PROTOTYPING
ACTIVITY GUIDE

NOTE
PSI wishes to acknowledge the inspiration for certain principles described in this activity guide from the following resources: The Field Guide to Human-Centered Design by IDEO.org; design thinking bootleg by d.school at Stanford University; the Introduction to Human-Centered Design online course taught by IDEO.org through +Acumen, a program of the Acumen Fund, Inc.; and PSI Board Member and Maverick Collective Founding Member, Pam Scott.

OVERVIEW
It’s vital to test our interventions with users before taking them to scale. In this activity guide you will learn how to build low-cost models or simulations (“prototypes”) of a product or service, so you can get feedback from members of the target audience early in the process, before you create the fully realized solution.

Creating and testing prototypes can avoid a situation where you invest a great deal of time, resources and effort to design and deliver an intervention only to have your target audience react negatively or indifferently to it.

Prototypes can be created for physical products, digital media/apps, services, and investment alternatives. For instance, you might:

- Build a prototype for a piece of equipment out of Legos to see if it is too bulky for community health practitioners to carry in the field.
- Draw the interface for a mobile app on sheets of paper, one for each screen, to see if people can guess which buttons to tap to perform certain tasks.
- Role-play service delivery situations to see how different operating procedures or a different physical environment affect the outcome.
- Build an Excel model that compares the costs and outcomes of pursuing different investments.

THE VALUE OF PROTOTYPING
As mentioned above, prototyping offers an early opportunity to confirm that users like and are able to use your designs.
If you can find a way to rapidly produce prototypes, you can go through multiple rounds of trial and error discovery to ensure that issues are worked out before you finalize the design and deliver at scale.

Prototyping can also improve the quality of feedback you receive compared to audience surveys not involving a prototype. If you just ask users to tell you what they want or describe an ideal solution, they might not be able to articulate it. Also, we know that how people think they react and how they actually react are often two very different things. Prototyping also allows us to create a closer simulation of the user experience, thus generating more genuine feedback. By contrast, reacting to and giving one’s honest opinion of a tangible prototype is intuitive and easy.

**WHEN TO CONDUCT THIS ACTIVITY**

<table>
<thead>
<tr>
<th>Prototyping can be useful when:</th>
<th>Prototyping might be less useful when:</th>
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<tbody>
<tr>
<td>- When your solution is complex and costly to build</td>
<td>- When there isn’t enough time to organize and conduct testing of prototypes (though it still might be worthwhile to build prototypes purely for your design team’s reference)</td>
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<td>- When there are clear ways to simulate user interactions with the solution short of building it</td>
<td>- When a user’s opinion or comfort level with a solution isn’t critical to success</td>
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<td>- When creating a new/novel solution and you don’t know how your target audience will react to it</td>
<td>- When a solution has been prescribed or prioritized by donor or partner</td>
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<td>- When you need to conduct acceptability testing of multiple components of a solution, delivery channel, cost, length of service, key message, etc.</td>
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### TIME, RESOURCE AND STAFFING REQUIREMENTS

While prototyping isn’t necessarily costly, it does take time. Staff time and time in the field should be considered.

| Who will participate in this activity? | • Design Team  
• Users or individuals who closely resemble your priority segments in terms of their needs, constraints, demographics and/or capacities  
  o You will probably want to recruit 24+ users to participate in testing for a typical intervention  
• Select outsiders who can potentially offer valuable perspective and ideas, for example:  
  o Members of unrelated departments in your organization, or friends of staff members not on the design team  
  ▪ The concern is to make sure participants will be honest with us, and not withhold criticism  
  o Local art/design school students  
  o Staff of local creative agencies willing to volunteer time  
• Marketing Advisors  
• Technical Advisors |
|-----------------------------------------------|------------------------------------------------|
| What time and resources are required? | • Cost of materials and facilities should be kept as low as possible – ideally close to free  
• Time requirements will vary by the specifics of the program, from a brief 1- or 2-day workshop to multiple sessions spread out over several weeks  
• Determine whether you want to test the prototype one-on-one with users or in a focus group setting and plan accordingly  
• You might want to allow for additional testing in the field after initial testing under controlled/simulated conditions |
INSTRUCTIONS
PLANNING/PREPARATION

The prototyping process involves three main activities:

- Building prototypes and developing a test plan
- Testing prototypes with an audience
- Revising/iterating the prototype based on feedback and testing again (if necessary/possible)

BUILDING PROTOTYPES

Prototypes can represent Digital, Physical or Service environments. There are several methods for presenting a prototype to the target audience: the goal is to choose a method of presenting your prototype that will best demonstrate key aspects of the solution such that users testing it can give meaningful feedback to help you identify problems or opportunities.

DEFINING YOUR CONCEPT

Before starting on a prototype, you will want to answer some basic questions, such as:

- What is the hypothesis you are testing? How does the solution you are prototyping relate to the constraints and opportunities identified in the Decide phase?
- What aspect of the proposed solution do we want to validate/clarify through prototyping? What, exactly, do we hope to learn?
- Who will we recruit to test the prototype? Are they representative of our target audience, or at least similar enough to our target audience to help validate our ideas?

