HUMAN CENTERED DESIGN (HCD) DISCOVERY STAGE FIELD GUIDE V.1

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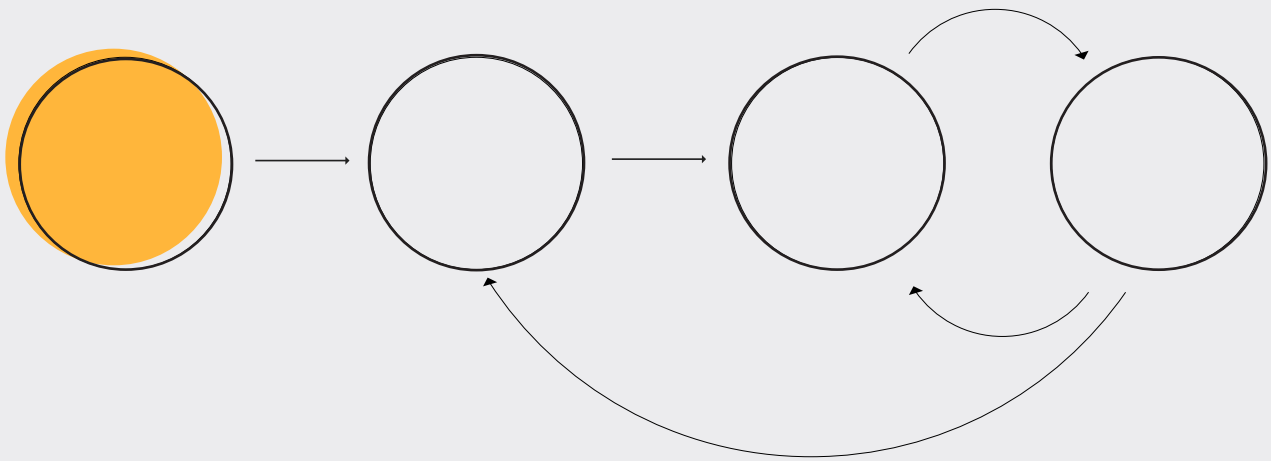
Purpose of This Guide

The purpose of this Design Guide and its sister Design Ops is not to make an exhaustive list of design processes. There are many other works can do that for you, some of which you can find in the Afterward of this book. It is, instead to provide you context and some select methods for creating designed objects and processes. Beyond the methods, however, we hope you will focus on context and learning the Why behind the How. If you learn the Why, you will be able to cross-apply the contents of these Guides to other situations in your work and life, hopefully expanding your understanding of complex problems and eventually contributing back to this work with orignal methods of your own making. That, in fact, would be our greatest measure of success: for you to take what you have learned here, and then create original work from your learnings.
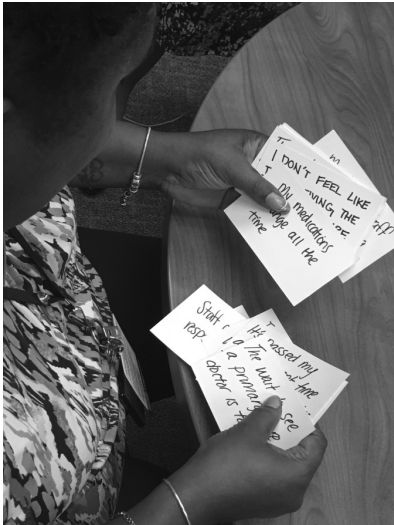
Throughout this work, we will refer to the people for whom we're designing as participants. Not users; not customers. Because the people for whom we're designing are participating in our system and with our objects. They are active. Users and customers receive things and services; this creates either a supplicant (please give me the thing or service) or entitled (I deserve the thing or service without reservation and in the exact way I want it) orientation. Participants are equal to ourselves. Both designers and people for whom the designed product(s) and service(s) are made are participating in this process. Participation indicates relationship, and we are in relationships with our products, services, and everyone who uses them.

Public sector workers design both objects and services. Many times, a service is supported by an object, such as a form, booth, electronic device, or other tool, or even multiple objects of the same or different types. For this reason, in this book we will follow the design of Product, an object, and the Service, a service in which Product is used.
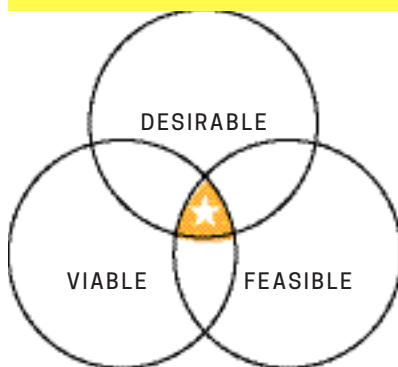
Table of Contents

Human-Centered Design

DESIRABILITY LENS

The Desirability Lens, popularized by the design consultancy, IDEO, illustrates that Human-Centered Design should focus at the intersection between of what customers want (DESIRABLE), what is possible with current means (FEASIBLE), and what is capable of working within constraints (VIABLE).

What is HCD?

Human-Centered Design (HCD) is a problem-solving framework that helps make systems and products more responsive to the people, or the customers, who use those systems and products. It requires rigorous qualitative research, directing that research towards the goal of deeply understanding the needs, insights, and emotions of customers. By using Human-Centered Design, we can focus our time, resources, and energy on solutions and innovations that make service delivery effective, easy, and in tune with the emotions of our customers.

HCD involves four phases of sequential work: discovery, design, delivery, and measurement. HCD is also cyclical. Once a design solution is launched, we measure its effectiveness against initial and intended aims, and then we continually tweak it, thus improving the solution over time. HCD recognizes that people and their needs are dynamic and changing and so our solutions are dynamic and changing.
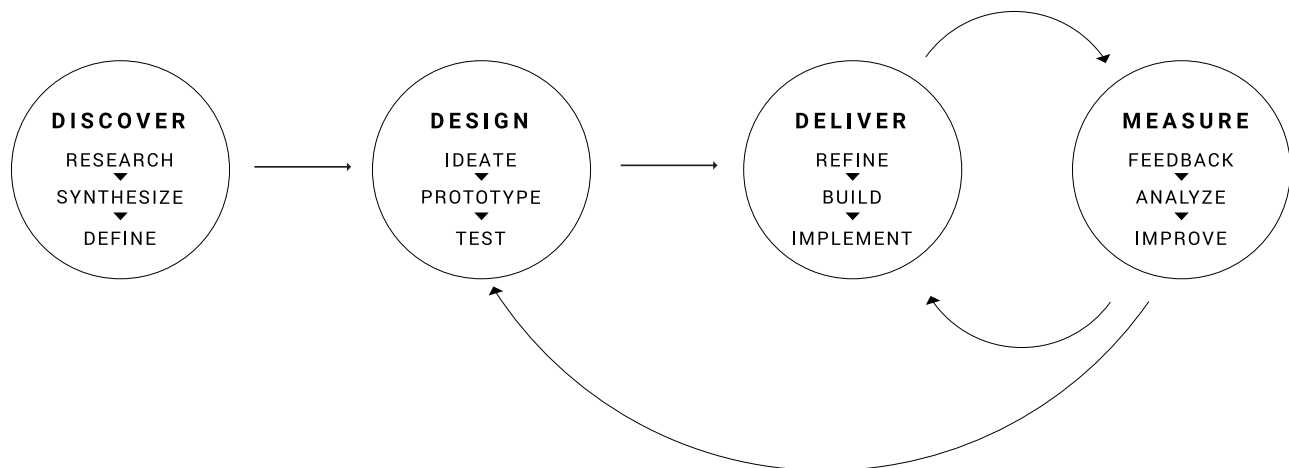
DISCOVER   DESIGN   DELIVER   MEASURE

HCD allows us to understand the types of experiences customers want from a system, product or service. We refer to the customers' desired experience as the "front stage" of the design effort. HCD also helps us craft the processes that creates those desired experiences. We refer to this behind-the-scenes work as "the back stage" of the design effort. By tending to the front stage and the back stage, HCD allows us to put the customer at the center of our design development.

