vision for Future	Again, before focusing on how to get there, if you find a solution to your problem or strategy for achieving a new goal, what does good look like? What does great look like? How will each type of stakeholder benefit? (Revisit Steps in Phase I as needed.)

10 Steps of Design Thinking Defined

Phase II Design		
7	Generate Ideas, Select, and Design Concept	What techniques can you use to think up creative, innovative ideas rather than your first thought or same old solutions (e.g., brainstorming, drawing visual representations, thought experiments, physical experiments, externalization of ideas with paper, clay, etc.)? How can you push yourself and your team to think even more creatively? How can you suspend your own and others' tendency to judge a new idea by jumping to negatives and reasons why it won't work rather than asking how could it work and building it into an innovative winner?
8	Create Prototype/ Model	How can you show your idea in action at an early stage so you make sure you are on the right track? How can you render the idea into a prototype (e.g, physical model, conceptual framework such as a flowchart, simulation, role play, decision tool)?
Phase III Test		
9	Test for Usability	Usable? Understandable? Likeable? Any mistakes, errors, confusion, negative reactions? Incorporates success criteria and needed specifications well?
10	Reframe to Implement or Re-Think	What's next? Start building support and funding the implementation? Continue refining? Go back to "drawing board"—revisit earlier Research and create entirely new solution... or adjust Design? Create entirely new solution? Whatever the test results, communicate what your next steps are to stakeholders and why.

VCAI: Vast Creative Abilities Instrument

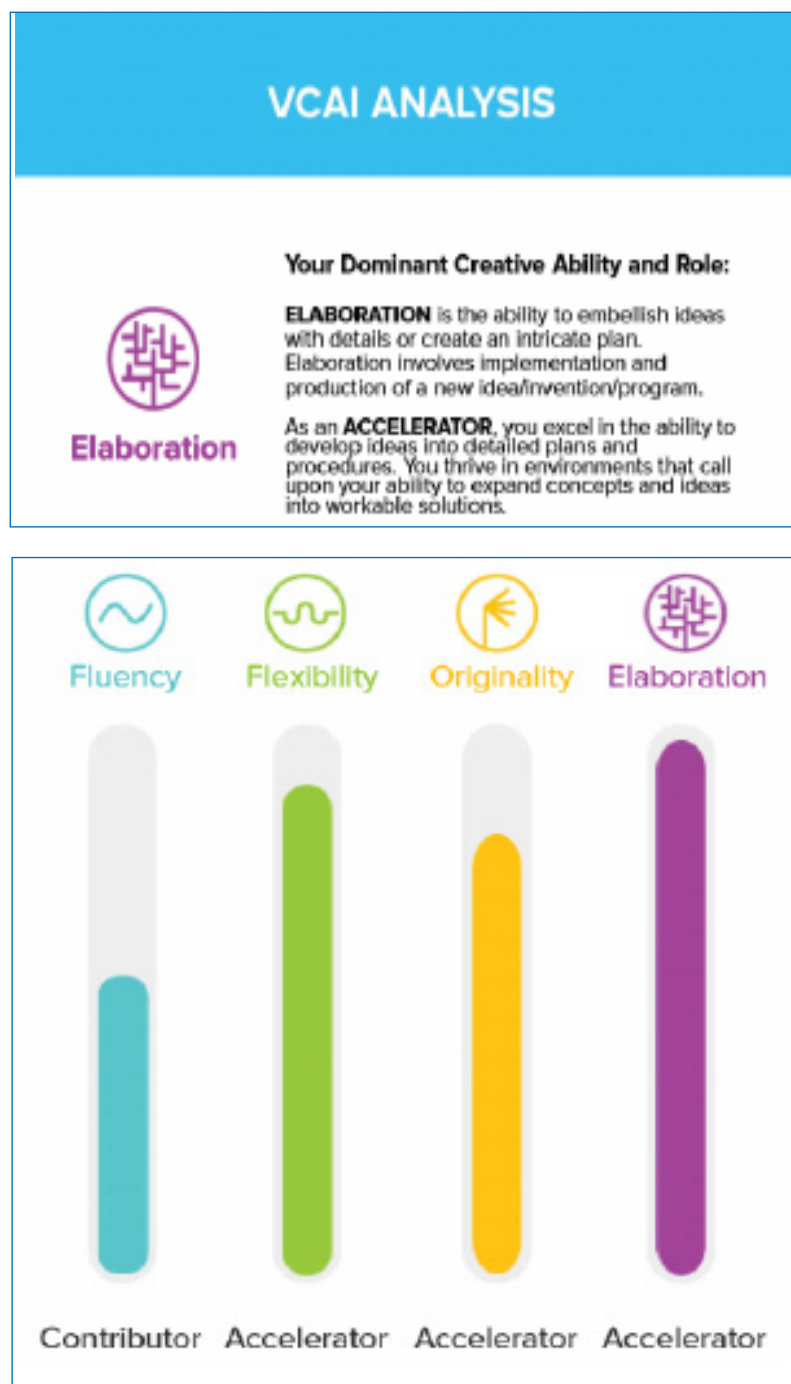
As pre-work, and early on Day Two, you completed and reviewed a profile of creative styles.

Keep in mind as we review the VCAI analysis:

- Every person has the ability to use all the styles.
- Which style is dominant often depends on the situation and who else is involved.



What Does a VCAI Profile Look Like?



What Does Your VCAI Report Look Like?