We have included a section for defining your concept in the Keystone Project Presentation template.
Examples

A few examples of how you can prototype a product, digital media or service include:

- **Create drawings or rough sketches** of a physical object or cartoon storyboards of interaction with a service.
  - If soliciting feedback in a group setting, you might want to enlarge the prototype (e.g., drawing the interface of a phone app on an entire sheet of flipchart paper)

- **Build a physical prototype** out of inexpensive materials such as Legos, cardboard, paper, fabric, or other recycled material.

- **Prototype the service environment**, for example by arranging chairs and boxes to model the positioning of equipment in an examination room.

- **Pretend you are pitching the prototype to a donor/investor** – How would you explain it? What questions would they have?

- **Tell the story of how a user engages with it** – What is the consumer’s reaction? When are next steps uncertain? Have multiple people question the storyteller, trying to identify potential problems or important unresolved questions on behalf of the user.

- **Conduct a role play** of a typical user interaction with the solution, for example by role-playing a customer’s interactions with the staff of a clinic.

- **Build an Excel model** demonstrating the revenue and costs associated with providers offering a new service.
GENERAL TIPS FOR BUILDING PROTOTYPES

- The most important thing to remember is that prototypes should take minimal time and effort to build. Building should be the quickest part of the process, so we can concentrate on testing.

- If you are having difficulty getting started, we recommend that you “just build it” and resolve any questions through trial and error as you go.

- Be sure the prototyping method is appropriate, such that it can bring the most important aspects of the user experience to life without worrying about the rest.

For example, if you are just testing to see which color packaging would make a product stand out next to competing brands on a shelf, you don’t necessarily have to build an entire drug store environment and role-play customer interactions: simply stacking the prototype box alongside competing products on a table might suffice.

- Do not make the prototypes look too finished/polished in the early stages. If a design looks “rough” then people feel more comfortable offering criticism and honest feedback, which we need to identify problems and resolve them.

- Do not become emotionally invested in any particular aspect of a prototype – we want audiences to criticize it and we expect it will change based on their criticism. If you decide your idea is brilliant before audiences can provide feedback, you’ll be less likely to want to change it, much less discard it altogether.

INVolVING USerS AND OTHER PARTIES

We encourage you to involve target audience members directly in the building of prototypes, for example by joining in the team’s working sessions or at the least, answering questions as the prototype comes to life. However, once a user provides this kind of input into development of a prototype, they should be viewed as part of the team and should not be used as a participant in testing sessions.

In addition to users, you might:

- Involve members of other departments, to get the input of someone who is not predisposed to view the design challenge in the same way as your team.

- Recruit design school or university students training to be product designers, graphic designers or a professional in a field related to your solution.

- Ask local creative agencies if they have junior staff or interns who want a professional development experience.

In all of these cases, sprinkling in outsiders who focus on creativity as part of their training or job is an inexpensive and quick way to bring fresh eyes and new thinking to your prototype.
TESTING YOUR PROTOTYPE

As you design your prototype, you also need to develop a testing plan addressing who will participate in testing, how the testing will be scheduled and conducted and what data will be captured.

RECRUITING TARGET AUDIENCE MEMBERS

You should plan to test your prototype with 25 or more members of your target audience.

- Ideally these audience members should come from your priority segments.
- Participants should reflect the demographic makeup of the actual target audience (e.g., don’t test entirely with men if the target audience will include women, or don’t test with women if the target audience will be entirely men).
- If, for whatever reason, recruiting actual users proves difficult, you can recruit people who at least have similar barriers or motivators as your priority segments.
- While this can be supplemented with input from other people at PSI (outside the design team) and select outsiders, testing with representatives of the actual user population is critical.

Participants should be screened, either through a formal survey/interview or by asking a few quick qualifying questions, to ensure they match the target audience profile and do not have any special, unique reason to be significantly biased for or against our solution.

SCHEDULING TESTS

Tests can be scheduled in various ways:

- Ad-hoc / ‘on the fly’ by recruiting target audience members off the street or – if the prototype is portable – conducting testing in a particular operating environment or on the street with passers-by.
- In more formal workshops, scheduled in advance with participants completing a screening survey or interview.
- Having a pre-screened testing audience available to call on an ad-hoc basis for their input.

Which method is best will depend on your development process and exactly what you and your team are trying to learn.

CONDUCTING TESTING SESSIONS

There are a number of things to consider when conducting testing sessions:
• Who will interact with the participants? Should it be a member of the design team, or another person not involved in the design process, so participants don’t have to worry about personally offending the designers with their comments?

• How will the prototype be presented to participants? How much should we tell them about its purpose and what we hope to achieve without biasing them to view it through the same lens as the design team?

• What questions should we ask? What directions should we give participants on how to interact with the prototype versus letting them explore freely / figure things out for themselves? How can we balance our need to focus our evaluation with the desire to collect new and unexpected insights?

• Should we offer participants the chance to change the prototype and ‘co-create’ a new version? Will there be breaks during which the design team can make modifications based on feedback?

