+ACUMEN IDEO·ORG

1

Make It Real

READINGS

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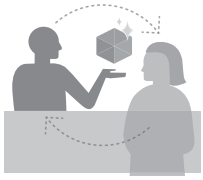
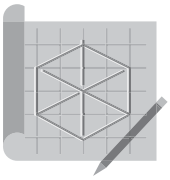
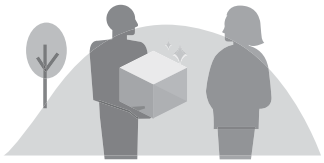
MAKE IT REAL



BUILD TO THINK



PLAN FOR FIELD TESTS



IN THE FIELD

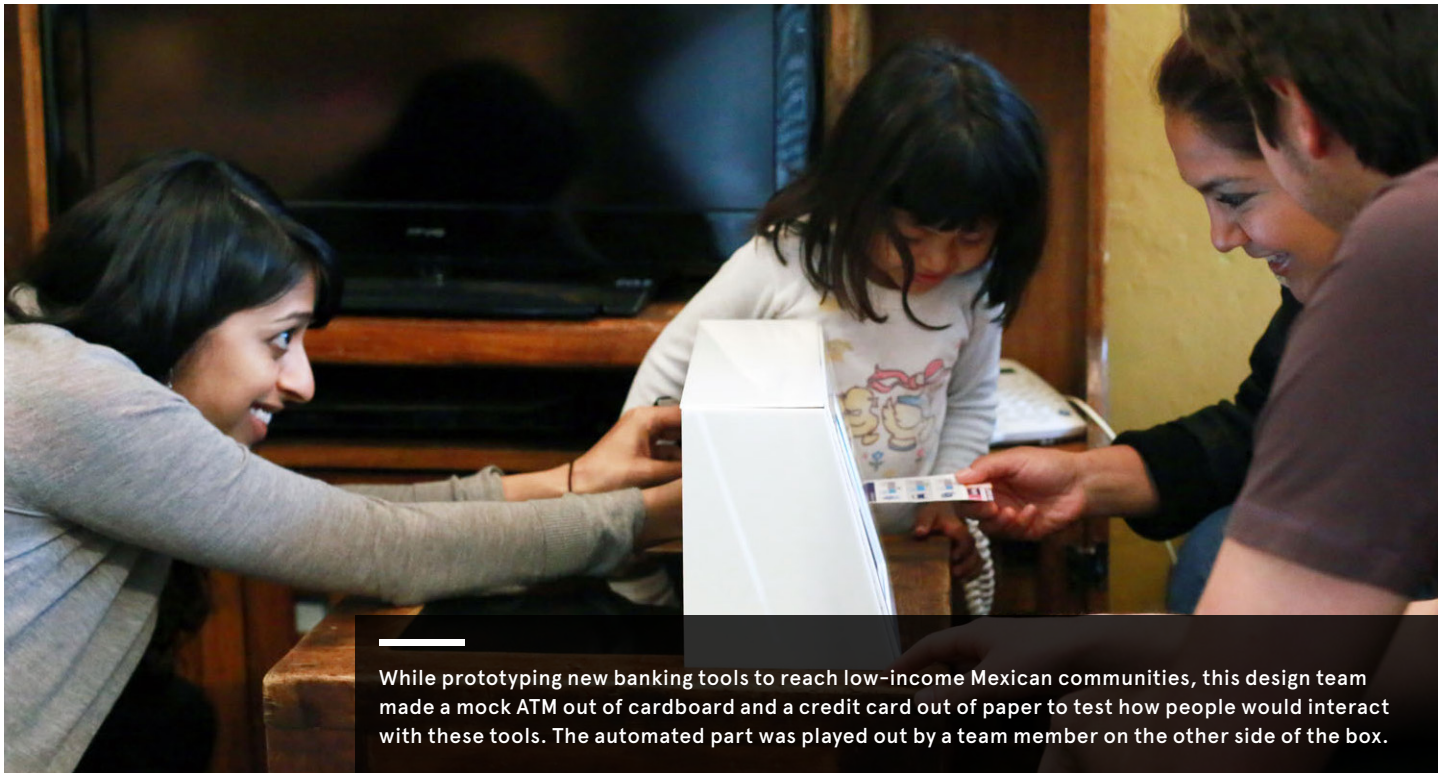
Overview of Prototyping

Human-centered design is a process that starts with the people you're designing for and ends with new solutions that are tailor-made to suit their needs.