What the VCAI Profile Covers

VCAI			
Abilities	Collaborators	Contributors	Accelerators
Fluency Generate many ideas	Appreciates fluency, seeks many ideas	Generates many ideas, uses others' ideas	Excels at idea generation, leads brainstorming, engages others to build on ideas
Flexibility Approach situation from different angles	Appreciates flexibility, seeks different perspectives and approaches	Uses and adapts to different ways of thinking, leverages diversity	Excels at different thinking and problem solving methods, synthesizes opposing ideas into solution
Originality Produce new, unique ideas	Appreciates originality, seeks out new ideas, willing to experiment	Experimental; original; generates new possibilities, makes unique contributions	Excels at unconventional ideas, cutting edge and often ground-breaking solutions
Elaboration Plan implementation in detail	Appreciates elaboration, seeks detailed planners to bring ideas to fruition	Project planners and project managers, takes an idea all the way to completion and results	Excels at developing plans, selling value of plans, driving change and engaging stakeholders

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Your Dominant Creative Style ("Ability")

Reflection

What do you think is your dominant creative style? Why?

What dominant creative style did your report reveal? How do you feel about this?

Discussion: Creative Styles in Action

Discuss your VCAI analysis and your own thoughts about your dominant creative style with someone who has a different dominant style than yours.

- ☐ Compare each other's answers to the reflection questions.
- ☐ What insights do you gain from talking with someone who preferences differ from yours?

Connecting the Dots

The VCAI results may be useful when you are planning improvements or new types of products, services, policies and procedures, organizational systems or other innovations.

Consider what your VCAI results show you about strengths you bring to the three phases of the Design Thinking process. Think about these questions and note some thoughts:

- ☐ In light of your creative abilities and team roles, what part of the design thinking process is most instinctive for you?

- ☐ What part of the process may require more practice or effort for you?

- ☐ Given what you have learned about your role in a team, how can you bring others onto a Design Thinking project to strengthen and enhance your own creativity?

- ☐ Given what you have learned about creative abilities, who among your colleagues and co-workers would be best suited to participate with you on a Design Thinking project to balance and strengthen the team's creativity?

VCAI Teach-Back

Detailed descriptions of the VCAI Creative Styles follow on the next pages.

- Your table team will be assigned one of the styles (Fluency, Flexibility, Originality or Elaboration).
- You will have 10 minutes to read the description of your assigned style and plan how to “teach” it to the other groups, including:
 - What the ability is and what a person with this ability looks like in collaborator, contributor and accelerator roles.
 - Work situations in which this ability is vital.
 - What happens in organizations when this ability is suppressed.
- You will have 3 minutes to give your “teach-back” to the full group.

VCAI: Fluency

Fluency is the generation of multiple ideas, alternatives or solutions; the ability to produce numerous, relevant ideas. The more ideas we have, the more likely we are to find the best solutions to any given predicament.

Fluent thinkers are generally quick on their feet, able to suggest multiple ideas to a problem. Fluent thinkers enjoy coming up with ideas, making suggestions and general brainstorming. Generally, more ideas lead to better solutions.

Fluency can be increased through deliberate training.

- *Collaborators* understand the value of working together and acknowledge the creative strength of fluency in others. It is through the collaboration with others that one becomes a more fluent thinker.
- *Contributors* share the responsibility for generating ideas with colleagues. They are able to generate ideas as well as incorporate the ideas of others.
- *Accelerators* are called upon to take the lead in generating multiple possibilities in group processes. They are able to create additional suggestions when others are tapped out.



VCAI: Flexibility

Flexibility is the ability to abandon old ways of thinking and initiate different directic information in different ways given the same stimulus. Flexible thinking is especial logical approaches fail to produce satisfactory results.

Flexible thinkers see the problem/situation from different angles or vantage points. A flexible thinker is generally not satisfied with one answer and may take time to generate the best or a better answer. Often someone who is outside of a situation looking in can help establish a new frame of reference. Flexible thinking provides shifts in thoughts, detours in thinking to include contrasting reasons, different points of view, alternative plans, differing approaches, different angles and various perspectives of a situation or issue.



- *Collaborators* wisely position themselves to attract needed insights, comments, questions and ideas from others. They understand the value of getting input from different sources.
- *Contributors* have a flexible attitude that allows for adjustment and adaptation to different ways of thinking. They have the ability to embrace diversity and make it useful.
- *Accelerators* utilize their flexibility to reduce development time and speed up progress. They are capable of synthesizing seemingly opposite perspectives into a workable solution.



VCAI: Originality

Originality is the ability to produce ideas that generally are not produced or ideas that are totally new or unique. Originality may result from combining and synthesizing something new. Originality involves getting away from the obvious and commonplace or breaking away from habit bound thinking.

Original thinkers may often be described as “unique,” “surprising,” “wild,” “unusual,” “unconventional,” “novel,” “weird,” “remarkable” or “revolutionary.” Truly original ideas are rare and may appear threatening to others. Thus, an original thinker must be comfortable with being different and must be able to withstand ridicule and skepticism at times. Original thinkers often produce solutions that no one else has thought of, that are unusual and unconventional, that may solve seemingly impossible or intractable problems. Combining known solutions in a totally innovative way requires originality. Original thinkers often create for the fun of it—stories, jokes, songs, cartoons, etc. One simple way to facilitate originality is to be respectful of unusual ideas or alternatives.

- *Collaborators* acknowledge the value of identifying other people to help address circumstances that require alternative approaches/methods. They are receptive to those with new and unusual perspectives.
- *Contributors* understand the value of originality in themselves and others. They are comfortable experimenting with various ideas and making unique contributions.
- *Accelerators* excel in the ability to create unique ideas. They have confidence in their uniqueness and translate that confidence into cutting edge ideas and procedures.



VCAI: Elaboration

Elaboration is the ability to embellish ideas with details or create an intricate plan. Elaboration involves implementation and production of a new idea/invention/program.