The HCD approach has already created immense value in advancing agency missions. For example, redesigning USAJOBS, the hub for federal hiring where nearly 1 billion job searches are done annually by over 180 million people, has resulted in a 30% reduction in help desk tickets after the first round of improvements. Not only does this reflect an easier experience for those involved in the hiring process, this change also creates savings in support costs.

HCD Process

HCD is a cyclical process that moves from the discovery phase, through a detailed design phase, flows into the deliver phase for evaluation and iteration before finally entering the measurement phase. It begins with empathetic or sympathetic engagement and research. We hear from people in their own words, so we may gain an understanding of what they want and need from the agency.

By using HCD in our work to improve agency services for our customers, we can identify innovations or solutions that are desirable, feasible, and viable. Then, we design the solution, launch it, and measure its effectiveness against our initial goals. If the solution falls short of those goals, we make revisions based on further feedback from users and test it again. This dynamism is inherent to the HCD process. HCD solutions are for people and situations who are dynamic and changing, so the solutions are also dynamic and changing.

Discovery

The first Human-Centered Design Guides in this series focused on the Discovery phase. You should have completed or be near completing your Discovery as you pick up this part of the series. In Discovery, you built a problem frame, observed situations and listened to users and stakeholders.

Design

With your insights gathered and opportunities defined, you're entering the Design phase. In this phase, you will start to build prototypes and work through design ideas. You won't try to perfect these too soon. Instead, you will prioritize iteration, testing with customers, and making incremental refinements. Build, test and repeat.

Deliver

After prototyping and testing, you will work with stakeholders to plan the logistics around the launch of your design work. You'll also set goals and expectations for the launch phase.

Measure

In the Measure phase, you gather quantitative and qualitative data to learn if the goals and expectations of your work are being met. When applied, this data will help improve your design.

Working With HCD

Checklist

☐ Review the HCD Discovery Guide.
☐ Ensure your team and leadership is aware that your team is using HCD.
☐ Review any other references you may have read in the past that seem applicable to this project.
¨ Review and take stock of past efforts that are relevant to your current project. What previous work has been done in this area? Can you measure the effectiveness or validity of these past efforts? If you find previous work to be effective and valid, how will you integrate those findings into your current project?

REFERENCES

Additional Research Methods

Additional social science research methods are abound. They all drive towards finding the truth of situations or the core causes of problems. You can find more on social science research methods via: https://iriss.stanford.edu/

Basics of the HCD Approach

Human-Centered Design is grounded in empathy and understanding. It begins with observation and research. We hear from people in their own words, in order to gain an understanding of what they want, expect, and need from a system, product, or experience.

HCD and LEAN

HCD and LEAN complement each other. HCD is based heavily on qualitative research, while LEAN is quantitative. LEAN enacts the first two Es of customer experience: Ease and Effectiveness, very well. HCD also enacts Ease and Effectiveness, but adds the third E, Emotion, into the process, through an understanding of human needs, and identification of the desired experience.

The two methods complement each other. HCD helps to define the desired customer experience front-stage, and then LEAN can be used to architect the backstage to deliver on that desired experience.

	LEAN	HCD
EASE		
EFFECTIVENESS		
EMOTION		

> *"What people say, and what people do, and what people say they do are entirely different things."*
>
> –Dr. Margaret Mead, Anthropologist

Human-Centered Design and other qualitative research methodologies investigate and help sort out the root causes of conflicts like the one above by Dr. Margaret Mead.

LEAN and other quantitative methodologies allow for the understanding of current system states and the rational correction of mechanical and nonhuman inefficiencies in systems.

Design Phase

Guiding Principles

When in the Design Phase, keep in mind the following principles. We'll go through them in more detail in the following pages:

1. Getting to Simple is Hard

2. No Solitary Geniuses

3. Imagine Differences

4. Value New Users

5. Groups & Individuals Differ

6. Public Sector Differs from Private Sector

7. Public Sector Serves Everyone

8. Define Your Audience

9. Design is not permanent

Making Concepts

When faced with the blank page or trying to iterate, it can be tough to know what to do next. A few key design concepts can help you create designs and iterate on them as your progress:

1. Grid

2. Scale

3. Proportion

4. Materials

What are the things we design in the Public Sector?

You might be asking yourself what gets designed in the public sector? The government does not have a product or product suite it sells; it does not construct services and offerings packages to sell like private companies do.

While the first part of that statement is true, the second part is not. In fact, the public sector designs products and services constantly. Until recently however, the sector simply did not apply the rigor or professionalism of a design practice to its designed objects and services.

A driver's license, an application for a building permit, and interstate signage are all designed objects; pedestrian rules, the tax code, and the National Parks System are all designed services. Each of these examples have roots in laws, policies, and iniatives from legislatures, agencies, and other government bodies, but, to grow the ideas from their roots into a functional product or service requires a design process — whether conscious, careful, and intentional, or not.

Oftentimes, a service is underpinned by many products. One example of this is the National Parks System. You may think of National Parks as just a bunch of open air, but it is in fact a collection of services that include wilderness preservation services and scientific research opportunities. It is supported by various products, including signage, websites, apps, uniforms, housing, and others.
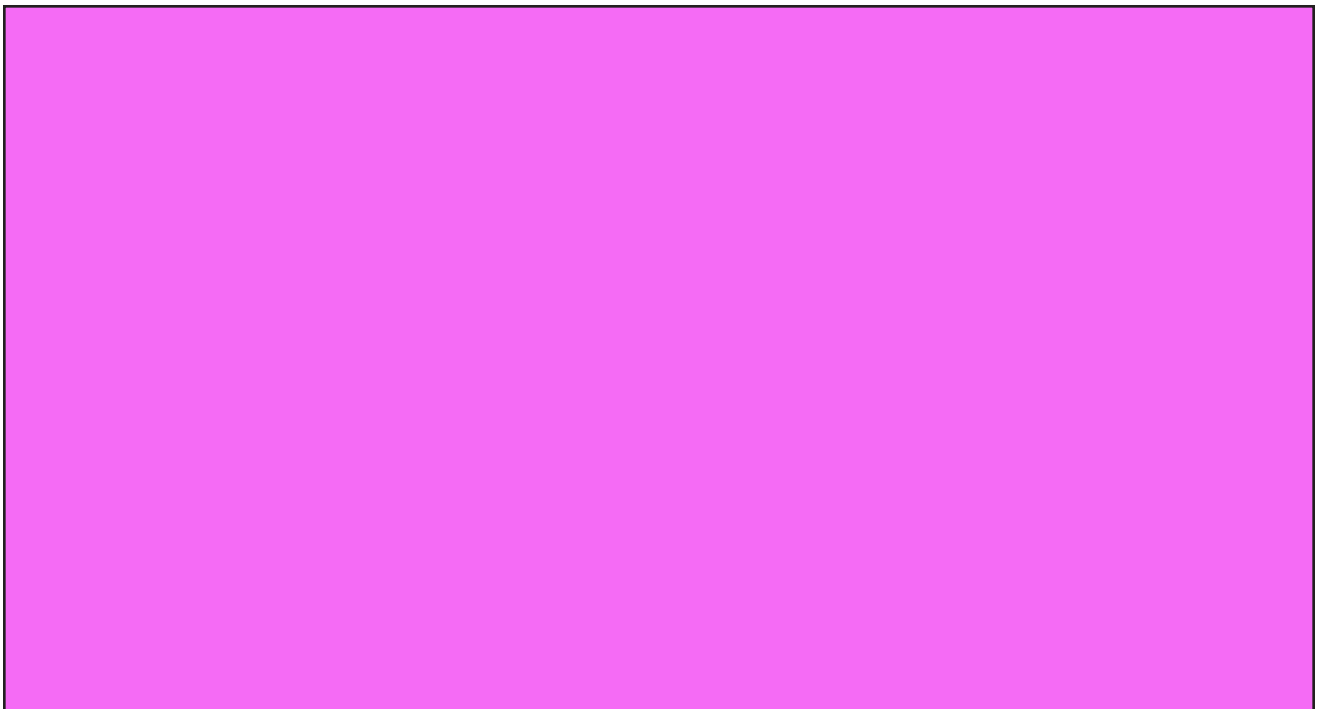
Products vs. Services

What is a Product?