Building prototypes gives you a chance to get your ideas out of your head and into the hands of the people you're designing for. By getting feedback early and often, and continuing to improve your idea, you'll be well on your way to getting useful ideas and solutions out in the world.

What is Prototyping?

Prototyping means making your idea come to life so you can learn from it, quickly iterate, and evolve your idea to greatest value. It's building a model of what you think your concept should look or feel like and getting feedback to improve, or even abandon, your idea.



While prototyping new banking tools to reach low-income Mexican communities, this design team made a mock ATM out of cardboard and a credit card out of paper to test how people would interact with these tools. The automated part was played out by a team member on the other side of the box.

Why Prototype?

A good solution is only effective if it's reaching the people it's intended to serve, solving for their unmet needs, and being embraced and adopted by the community at large. Prototyping helps you move your idea forward and meet these goals quickly. When you prototype an idea, you're learning early on in the process.

Implementing a solution and launching something into the world means significant resources and money. Through rough prototyping, you can reduce your overall risk and investment before you go full steam ahead. If you've tested and gotten feedback from the people you're designing for all along, then your ideas are more likely to succeed.

Learning by Making

The act of building a prototype is only one piece of the puzzle. If your prototype just sits in a box and never sees the light of day (or the eyes of the people you're designing for), then you'll never learn from it. Prototyping is an active process which involves building, testing, learning, and iterating.

Build

Prototyping enables people to step into the real-life experience of using that product, service, or environment and give more genuine feedback. It's their feedback that will drive your idea forward and continue to make it better.

Test

Once you've gotten something tangible into the hands of the people you're designing for, you'll want to get feedback. Prototyping is only effective if you get honest, contextual feedback from the very people who may benefit from your idea.

Learn

Prototyping is there to help us learn—taking out the guesswork and giving us an honest look at how our solution works (or doesn't) in the real world. In the eyes of a human-centered designer, no failure is a lost cause—it's simply an opportunity to learn and improve.

Though all prototypes can help us learn something, the best are there to help us answer specific questions and uncover assumptions that we may have when we first jump into an idea. Becoming more tangible about our questions allows us to get to answers and insights faster.

Iterate

So, how does this process lead to a better solution in the end?

Prototyping invites you to learn directly from people, open yourself up to a breadth of creative possibilities, and then zero in on what's most desirable, feasible, and viable for the people you're designing for. We call this opening up and resolving process diverging and converging. You'll diverge and converge a few times, and with each new cycle of your prototype you'll come closer and closer to a market-ready solution.

While field-testing a community mapping solution to tackle the issue of open defecation in urban Ghana, the team learned they needed to reframe their messaging to meet the community's needs.

Key Mindsets

The human-centered design approach is as much about your head and heart as your hands. To effectively bring prototyping into your work, you'll want to remember the key Mindsets of human-centered design. In particular, we'll focus on: **Make It, Learn from Failure,** and **Iterate, Iterate, Iterate.**

Make It

Human-centered designers are doers, tinkerers, crafters, and builders. We have a bias toward action, and that means getting ideas out of our heads and into the hands of the people we're looking to serve. When we prototype, we make using anything at our disposal, from cardboard and scissors to sophisticated digital tools. In the end, it doesn't matter what you use, or how beautiful the prototype is, the goal is always to convey an idea, share it, and learn how to make it better.

Learn from Failure

Human-centered design starts from a place of not knowing what the solution to a given design challenge might be. Only by listening, thinking, building, and refining do we get something that will work for the people we're trying to serve. Failure is an inherent part of the process because we'll just never get it right on our first try. In fact, getting it right on the first try isn't the point at all. The point is to put something out into the world and then use it to keep learning, asking, and testing. When human-centered designers get it right, it's because they got it wrong first.