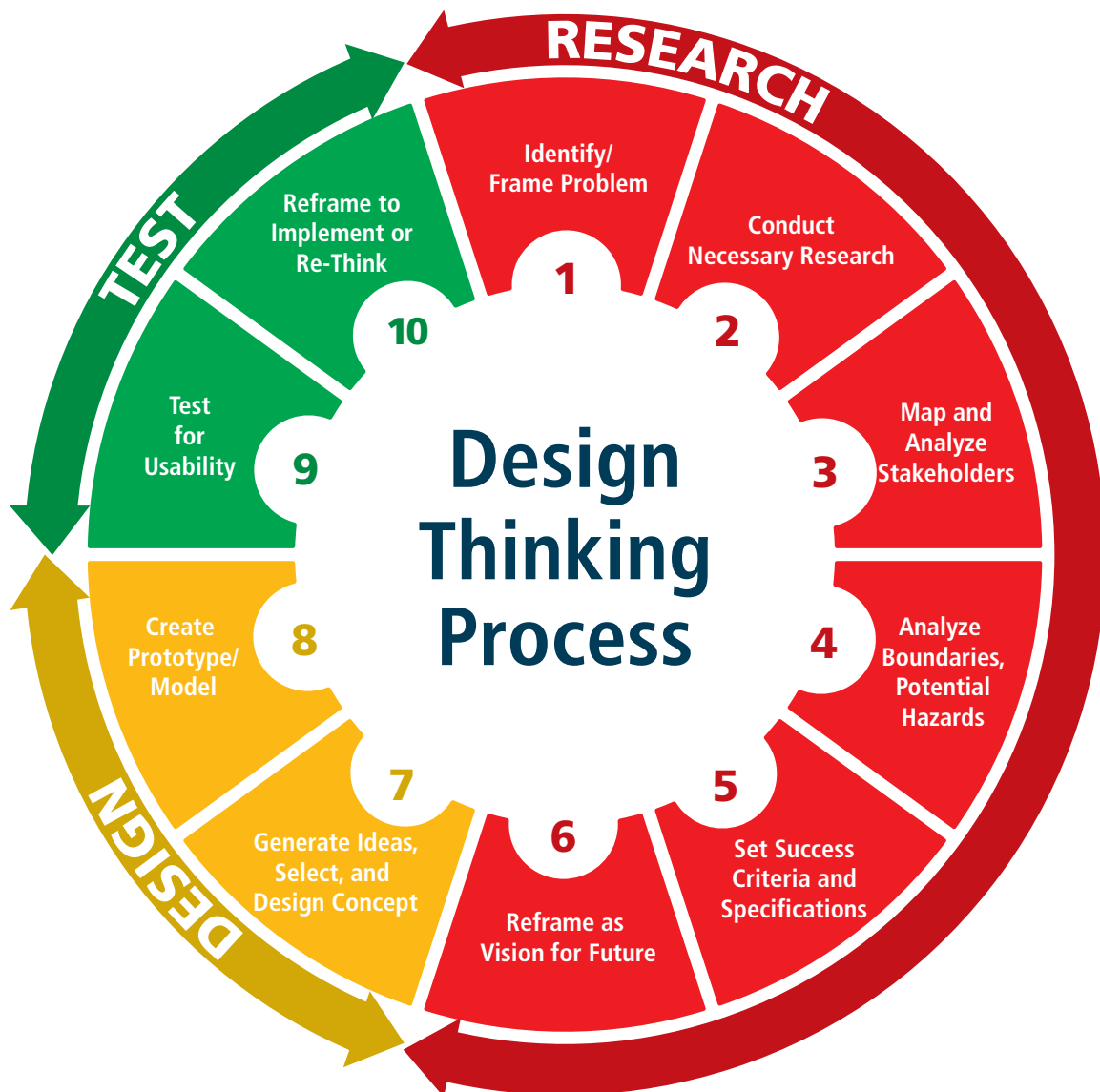
Elaborative thinkers envision plans from beginning to the end. They are usually good storytellers and tend to be detailed-oriented. Elaborative thinkers have the capacity to implement and build on basic ideas. They are complex thinkers. Elaboration involves planning what tasks must be done, who is to do each of the tasks, when they are to be done, how they are to be done, how much time they are going to take, and how much they are going to cost. Elaboration involves making the plan, telling the story, filling in the gaps and details, tying up loose ends, orchestrating the activity, coordinating the project, selling the idea/invention, painting a picture with words, etc.

- *Collaborators* have the foresight to attract detail-oriented people who can supply the specifics for a workable plan. They recognize that the success of any new idea/invention/program depends on the level of planning and development.
- *Contributors* value teamwork and the collaborative process. They realize their limitations as well as their strengths regarding detail-oriented work.
- *Accelerators* excel in the ability to develop ideas into detailed plans and procedures. They thrive in environments that call upon the ability to expand concepts and ideas.



Design Thinking Steps and Application Templates

Following are guidelines for carrying out each step on your own or with a team, balancing the need for both structure and creativity.



1. Identify and Frame the Problem

Explore the Problem

- ☐ What is the underlying problem? Why is it a problem?
- ☐ What's the gap between the current situation and the desired solution or goal? Whose experience will be altered or transformed? What business or organizational problem would this help solve? What metrics would improve?