Lorum Ipsom

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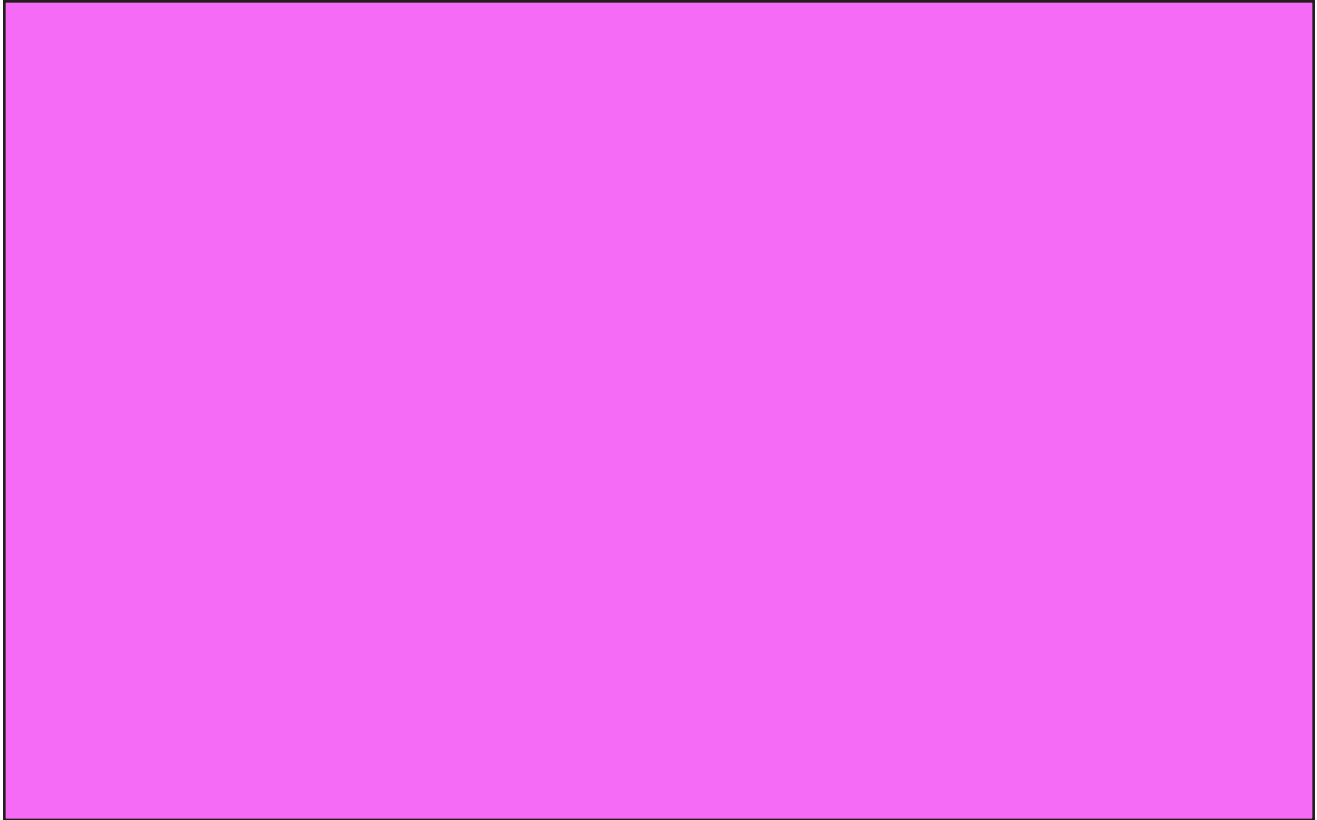
What is a Service?

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Envisioning Design

One of the most difficult parts of design is working on the edge of the unknown. The diagrams and tangram analogy are here as guideposts to this process which, by its very definition, will result in the creation of new products and services that cannot be described here.

Checklist

☐ Ensure that your leadership and teammates are aware that you are actively entering the design phase. Letting them know can be formal or informal, depending on the culture of your workplace.

☐ Ensure that each team member has your Insights and Opportunities from the Discovery phase.

☐ Ensure that each team member has a copy of the Design Operations Guide.

STRATEGY

Working with Unknown Elements

Proxies, or stand-ins, can be useful when discussing a system that contains unknown elements, such as your future design product or service.

When talking to your leadership or teammates, you can create a proxy to stand in for your future design. You can do this algebraically, as in, "We'll call the design we're going to make X," or with tangible objects, such as a tangram, or with humor, as in, "we'll refer to our future design object as Squiggle,". Making a stand in for your design will allow the team to converse around your designed product or service without needing to know exactly what it is. Stand in elements also allo you to map future phases, such as Delivery and Measurement.

Using Tangrams

Throughout this work, we will use Tangrams as examples of designed products and services. Tangrams are dissection puzzles consisting of seven flat shapes, called tans, which are put together to form shapes. The objective of the puzzle is to form a specific shape (given only an outline or silhouette) using all seven pieces, which may not overlap. (https://en.wikipedia.org/wiki/Tangram)
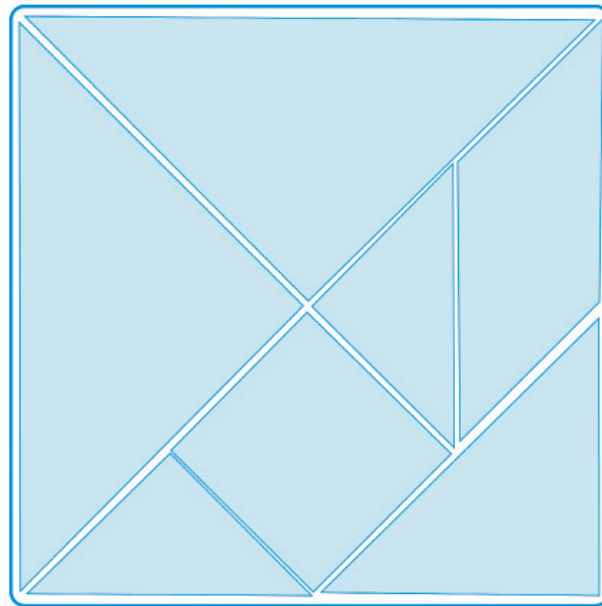
Why Tangrams?

Tangrams present the unique benefit of allowing us to connect a concrete object, the tangram puzzle, with the concept of iteration. Since a tangram puzzle allows us to create many shapes (new tangram shapes are still being discovered to this day), out of the same component parts, they present a useful parallel to your design problem. In your work, you have a need to create something new, but based on the opportunities you identified in the Discovery phase, and inside sometimes very strict constraints.

Insights & Opportunities into Design Iterations

This is diagram shows how insights and opportunities can be moved into design iterations. Previous stages in this process are available in the Human-Centered Design Discovery Stage Guides.