Iterate, Iterate, Iterate

We iterate because we know that we won't get it right the first time. Or even the second. Iteration allows us the opportunity to explore, to get it wrong, to follow our hunches, but ultimately arrive at a solution that will be adopted and embraced. We iterate because it allows us to keep learning. Instead of hiding out in our workshops, betting that an idea, product, or service will be a hit, we quickly get out in the world and let the people we're designing for be our guides.

For additional Mindsets, visit Design Kit: designkit.org/mindsets

Additional Prototyping Tips

In addition to the core Mindsets of human-centered design, it's also helpful to make these handy tips a part of your everyday practice.

Keep It Simple and Scrappy to Start

When you're excited about a brand new idea, it's easy to get carried away with lots of details. A good prototype, however, starts out very simple and rough. Focus on a narrow piece of your idea at the beginning so that you're building to answer specific questions about the concept and experience. As you go, continue to evolve and refine the level of detail needed to most constructively convey your idea and elicit useful feedback.

Don't Get Too Attached to Your Idea

It's easy to get attached to your solution, especially as you get further along in prototyping. After all, you and your organization are likely putting in more than just time and resources—it may very well be your heart and creativity on the line. However, if you aren't willing to let go of your initial solution as the one right solution, you're at risk of missing out on exploring variations that might lead to surprising, and potentially better, ideas.

Go for Quantity

During prototyping, a human-centered designer goes into the field knowing that they may not know all the answers, and they give themselves the permission to explore. For the most effective prototyping experience, go into the field with not just one prototype, but many variations. Furthermore, go with an open mind to learn and the flexibility to change your prototypes, sometimes in real-time during field-testing. Bring materials into the field with you, so you have everything you need to make your next iteration right then and there.

Listen to Your Audience

Not getting attached to your idea goes hand-in-hand with truly listening to your audience. It's all in service of getting quality feedback from the people you're designing for to create a solution that's truly valuable to them. Remember, it's not enough to just build something. Prototyping involves the combination of building, getting feedback, and incorporating what you learn into rapidly evolving iterations to propel your idea forward. By showing your audience that you truly value learning with and from them, and not just trying to get them to agree with your solution, you're more likely to get quality, genuine feedback and ultimately a better solution.

Types of Prototypes

We'll be spending time learning about a few kinds of prototypes: products, services, and environments. We'll provide more detail on each as we go, setting you up for success as you explore prototyping forms and variations.

Physical Prototypes

Physical prototypes test how people interact with tangible objects or products. Physical prototypes may focus on testing the function of an object, its form, or in further evolved iterations, both.

Function

Functional prototypes shed light on how intuitive and effective the use of the object is for the person you're designing for. They help resolve design and engineering constraints and inform mechanical feasibility and the usability of the idea. They can also help surface technical issues only perceptible once you test your solution in the hands of real people.

Form

As you gain clarity on the functional aspects of your concept, form prototypes help you evaluate the look and feel of your idea.

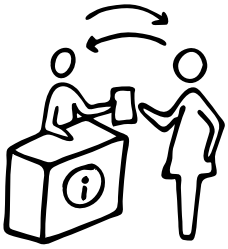
A product that succeeds both functionally and aesthetically with its users is poised to deliver a great and valuable experience.

An IDEO.org team working with Shining Hope for Communities (SHOFCO), an organization aiming to tackle gender inequality in an urban slum of Nairobi, Kenya, prototyped to learn how people would interact with their idea. While designing a way to encourage increased reporting of gender-based violence cases, they started with a simple idea—allow people an anonymous outlet by which they could report. The team built simple, eye-catching boxes with a slit for a reporting card. They tested the boxes in public, semi-public, and private spaces to see where they would get better response rates and explored different messaging on different boxes. Prototyping gave them quick insights into the actual behavior of people they were trying to reach.

In early prototypes of the reporting box, the team found that vandalism could be an issue.

Later versions of the prototype made the box more secure and approachable.

Types of Prototypes



Service Prototypes

Service prototyping explores the underlying roles, processes, and tools of an experience. Some services involve more person-to-person interactions while others leverage more digital or remote interactions.