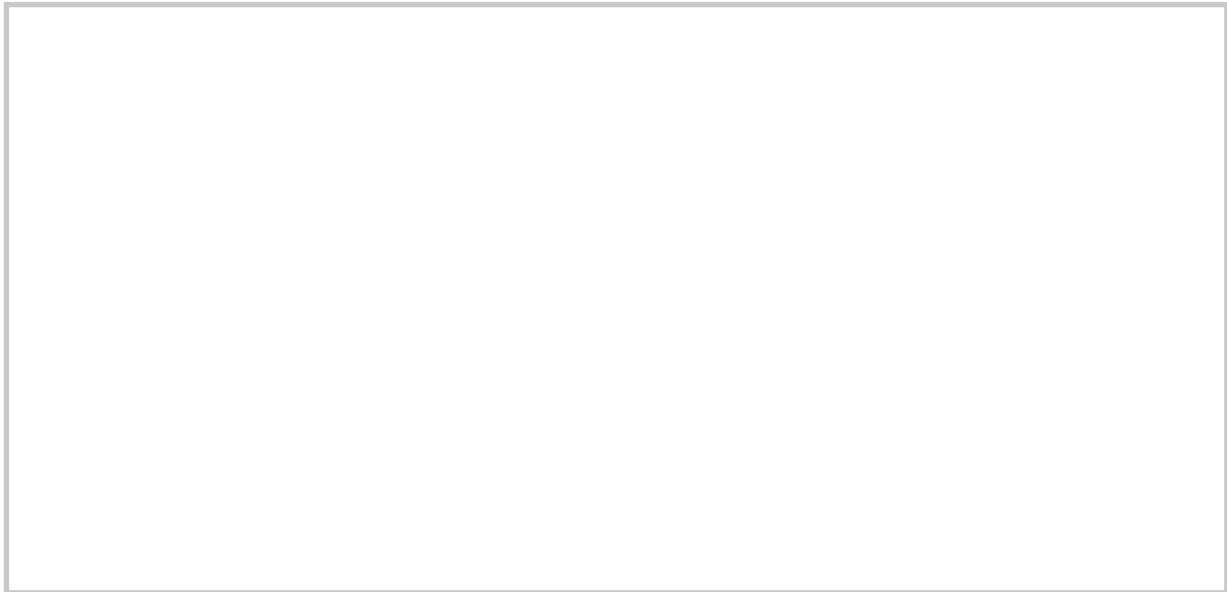
Set the Context

- ☐ Who is asking for improvement or change?
- ☐ Why are they asking?
- ☐ Who will benefit if the problem is resolved? Who may not and therefore may resist change?

Frame the Problem to Better Understand and Explain the Current Challenge

- ☐ The current situation is _____.
- ☐ The problem with the _____.
- ☐ We know (or theorize) that the underlying problem is _____.
- ☐ People (or groups) asking for improvements or new innovative solutions include _____.

Key Seminar Take-Aways for This Step:



Identify/
Frame Problem

1

Apply to Your Work Challenge

Step 1. Identify and Frame the Problem

Think about difficult situations in your own organization that you and others would like to improve or change. Choose a challenge that you can try to meet on your own or, preferably, with others who are also affected negatively by the situation. You may or may not have the power to make final decisions about implementing or funding any ideas you come up with, but you can propose innovations that support your organization's vision, mission and strategies.

Even if you do not have an urgent challenge right now, to make sure this seminar becomes as relevant as possible to your work, choose one problem so you can think about ways to apply Design Thinking.

Frame your work problem as a situation that needs innovative improvements or even change—or write notes about what you need to think about after the seminar when you develop a probably statement:

2. Conduct Necessary Research/Gather Information

Where/how will you gather information to learn more about the problem and the people who are affected? Which people do you need to interview and/or observe?

What data is available to review (existing data, solutions to similar problems in other organizations, industry best practices, market data, relevant technologies, patents, laws, etc.)? What else can inform you about the problem (e.g., what do you need to know about gap between the current and desired situation, users, etc.)?

Types of research may include surveys, group interviews, quantitative and qualitative information, in-person observations, competitive intelligence or benchmarking industry best practices, etc. Here's an example table with two possible sets of areas to research. Your table could be as short as three areas, or as many as 10–15, depending on the complexity of the problem.

Type of Information Needed	Resources (People, Materials, etc.)
Understand how our users view the problem	Find list of users and get access to them. Conduct surveys and interview key users.
Understand how other companies have solved this problem	Find similar companies in our industry and in other industries that have solved this kind of problem. Consider using a research consultant.

Key Seminar Take-Aways for This Step:

Conduct
Necessary Research

2

Apply to Your Work Challenge

Step 2. Conduct Necessary Research/Gather Information

You and others may think you know all the relevant information about your problem. Even if that's true, to persuade senior management and financial specialists to get involved in solving the problem, you may need to gather additional data, examples, quotations, statistics, and more, in order to educate others in a way that they will find valuable.

No matter how familiar you and your team are with the problem, you may not know how people who are affected think and feel about the same problem and possible solutions, particularly if speaking honestly with an unpopular opinion, might have negative consequences. There's also the chance that some people are benefitting from the difficult situation and give misleading reasons for resisting changes.

You may need to talk with other people before deciding what research you need to conduct and who else needs to be involved in the process. If so, just consider the types of research and researchers needed. And how you can get started *after* the seminar, and attempt to fill in as many as you can.

Type of Information Needed About Your Work Challenge	Resources needed to research (People, Materials, Observations, Etc.)

3. Map and Analyze Stakeholders

A stakeholder is a person or group that has an investment, share, or interest in something—any entity that has an interest in the problem and its solution. The list of stakeholders can be long—and can include decision-makers, internal and external clients/customers, users (who may not be the people who are your customers), people/groups that provide funding, even groups you may not consider at first, such as suppliers, groups that provide equipment or space, or who advocate for change.



Sometimes you have stakeholders that aren't interested in changing the status quo. Consider if there are any stakeholders who may be benefitting from the current (bad) situation and might resist change.