POTENTIAL DESIGNS

HCD LENS

INSIGHTS

FIELDS OF OPPORTUNITY
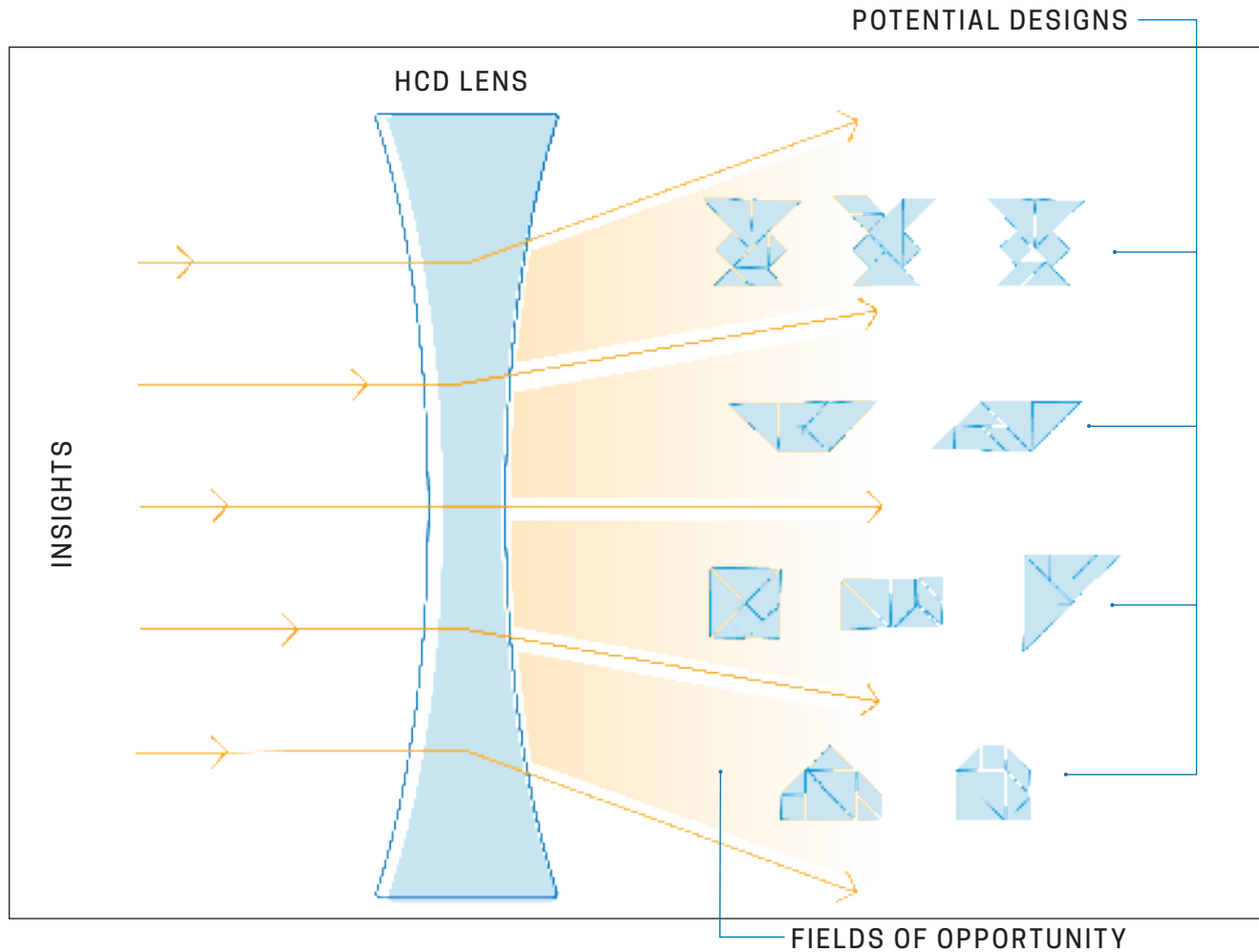
Tangram Shapes

Above are the seven shapes in each tangram set. Their proportions, or sizes, are based off of a single unit of measure that can be any measurement of distance, such as an inch or a centimeter. Because the proportions are fixed, the scale is infinate: You could scale a tangram set up to the size of a building or even a landscape, if you had enough space.

Design Principles

Lorum

PURPOSE

This section explains the design principles from page six. These explanations should help you contexualize why the authors of this Guide have selected these principles as items to keep top-of-mind during your design phase. This section should also act as a reference throughout your design process.
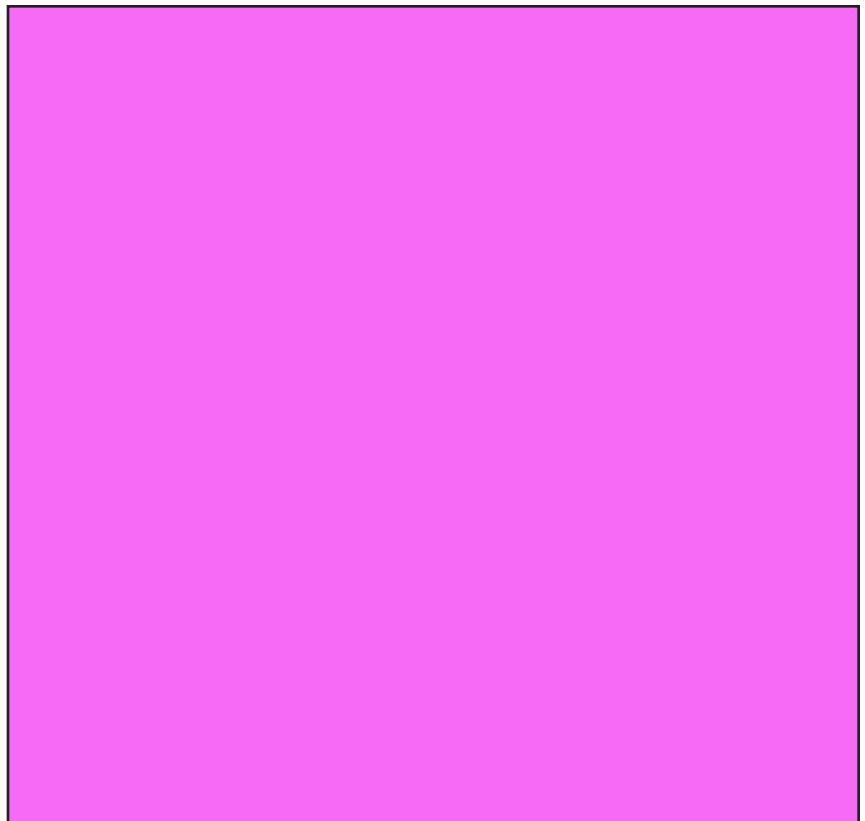
REFERENCES

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Additional Research Methods

Other resources for design principles can be found from the following groups:

NYC Service Design
UK Design Group
Helsinki Design Group

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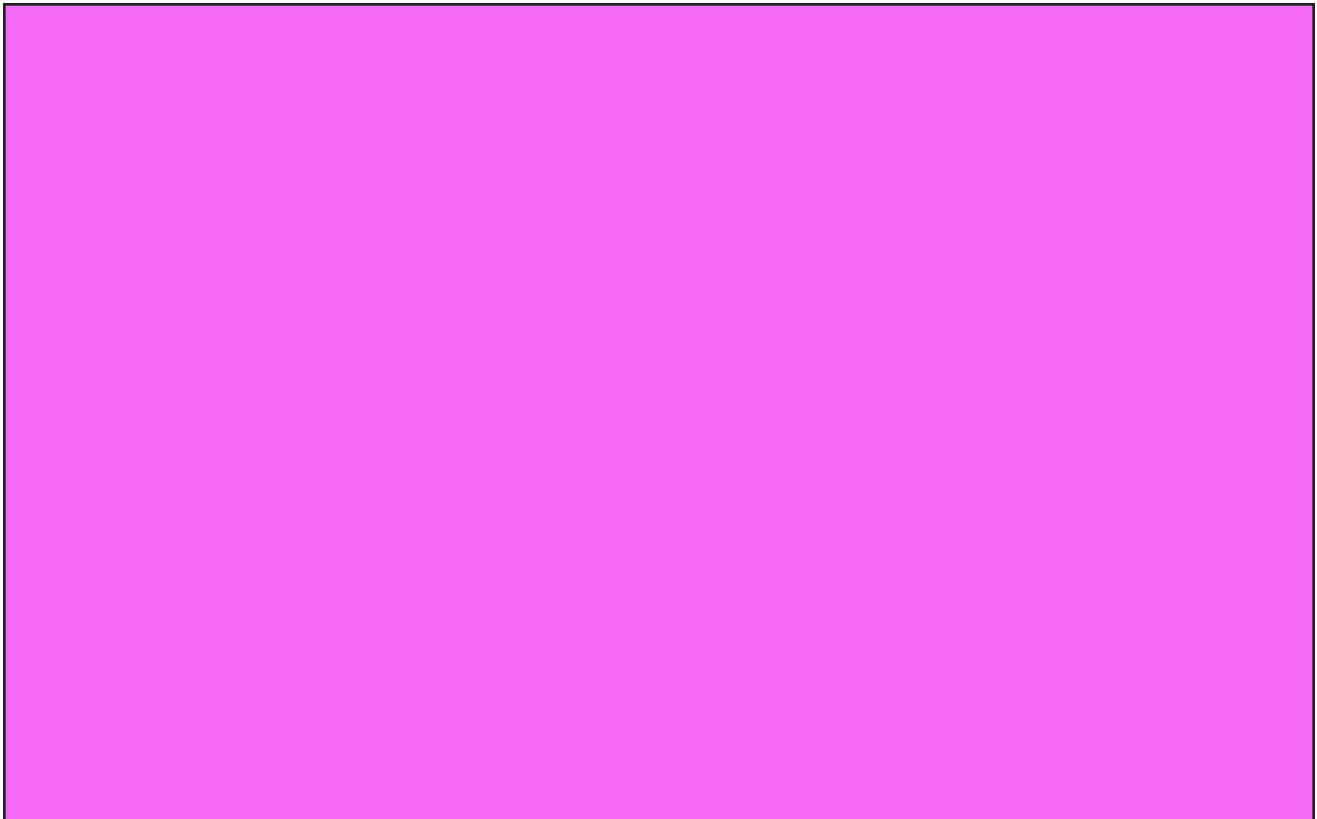
Getting to simple is hard.

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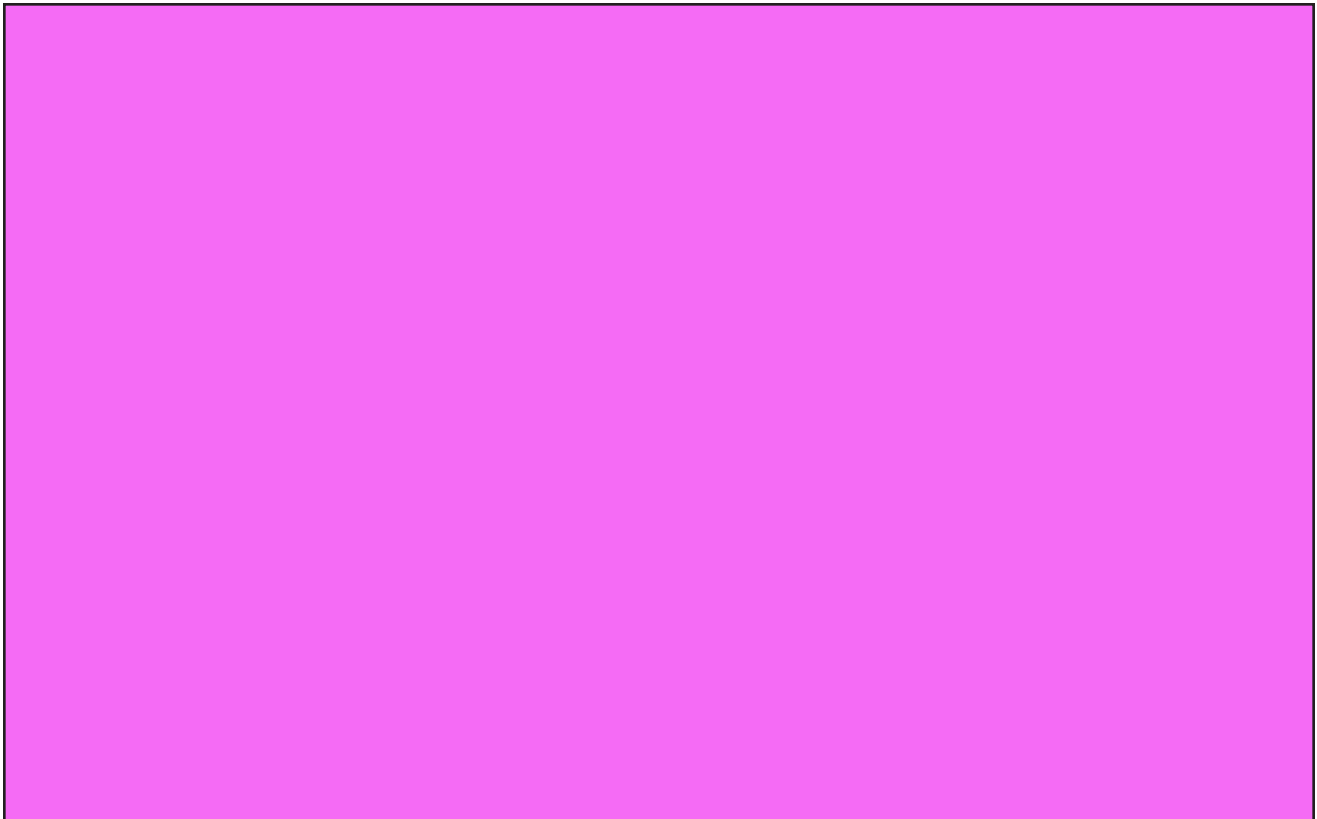
No Solitary Geniuses