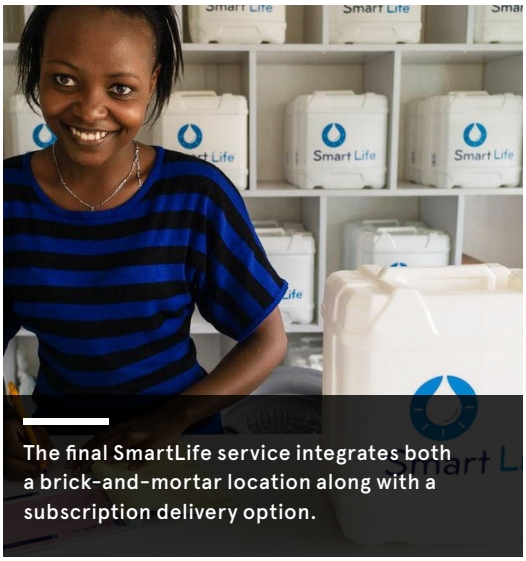
Person-to-Person

Person-to-person service prototypes test interactions between people. When it comes to these prototypes, early testing benefits from role playing experiences to test interactions.

It can be helpful to support role playing with physical signals (e.g. uniforms, name tags, props). Try different roles and scripts to experiment with how to communicate and what order to sequence an experience to meet and exceed the needs and expectations of the person using the service.

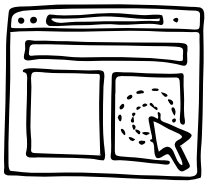
When designing a clean drinking water solution with Aqua for All, Global Alliance for Improved Nutrition (GAIN), Unilever , and Water and Sanitation for the Urban Poor (WSUP) in Kenya, the IDEO.org design team wanted to test potential service delivery mechanisms, including a door-to-door model, a pop-up kiosk model, and a brick-and-mortar store. By quickly creating a name (SmartLife) and a logo which they could put on signs and t-shirts, renting a kiosk and storefront for a day, and recruiting the help of WSUP members, the design team was able to simulate these three types of in-person service delivery models and test how these interactions might work with potential customers.

Testing one potential service model, the team set up an informal shop front and created a logo to test demand for SmartLife's offerings.



The final SmartLife service integrates both a brick-and-mortar location along with a subscription delivery option.

Types of Prototypes



Person-to-Technology
Digital prototypes test how people interact with technology-based solutions. We like to start making digital prototypes using simple analog objects like paper, cardboard, and tape, first. Only after we learn what information and interactions prove most useful do we move on to actually building out digital experiences.

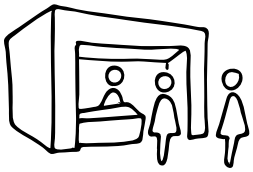
For example, a design team working with Mercy Corps to rebuild financial stability to Filipino communities hit by Typhoon Yolanda wanted to test out how individuals used their cell phones and how a mobile banking product might fit into their existing behaviors. They started with a larger-than-life cardboard prototype of a cell phone interface. Later iterations remained analog with mock text messages printed more true-to-size and attached to cellphones with rubber bands to test how people would react to SMS messages.

Paper prototypes allowed the team to simply and quickly try different ways to present information to participants, and empowered the community to help co-create a solution with the design team, without needing deep technical skills.

In early phases of the project, the team was looking to better undestand how people use their mobile phones.

Before building any kind of digital platform for Mercy Corp, the team tested out how phone users would navigate an SMS-based system.

Types of Prototypes



Environment Prototypes

Prototyping a space simulates the experience of being in and interacting with a surrounding environment, like a building or outdoor space.

Prototyping a space allows you to think big. You may even think of space as a large product or tool—one in which you live, work, or conduct other activities. Early versions of environment prototypes may involve inexpensively transforming the area by using things that are already at your fingertips, such as tables, chairs, cardboard, or wood.