Who might be disruptive/opposed to particular types of improvements/change, and why? How will their life change when a solution is successfully launched? How do you map stakeholders and decide how to involve them based on current/potential impact, etc.? Imagine this problem is solved and you are now in the future. Who is happier? Why?

Some stakeholders you'll want to engage with, while others may simply be important to be aware of, so you can consider them if a problem arises in the future.

Sample Stakeholder Maps—Create one that works for your particular challenge.

Stakeholder groups or individuals	What matters to this group?	How do they benefit if the problem is solved? (Positively or Negatively)
My boss	Maintaining quarterly profits while trying to reduce the number of contractors we use	They have fewer people to oversee and are running a more efficient group
The marketing team	Producing high quality marketing material that helps the sales team win new customers, even though they are understaffed	They are able to show their value to the company, they can help the sales team be more efficient

What if stakeholders disagree with each other? Some options: Meet with them and ask why. Look for ways to find common ground and shared values that matter more than specific disagreements. Compromise with fair and legal trade-offs and incentives. If appropriate, bring in a mediator.

Also keep in mind basic Interview Techniques:

- ☐ Use open-ended questions, rather than closed-ended.
- ☐ Use neutral questions, rather than weighted. (“How do you feel about shopping,” rather than “Tell me what you love about shopping.”)
- ☐ Don’t suggest the answer to your question. Don’t fill silence and pauses with your own thoughts.
- ☐ Ask why (even if you think you know the answer).
- ☐ Be prepared to capture (write notes, make recordings).

Key Seminar Take-Aways for This Step:

Apply to Your Work Challenge

Step 3. Map and Analyze Stakeholders

Complete what you know about people or groups with a stake in any innovative improvements or changes to your work problem. Note who you need to consult and work with to complete your stakeholder map and analysis. Your list may be short or long—the value of this exercise is to understand the complex network of stakeholders, and to use it as you go about the other steps in this process. It's a great way to consider who should be involved in the approval, or testing of a solution, or to help you quickly identify areas that you may not have considered when you discover a problem.

Stakeholder groups or individuals	What matters to this group?	How do they benefit if the problem is solved? (Positively or Negatively)

4. Analyze Boundaries and Potential Hazards

4

Analyze
Boundaries,
Potential
Hazards

How can you work with the resources you have, within boundaries, and with protection against potential hazards? These constraints will become part of the guidelines for assessing future ideas for innovative solutions.

Consider the resources you have for resolving the problem and meeting the challenge, and which boundaries or constraints you might encounter. What might you be limited by (budget, time, resources, decision-making authority, etc.) and how might you overcome these limitations?

What potential **hazards** or risks might be involved in solving this problem? What might go wrong? How can your solutions help users avoid serious errors? Create a chart to help you and your team identify the boundaries you must work within and any potential hazards to keep in mind as you think about ways to solve the problem.

This chart shows an example of boundaries/hazards for someone creating a new intranet:

Boundaries/Constraints and Potential Hazards	Protections, Work-arounds, Ways to Deal with Limitations
Employees don't currently access the intranet unless they need something specific, so we may not be able to show important announcements there and expect people to read it	Require employees to set the intranet as their default web page and show them how to do that for the popular browsers. Make content interesting so they want to go to that page. Offer a random prize for people who visit the page every week
We had our budget cut and lost a developer who was going to work on the project	Use a pre-packaged solution instead of developing our own

Key Seminar Take-Aways for This Step:

Apply to Your Work Challenge

Step 4. Analyze Boundaries and Potential Hazards

Think about your problem in terms of boundaries and potential hazards:

Boundaries/Constraints and Potential Hazards	Protections, Work-arounds, Ways to Deal with Limitations

5. Set Success Criteria and Specifications

Once you are clear about the problem you want to solve, but before you start generating innovative solutions, clarify how will you measure success. Think about how objective or subjective measurements can help you select the most effective solution. What needs must a great solution entail?

Keep in mind when you start to brainstorm and generate solution ideas, forget all these specifications and challenge yourself and your team to come up with some out-of-the-box or unrealistic ideas—you'll have plenty of time to edit those later on. The purpose of these criteria is to set some hard requirements that help direct the rest of the process and give you something to refer to in order to make sure your solution is on track.

Based on your statement of the problem, your analysis of boundaries and hazards, and your knowledge of stakeholders' views, what do you know so far about parameters, metrics, or subjective views and attitudes that any final idea or solution must meet? For example:

If you're designing a product, what needs to be incorporated into your solution (e.g., minimal size, maximum weight, perceived attractiveness by typical users, safety regulations, etc.)?

If you're designing a service or reorganization of a system, how will you know the solution is successful (e.g., user satisfaction as measured on a 10 point scale, increased profit margins by x%, reduced complaints by y%, etc.)?

This chart shows an example of boundaries/hazards for someone creating a new intranet:

Success Criterion	How can we measure this criterion?
Currently 4% of employees access the intranet once a month, success is more than 20% of employees accessing the intranet 2x/month	Log data from the system using Google analytics
People using the intranet are able to access the top 5 most commonly used areas within 5 seconds	Ethnographic research (watching users in person) and Google analytics
Most employees think that the intranet looks modern and is easy to use	Conduct surveys and interviews

Key Seminar Take-Aways for This Step:

5

Set Success
Criteria and
Specifications

Apply to Your Work

Step 5. Set Success Criteria and Specifications

You may have some ideas about success criteria and specs right now. If so, jot them down. You will also probably need to talk with others after the seminar and possibly do some research to determine the right criteria.

For the solution to be successful, what needs/requirements must be met?	What issues, actions or reactions could undermine the success of even the best idea for a solution?	If needed, who will research these questions further to ensure that the goals are valuable and measurable?