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Imagine Differences

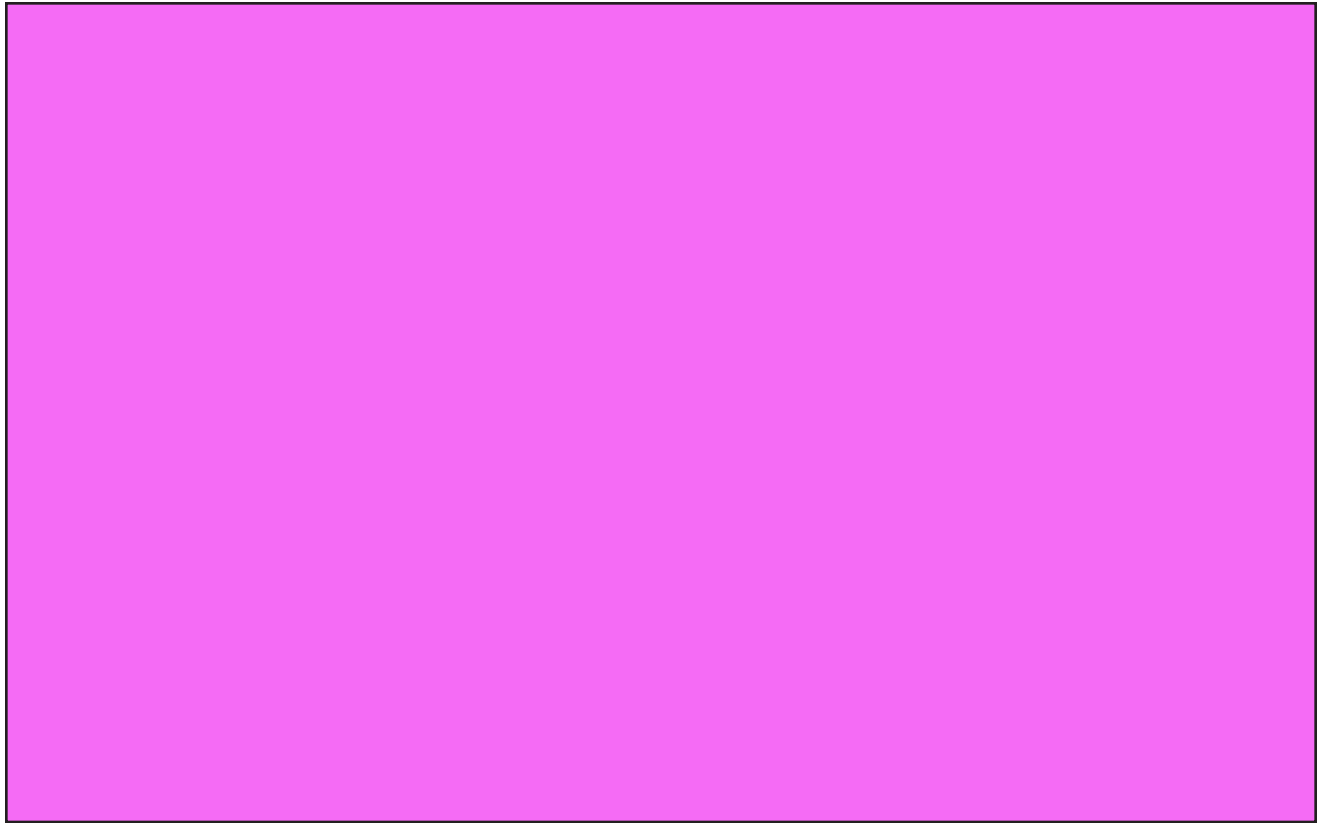## It takes all kinds to make the world go 'round.

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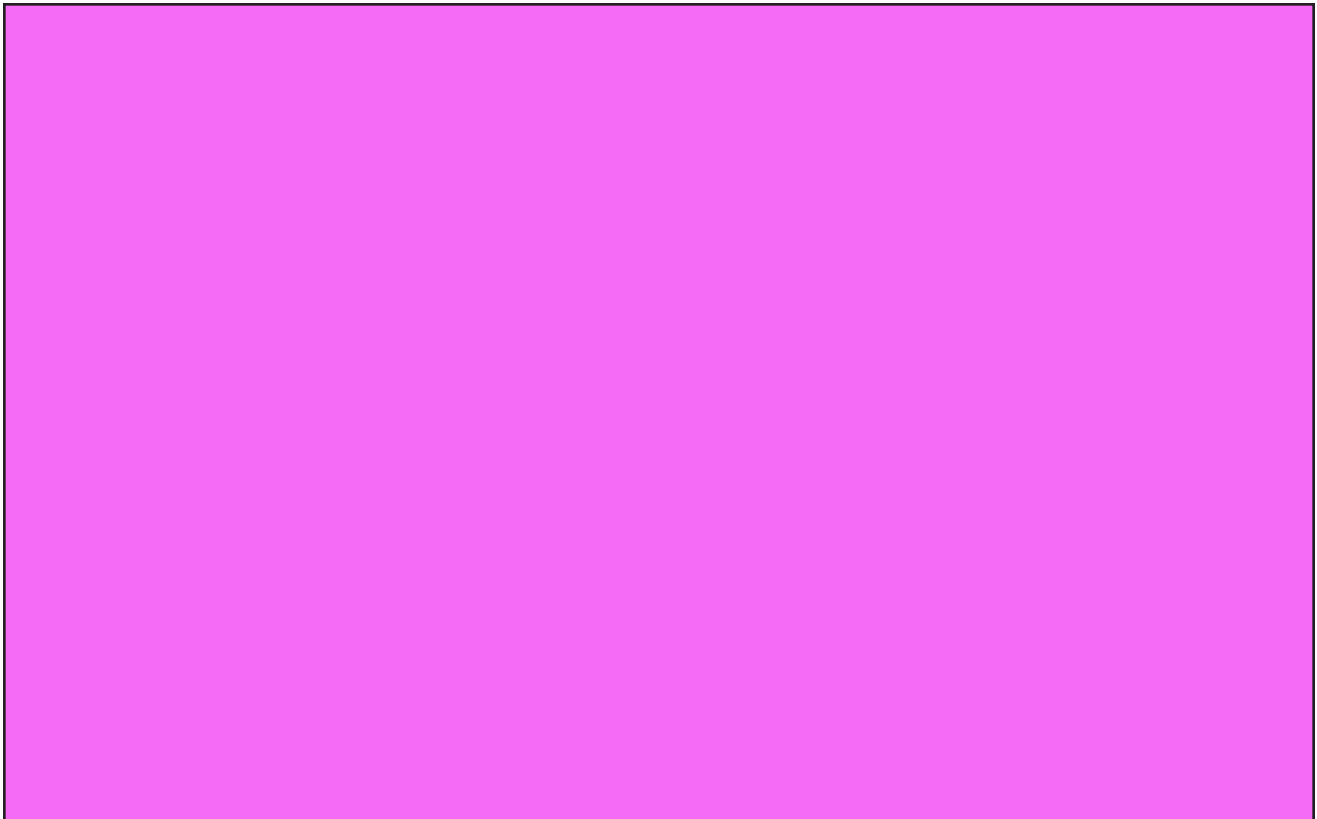
Groups & Individuals Differ.