While working on a public toilet solution in India, an IDEO.org team partnered with Eram Scientific, the maker of a self-cleaning, electronic toilet (eToilet), to consider how they could make the structure and experience more user-friendly. Prior to the redesign, the eToilet stood unmarked in urban neighborhoods. Community members often couldn't figure out how to use it, and those who did found it intimidating. When drafting new ideas for the space, the team took into account what they heard from potential users. For example, they learned that women wanted a more gender-friendly space where they could retie their saris in private before exiting the eToilet. Based on this insight, the final designs incorporated an L-shaped wall at the exit to provide such a space.

The original eToilet was an intimidating structure, and directions with heavy text were confusing for intended users with low literacy.

Before actually building anything, the team made some quick sketches and renderings of what the eToilet space might look like.

What You Might Need

Here's a list of materials that you might find handy as you start building. You'll see these again during the Workshop sessions, noting items that can work well for different types of concepts. Don't feel limited to this list—we encourage you to add any other materials you feel are helpful!


Colored Paper


Scissors


Markers


Glue


Cardboard Boxes


Post-it Notes

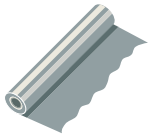

Ruler


Tape

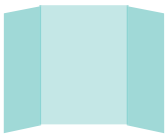

Empty Water Bottles


String


Pipe Cleaners


Aluminum Foil


Clay

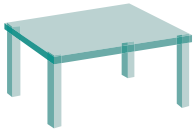

Poster Board


Chair

Name Tags


Uniforms


Hats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Additional Resources

Design Kit – Mindsets

Review the Mindsets of a human-centered designer.
www.designkit.org/mindsets

Why Designers Should Never Go to a Meeting Without a Prototype

Take a look at this article by Tom and David Kelley.
bit.ly/ImportanceofPrototyping

Rapid Prototyping Google Glass

Watch Google X Co-Founder Tom Chi talk about the use of prototyping while developing one of Google's innovations.
bit.ly/PrototypingGG

You Can Prototyping Anything

Check out this first in a series of IDEO zines: bit.ly/IDEO_zine

Case Study: The Divine Divas

THE CHALLENGE

"I want to tell each and every girl to go to the Diva Centre. No matter how many girls we educate, if they don't have this, they'll end up in the kitchen."

—Anna, 18

In Lusaka, Zambia, a radical new approach to contraception is getting adolescent girls the information and services they need in order to finish school and take control of their futures.

Almost no teenage girls were visiting Marie Stopes International's (MSI) Zambian clinics, so IDEO.org's challenge was to get more of them through the door, to effectively get them the reproductive health services they want, and as a result, to put more girls on a path to success.

THE CONCEPT

The Diva Centres offer a vibrant space and service that's just for girls, free from intimidating doctors and the impersonal clinics that are all too common in Zambia. At the Diva Centres, girls talk and laugh while hanging out and doing their nails. The cheerful space and teen-centric vibe sparks natural conversations about boys and sex, and the conversation is all about connecting contraceptives to each girls' individual aspirations. Girls get the inside scoop on reproductive health from their peers, and, when they're ready, receive services from health professionals in a safe and judgment-free space.

IDEO.org and MSI took a human-centered approach, spending weeks immersed in the lives and aspirations of Zambian youth, and designed a multi-touchpoint approach to getting girls the contraception that they need and want.

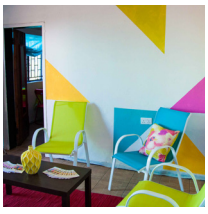
Since launching the Diva Centres, MSI Zambia has seen an incredible increase in the number of youth seeking contraception; about 75% of those who visit the Diva Centres receive contraception—vastly improving MSI's reach to youth. There are currently three Diva Centres in Lusaka, with plans to build many more.

The four Diva case studies in this course each focus on a different element of the system. You'll learn about how an IDEO.org team prototyped four different parts of the Diva experience including products, services, environments, and how the design team iterated on this integrated experience to bring it to life.