6. Reframe as Vision for Future

You know the pain points of your current situation. Take a break for a moment from considering any negative issues of the problem. For a moment, think about “what does a great solution look like?” and imagine a bright future and how the users of your solution will live a better life because of it.

You don’t need to know the solution yet, just create a vision of what the world for your stakeholders will be like when the pain is gone.



Success Criterion	How can we measure this criterion?

This vision will help you communicate the value of your solution to a variety of stakeholders.

Here’s an example of how to turn the statement of your problem into a positive vision for the future if you were addressing high employee turnover.

Your earlier statement of the problem plus stakeholders’ negative complaints, fears, concerns about current situation

We’re losing a lot of employees to competitors who moved into this city recently and can afford to pay more than we can. Employee morale is suffering because of this—the employees who stay feel like they’re not advancing their career when their friends leave.

Vision/Mission for what users will experience—think, believe, feel and do—if the problem is solved or goal achieved

When we solve this, employees will turn down higher paying jobs because they love working here. They will be mission-driven and believe that they will be taken care of in the long term. We will provide a set of honest values that will attract the right kinds of new talent, and retain the right kinds of current employees. Everyone will feel they are advancing their career each year.

Key Seminar Take-Aways for This Step:

Apply to Your Work

Step 6. Reframe as Vision for Future

You can try to create this vision now for your work problem. Come back and revise it in the next few weeks as you learn more from Steps 1–4 and from stakeholders and your colleagues. You will also probably come back and change your vision statement as you get closer to selecting and prototyping your new or improved solution.

Your earlier statement of the problem plus stakeholders' negative complaints, fears, angers about Current Situation	What people will experience—think, believe, feel and do—if the problem is solved or goal is achieved

7. Generate Ideas, Select, and Design a Concept

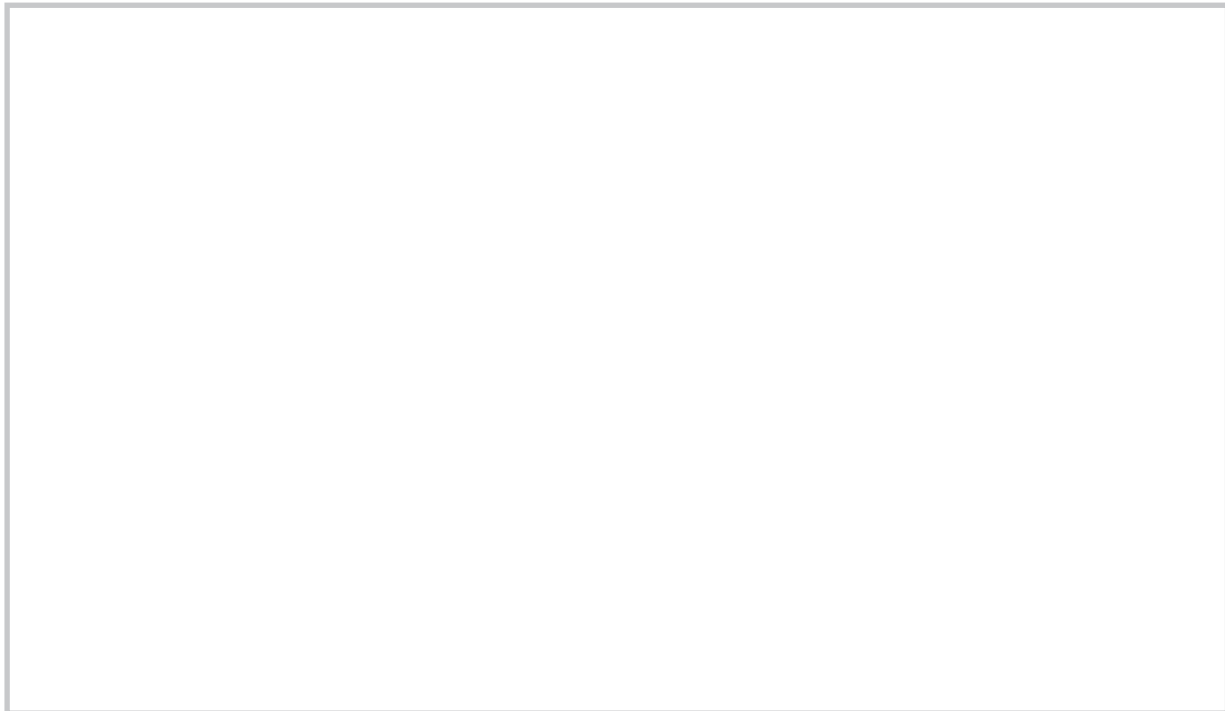
Phase II, Design, is about coming up with solutions and creating ways to share them with others.

It's important to think about solutions without all the constraints, boundaries, and hazards we have been documenting and analyzing because the most obvious ideas are often the most conventional ones and may not provide as good a solution as we are actually about to implement. If we start implementing the first idea we get, management may approve quickly and we'll put a band-aid on the problem, but we might miss the best solutions, and instead only come up with incremental improvements.

The way to get to a great solution is to think big, and scale the solution down. For many people it takes courage to talk about a big idea that is clearly unrealistic—but may spark an extremely valuable solution that is able to be successfully implemented. This is actually the least expensive part of any design-thinking process, it just takes a little time to brainstorm and get into a creative mind-set, and then a little time to consider if any of the solutions have merit as is, or perhaps with some modification.

When you're coming up with new ideas, make sure you suspend your own and others' tendency to judge a new idea by jumping to negatives and reasons why it won't work rather than asking how could it work and building on that idea. That's the most important thing to do, and it can take practice to do it well. To get yourself and your team ready, think about the creativity techniques covered in the seminar and the planning questions you see for the Case on the next page.