• General logistics, such as: How long will the session take, overall? How will participants get to the session? Will they be compensated? Will the physical space allow for participants to divide up into smaller groups? Do we need special permission to test a prototype in this space (bus rank, public park, mall, etc.)?

**NOTE**

It might not prove necessary to test the prototype with all 25 participants if you begin to hear the same or similar feedback from 8 or more of your audience members. Also, you might want to avoid inviting all of the people you recruited to the initial session, in order to have a reserve of testers who have not been exposed to the prototype and can provide unbiased feedback on future, revised versions.

**EVALUATING PROTOTYPES AND CAPTURING FEEDBACK**

Create an evaluation sheet for your prototype that outlines the key questions you want to learn from the testing. Broadly you will want to understand from your testing participants:

1. Do they get it (is it clear)?
2. Does it resonate (do they care and is it compelling)?
3. Does it work (will it have the desired effect)?

You can frame these areas to be as specific as you need for your prototype. From this you can create a ‘scorecard’ to help record these details.

This scorecard can be very simple if your audience has a low literacy level (or you just need very simple feedback). Alternately, it can be more detailed to allow you to capture the feedback in a consistent way and compare easily across prototypes (if relevant).
Prototyping Scorecard:

**Examples**

**Test and Get Feedback: Capture Feedback**

- **What worked?**
  - What was exciting?
  - What did people value the most?
  - What resonated with them about the idea?

- **What didn’t work?**
  - What would you change?
  - Were there suggestions for improvement?
  - What did you learn that will make it better?

- **What questions came up?**
  - What needs further investigation?
  - What made you curious?

- **What new inspiration arose?**
  - What surprised you?
  - What might you try next?
RECORDING FEEDBACK

You should record participant feedback and your learnings from the prototype testing so that they can inform subsequent rounds of revision/iteration.

Have a team member observe interactions/interviews to record non-verbal feedback or general trends in group attitude/behavior.

Assign a member of your team to record or write down feedback from the participants or the answers to questions asked by your team.

Alternately, you can have participants fill out a simple, standardized evaluation form during or after the session to give their feedback on specific questions.
ITERATING THE PROTOTYPE

Based on your insights and audience feedback, you will likely go through several more rounds of prototyping to arrive at a solution that resonates with users.

Sometimes users will provide specific feedback and design suggestions that prove useful for improving the solution. In other cases, it is more about observing where users struggle or interpreting the underlying desires and experiences that might lead them to say something or make a particular design suggestion (even if the suggestion itself isn’t helpful). As you go through rounds of iteration of the prototyping it may be helpful to use the same scorecard and see how the scores improve over the different measures based on the tweaks).

HOW MANY ITERATIONS/ROUNDS OF PROTOTYPING ARE NECESSARY?

The number of rounds of prototyping depends largely on your schedule, budget and the reaction of your test audience to your prototypes.

- If feedback suggests that your audience generally understands, likes and would use your initial prototype, you may only need one or two additional rounds of slight changes.
- If your prototype is disliked by the target audience, or if they are indifferent to it, you may need to completely overhaul your prototype or discard it and start over.

“LIVE” PROTOTYPING

Once you have quickly tested your prototypes with audiences and made the necessary changes based on feedback, you may want to polish the concept and put it in the field for a few weeks, to see how actual users react to it in a real-life environment.

For example, if you are prototyping a new clinic flow or a new job aid for IPC agents, try implementing it on a very small scale for a few weeks to see ‘what breaks’ in the real world. This is often a helpful step before scaling to a larger pilot test or actual delivery.

NOTE

Piloting vs. Prototyping

A “prototype” is as much about working out what doesn’t work as it is about working out what does work. A prototype should be “light”—the minimum investment necessary to test something. It should be, conceptually, something that you’re not afraid to throw away.

A “pilot”, on the other hand, infers something where there are a number of knowns and you’re really testing what it takes to actually run something— to take it to scale. There is a high expectation of it actually working. There may be more significant investment.
Examples

VMMC

- Service/product: VMMC
  - Insight: “Men never go to the clinic. They don’t know what to expect at the clinic or for the procedure, so they assume the worst.”
  - Question: “How might we get men over their fears and help them ‘experience the clinic’ without ever stepping foot in one?”
  - Idea: “Maybe give them virtual reality glasses that provide a virtual clinic walk through.”

Adolescent Girls & Young Women Family Planning

- Service/product: AGYW FP
  - Insight: “My mother is the only person I fully trust (but I can’t talk to her).”
  - Question: “How might we get moms on board as allies?”
  - Idea: “We can start a moms’ referral network. Moms are mobilized and given referral forms to either overtly or discreetly give to their daughters for a private moment with them at a local clinic.”
CONCLUSION
By now you should have completed several rounds of prototyping. With users’ feedback incorporated into the design, you will have a blueprint for an improved design.

Summarize the prototype rounds and your findings in the Keystone Project Presentation template, with a short explanation based on the data you gathered during this Design phase. Then return to the Keystone Manual and continue with the next phase.