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Value new users

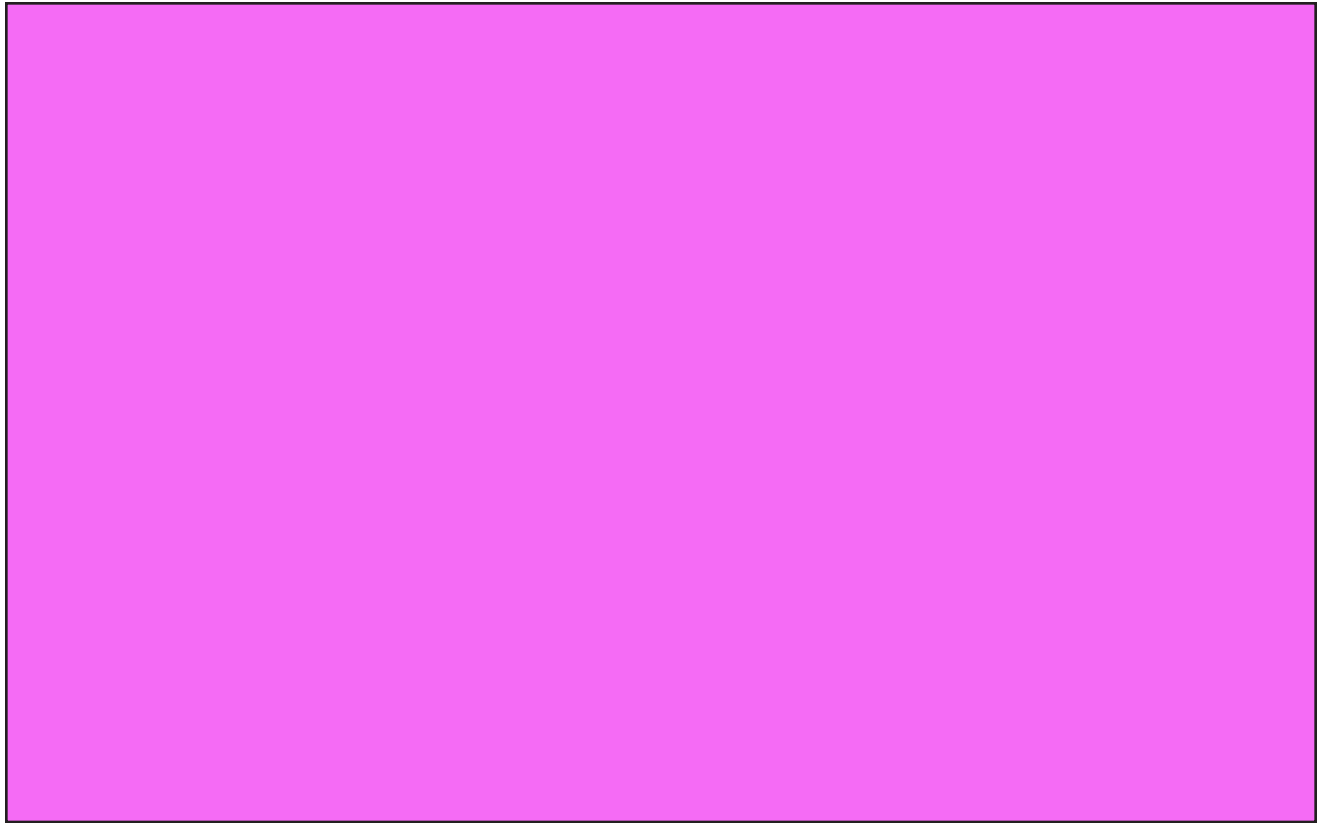## And design for the newest-newbies

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Public Sector Design differs from Private Sector.
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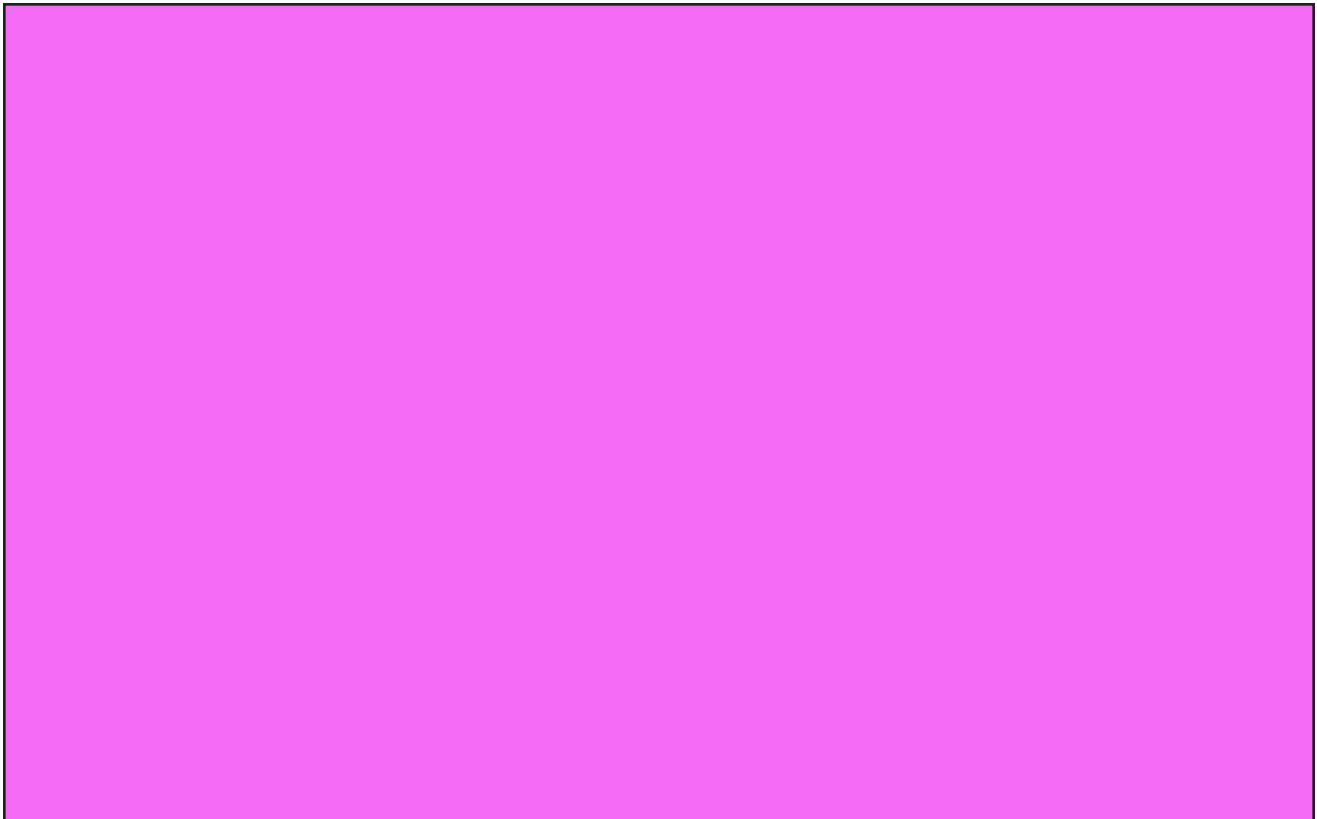
Public Sector Serves All the People.
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Define Your Audience.

Your audience isn't all the people, all the time.