Key Seminar Take-Aways for This Step:



7
Generate Ideas,
Select, and
Design Concept

Case Challenge—Design Phase

Step 7. Generate Ideas, Select, and Design a Concept

With your team, plan the creativity session for generating ideas about how to solve the Case problem:

Planning Questions	Decisions
Who will you invite to creative design sessions?	
Where? Choose a location conducive to imaginative, flexible conversation.	
How to set up space that invites idea-generation and creativity? Supplies?	
What will you say when you invite people, to ensure that they will see value in attending and contributing creatively?	
Who will facilitate the session(s)?	
Generate concepts: How will you generate ideas freely, asking questions to build on impossible ideas rather than reacting with negative limitations?	<input type="radio"/> Brainstorming of ideas using words <input type="radio"/> Brainstorming of ideas by drawing <input type="radio"/> Creative discovery projects such as choosing two random objects and forcing connections to the problem and possible solutions <input type="radio"/> Other?
Narrow down the set of concepts: How will you or the facilitator start focusing wild ideas to align with needed success criteria and specs?	<input type="radio"/> Nominal group decision making <input type="radio"/> Presentation to leaders or experts for feedback <input type="radio"/> Demonstration to user groups with vote/survey <input type="radio"/> Other?

(Continued on next page)

As you and your team generate ideas, note the ideas. Then build/shape, combine them into an innovative improvement or change that is also a solution that incorporates success criteria/specs:

Notes/Log of Interesting Ideas (Wild, Impossible or Practical)	Interesting elements of the ideas that you want to note

Apply to Your Work

Step 7. Generate Ideas, Select, and Design a Concept

You will need to consult with others at work before you can plan the creative design session and you may not be able to complete this without others, but see if you can force yourself to come up with some new ideas now.

Planning Questions	Decisions—Yours or Your Team's
Who will you invite to creative design sessions?	
Where? Choose a location conducive to imaginative, flexible conversation.	
How to set up space that invites idea-generation and creativity? Supplies?	
What will you say when you invite people, to ensure that they will see value in attending and contributing creatively?	
Who will facilitate the session(s)?	
Generate concepts: How will you generate ideas freely, asking questions to build on impossible ideas rather than reacting with negative limitations?	<input type="radio"/> Brainstorming of ideas using words <input type="radio"/> Brainstorming of ideas by drawing <input type="radio"/> Creative discovery projects such as choosing two random objects and forcing connections to the problem and possible solutions <input type="radio"/> Other?
Narrow down the set of concepts: How will you or the facilitator start focusing wild ideas to align with needed success criteria and specs?	<input type="radio"/> Nominal group decision making <input type="radio"/> Presentation to leaders or experts for feedback <input type="radio"/> Demonstration to user groups with vote/survey <input type="radio"/> Other?

(Continued on next page)

Notes/Log of Interesting Ideas (Wild, Impossible or Practical)	Interesting elements of the ideas that you want to note

Apply to Your Work

Create
Prototype/
Model

8

8. Create Prototype/Model

How can you show your idea in action at an early stage so you make sure you are on the right track? How can you render the idea into a prototype (e.g, physical model, conceptual framework such as a flowchart, simulation, role play, decision tool)?

Will the prototype be high quality but partial or complete? If partial, which part will you demonstrate (e.g., show proposed website pages as slides, give script to test in phone conversations, walk through of a simulated space or procedure, role-play key procedures in a proposed service change or reorganization, interactive video demos, etc.)?

You and your team plan the development of a prototype by considering the following:

How You Will Show an Example of the Proposed Solution	Materials Needed, Budget, Resources	Who Will Design and Develop the prototype?	Key Questions that the Prototype Is Meant to Answer

Also see the sample on next page that shows planned “K-script” and, during Test phase, that can be assessed for accuracy and inclusion of important details.

Sample “K-Script”—A Prototype of a Process, Described in Words

Who	Observable Action	Unobservable Action/Notes
Customer	Walks into the fairgrounds and sees a bunch of very modern touch-screen kiosks in a row, like at an airport. Sees the screen that has two buttons, “Buy Tickets,” and “Make Dinner Reservations.”	In research, we found that people generally want these two options, and we expect to have a limited number of staff there to handle other kinds of requests.
Customer	Clicks on “Buy Tickets”	
Kiosk	The screen shows “Number of Adults?” with a “+” and “–” button and its default is set to “1,” and “Number of Children?” with a “+” and “–” button and its default is set to “0,” and a “Next” button	Prices aren’t displayed now, because there’s another screen that allows people to enter or scan discount codes/coupons.
Customer	Hits the “Next” button	
Kiosk	Screen shows the price “\$24.00 Enter discount code, or scan a coupon” and a “Next” button	
Customer	Taps “Next”	
Kiosk	With the price still on the screen, directs the customer to swipe their credit card	
Customer	Swipes the card	
Kiosk	Plays a success sound, shows a success message and a ticket is printed out	

Apply to Your Work

Step 8. Create Prototype/Model

This is a step you take after the seminar and after you complete Steps 1–7, at least once, with your team. Take notes now only if you have some ideas you do not want to forget.

How You Will Show an Example of the Proposed Solution	Materials Needed, Budget, Resources	Who Will Design and Develop the prototype?	Key Questions that the Prototype Is Meant to Answer

9. Test for Usability

You observe how people involved in your proposed solution interact with your prototype (can be an actual working model or a “walk through” of charts and diagrams with explanations. You also interview or give a feedback questionnaire to learn their thoughts and opinions on:

- Prototype's effectiveness and shortcomings
- Users' experiences with your prototype

During the test, you want to find out:

- Can people use your prototype (if it is a process, can they follow it; if it is new space, can they understand how to move through it)?
- Can the user form a correct mental model of the system?
- Do people enjoy engaging with your prototype?
- What problems arise? What do you learn that can make the solution better?