THE DIVA KIT

DIVA OUTREACH

THE DIVA CENTRE



FIELD-TESTING

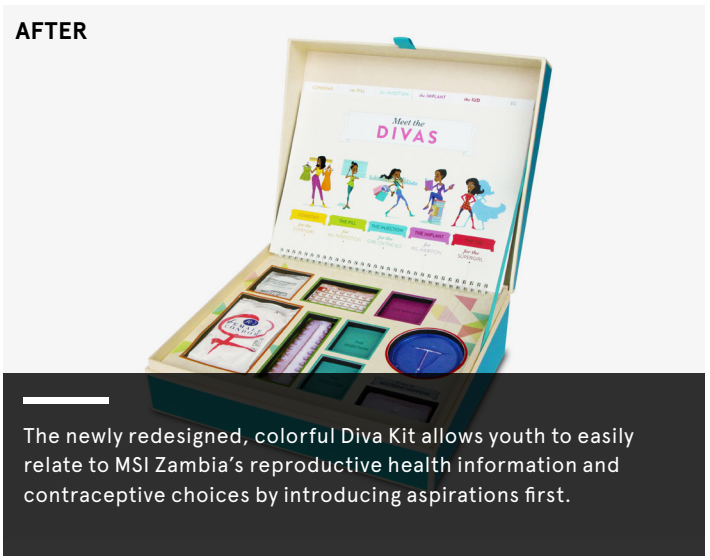
PRODUCT PROTOTYPING

PART 1 PART 2 PART 3 PART 4

Case Study: The Diva Kit

Prototyping how youth learn about contraception with the Diva Kit.

Prior to this design project, MSI Zambia clinicians used a traditional medical kit to introduce contraceptives. However, options were framed only in terms of risks and side effects, an intimidating conversation for youth.



The newly redesigned, colorful Diva Kit allows youth to easily relate to MSI Zambia's reproductive health information and contraceptive choices by introducing aspirations first.

Key Takeaways

- **The Big Idea:**
  The Diva Kit
- **Type of Offering:**
  Product
- **What Is It?**
  A kit that showcases reproductive health offerings through Diva personas, focused on lifestyle qualities, aspirations, and choices rather than just risks.
- **What Inspired It?**
  Youth were overwhelmed and intimidated by contraceptive information.
- **What Did We Want to Learn?**
  By making contraceptives more approachable, will youth be more likely to use them?

THE DIVA KIT

One of the most important physical objects the team designed was the Diva Kit. Not just a box of diagrams and contraceptive options, the Diva Kit is a prompt for the kind of conversations the Diva Centres hope to foster. Though the inspiration for the kit came from the traditional big blue box of contraceptives that MSI staff was using, IDEO.org put a distinctly Diva spin on what girls had once found intimidating.

Until that point, MSI Zambia had been using its blue box to frame conversations about contraception in off-putting medical terms, not what it might help a girl achieve. The Diva Kit turned the big blue box on its head, and instead of asking a girl if she wants an IUD or a condom, asks her what she wants out of her future.

Most importantly, we gave girls a chance to see themselves, and to see their dreams, the moment they opened the Kit.

Front and center are the Divine Divas, five aspirational characters that represent different types of birth control. Rather than jumping right into the nuts and bolts of IUDs, condoms, and the pill, the Divine Divas prompt a teen to discuss what type of life she wants. From there the nurse can use the Diva Kit to help the girl understand and choose the method that seems like the best fit. If a girl sees herself in the Ms. Perfectionist Diva character, the pill may be the best choice for her.

In early versions of the Diva Kit prototype, the team asked MSI clinicians to introduce a pamphlet with the Divine Divas before bringing out the existing blue kit to see if this way of talking about contraceptives would resonate more with youth.

After testing it, and finding out that the Divine Divas were an effective approach to start the conversation, the team dove into making a full-on Diva Kit.

A key piece of the design was making sure that the Diva Kit conveyed the tone and feel of the Divine Divas. We knew the Diva Kit itself couldn't feel clinical or ordinary, so we used bright colors and warm materials, we illustrated the Divas to give them a welcoming feel, and we left out intimidating elements, to make girls feel comfortable and empowered.

Early prototypes of the Diva Kits were made of cardboard, but after testing them with a number of nurses, teens, and peer connectors, it quickly became clear that sturdier materials were necessary. The Diva Kits have gone through several iterations, and are now housed in cheerful, durable cases that are up to the task of meeting girls where they are.