To set up the test, remember—You are testing the Prototype, not the User:

- Specify what you want to learn in the test.
- Recruit users.
- Create a pre-test and post-test questionnaire (using formats covered in the seminar).
- Produce a task list.
- Set up a test environment.

Your Prototype Test can recreate the situation in which your users are most likely to be using the prototype, or present a mock-up with clear explanations. This can be done in an actual or simulated environment with actors or others providing typical flow and movement of people as well as sound effects if relevant. During the test, you'll learn more about the interaction (or disruptions) among the user, the prototype and the environment, as well as what problems may arise. (See the next page for a sample organizing chart.)

Key Seminar Take-Aways for This Step:

Test
for
Usability

9

Here's one way to make sure you are prepared for your test:

Prototype Description:		
Original Research and Any Updates/Changes	How to Test for Usability/Results	Redesign/Tweaks Needed to Develop/Test Again
Problem to Solve		
Key Information to Consider		
Key Stakeholders and Benefits/Impact to Consider		
Results of Boundary Research to Consider		
Results of Hazard Analysis to Consider		
Specification Creation Results		
Task List (What to test; What/how to learn from test; Where is test; Needed materials; Instructions for user, etc.		

Guidelines for Running a Usability Test

- Greet subjects—users should not think the testers are the designers of the solution
- Make sure subjects are comfortable
- Reassure subjects they are not responsible for any errors that occur
- Distribute the pre-test questionnaire
- Provide task(s) and confirm that the subject understands the task
- Ask users to speak aloud as they work if possible
- Take observation notes
- Give users a post-test questionnaire & interview users

Example of a “K-Script” with Comments and Observations Added from the Test

Who	Observable Action	Unobservable Action/Notes
Customer	Walks into the fairgrounds and sees a bunch of very modern touch-screen kiosks in a row, like at an airport. Sees the screen that has two buttons, “Buy Tickets,” and “Make Dinner Reservations.”	In research, we found that people generally want these two options, and we expect to have a limited number of staff there to handle other kinds of requests.
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Kiosk	With the price still on the screen, directs the customer to swipe their credit card	
Customer	Swipes the card	
Kiosk	Plays a success sound, shows a success message and a ticket is printed out	

Apply to Your Work

Step 9. Test for Usability

After the seminar, when you apply Design Thinking to improve or change a situation that is causing problems, you will come up with one or more ideas, then develop prototypes. To get ready to test for usability, you may want to use this chart or adapt it to your unique situation, proposed solution and testing requirements.

Prototype Description:			
Original Research and Any Updates/Changes	How to Test for Quality/Results	How to Test for Usability/Results	Redesign/Tweaks Needed to Develop/Test Again
Problem to Solve			
Key Information to Consider			
Key Stakeholders and Benefits/Impact to Consider			
Results of Boundary Research to Consider			
Results of Hazard Analysis to Consider			
Specification Creation Results			
Task List (What to test; What/how to learn from test; Where is test; Needed materials; Instructions for user, etc.			

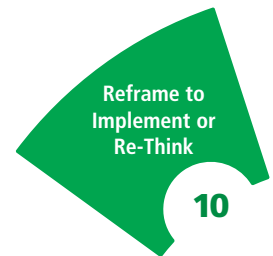
10. Reframe to Implement or Re-Think

Reframe to Implement: If the testing shows that the solution works:

- Work through your organization's process for initiating new solutions.
- Create a detailed development proposal and/or project management plan, based on your organization's format.

Re-Think: If the testing shows problems with the solution:

- Decide whether you need to:
 - Start building support and funding?
 - Continue refining?
 - Go back to the “drawing board”—revisit earlier Research steps?
 - Revisit Design Phase to adjust the design?
 - Create entirely new solution?
- Whatever the test results, communicate what your next steps are to relevant stakeholders and why.



The Ecosystem for Design Thinking: Organizational Realities

In the real world, you must use many leadership and negotiation skills to move from a spectacular idea for solving a problem to implementation with funding. Some of the leadership skills you and your team will need:

Top Ten Leadership Characteristics That Foster Innovation

Leader Characteristics	Impact on a Team
Flexibility and Change	Adapt to worsening situations
Integrity and Courage	Say what people are thinking
Inquiring and Dialoging	Genuine listening even when it hurts
Vision	Showing a bright future
Self-Awareness/Self-Improvement	Willingness to admit faults
Advocacy	Match your message to what others value
Diverse Connections	Your network as interpreters
Thinking Holistically	Understand the bigger context
Identifying the Paradox	See opportunities where others see problems

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To Generate Buy-in for Using Design Thinking in Your Workplace

Who Can Support Buy-in	When to Involve/Phases	How to “Sell” on Change
Sponsors and how to involve and educate them		
Design Thinking creative team participants		
Main Stakeholder		

Your Action Plan for Applying Design Thinking

Review the notes you made about applying each Design Thinking step to your actual challenges at work. Then plan how to turn the ideas into on-the-job action in the next 1–3 months:

Design Thinking		How to Start Applying to Your Work	By When/How Often
Phase I Research			
1	Identify and Frame Problem		
2	Conduct Necessary Research/ Gather Information		
3	Map and Analyze Stakeholders		
4	Analyze Boundaries and Potential Hazards		
5	Set Success Criteria and Specifications		
6	Reframe as Vision for Future		

Design Thinking		How to Start Applying to Your Work	By When/How Often
Phase II Design			
7	Generate Ideas, Select, and Design Concept		
8	Create Prototype/ Model		
Phase III Test			
9	Test for Usability		
10	Reframe to Implement or Re-Think		