Lorum Ipsom

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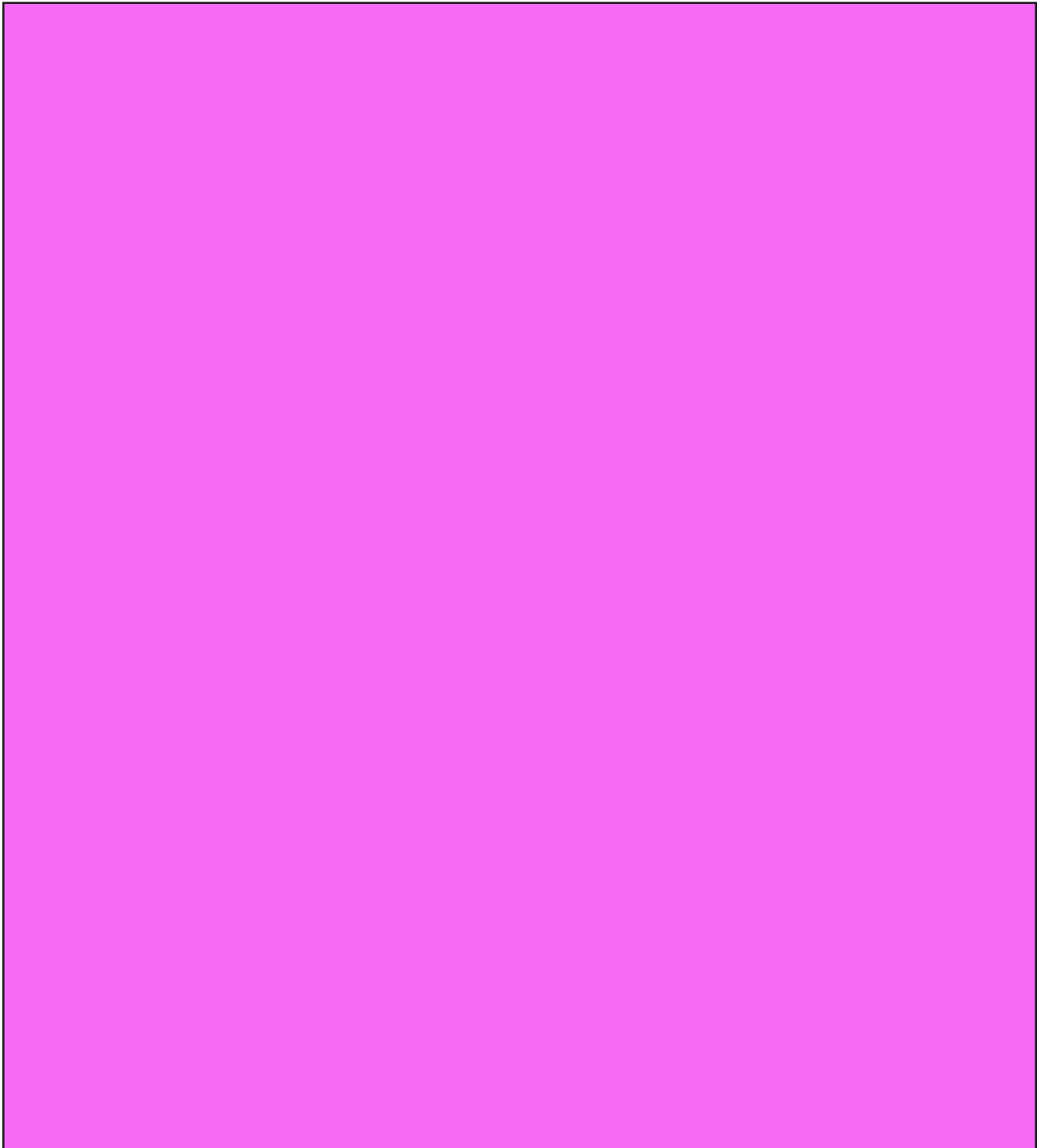
Design is Not Permanent.

Lorum

Lorum Ipsom

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Making Concepts.

Elements to base your design explorations on

Grid

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Scale & Proportion

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Voice & Tone

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Color

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Typography

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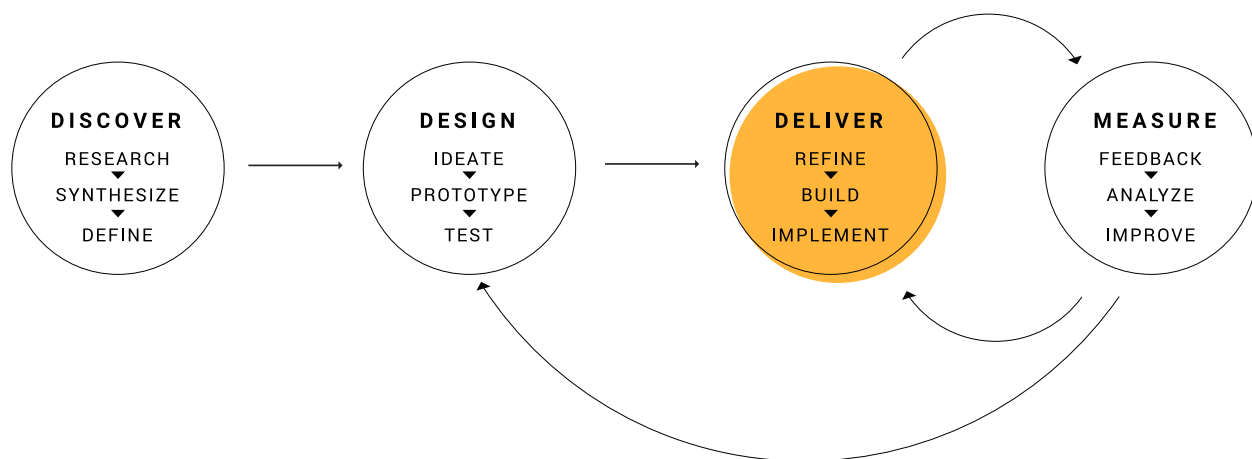
What's Next

Deliver Phase

You've presented the opportunities to your key audience and gained consensus about which set of opportunities to address. Now you are ready to move to Design: the HCD phase wherein you partner with designers to prototype products, services or systems that address the opportunities.

If, on the other hand, you have come this far and have not gained consensus, don't despair. If you have come this far and feel your research has not been fruitful, *don't despair.* Your effort is not wasted. You can always reframe and begin research again. It is far better to learn something is not working early on than to invest time and resources into the *wrong* design. A reframe, in this case, is a win.

Whether your next step is to move into Design, or whether it is reframe and do a second round of research, the most important thing is to keep your agency customers' interests in mind and to use that north star to guide your continued efforts.

DISCOVER
RESEARCH
▼
SYNTHESIZE
▼
DEFINE

DESIGN
IDEATE
▼
PROTOTYPE
▼
TEST

DELIVER
REFINE
▼
BUILD
▼
IMPLEMENT

MEASURE
FEEDBACK
▼
ANALYZE
▼
IMPROVE

Thank You!

Contact Information

Please send questions or comments.
GSA Customer Experience: customerexperience@GSA.gov
The Lab at OPM: LAB@opm.gov

Thanks and Acknowledgment

Numerous people, across agencies, contributed to this guide. We are grateful to all of them.

Veterans Experience Office at VA
GSA Office of Customer Experience
The Lab at OPM

We would also like acknowledge other leaders in the field of Human-Centered Design which inspired and informed this guide: The VA Innovators Network, 18F, USDS (United States Digital Service), the United Kingdom's Government Digital Service (UK GDS), New York City's Civic Service Design group, Helsinki Design Lab, Ideo, Frog Design, IBM Design, and The d.School at Stanford University.

Glossary

3 Es

Effectiveness, Ease, and Emotion are the 3 core qualities that VE measures across the enterprise. These are based on a Forrester Research Inc. pyramid model of customer experience.

5 Whys, aka, Laddering

A method by which an interviewer derives additional detail and undercurrents from an interviewee. Typically characterized by the interviewer asking "why" in regards to a qualified or abstract word or phrase used during the an answer to questions. A common metric is for the interviewer to do this five times in a line of question.

Accessibility

The extent to which content is available, understandable, and usable by all audiences, regardless of sensory, physical, cognitive, intellectual, or situational disabilities or impairments.

Best Practice

Procedures or approaches that are accepted or prescribed as being correct or most effective.

Clustering

A research analysis method characterized by the grouping of words or phrases that have a single or set of commonalities. In Design Research, this is often enacted physically by the assembly of words or phrases written on single pieces of paper into a, proximate group.

Concept/Context mapping

An ethnographic research technique, concept/context mapping is a process that tries to understand the environment in which the behavior under study takes place.

Customer Experience (CX)

Customer experience (CX) is the product of an interaction between an organization and a customer. This interaction includes a customer's attraction, awareness, discovery, cultivation, advocacy and purchase and use of a service. It is measured by the individual's experience against the individual's expectations.

Decode

To understand. To analyze in order to find meaning.

Empathy

The action of understanding, being aware of, being sensitive to, and vicariously experiencing the feelings, thoughts, and experience of another through a shared experience.

Ethnographic research

Ethnographic research tries to understand how people live their lives. Unlike traditional research, who ask specific, highly practical questions, ethnographers may visit homes or offices to observe and listen in a non-directed way. While this observational method may appear inefficient, it enlightens us about the context in which customers see their own environment.

'Fail early, fail fast, fail small'

A Design Research principle expressing the ethos that, through quickly making and testing small, unsuccessful solutions to big problems in quick succession, drawing lessons in terms of what works and does not work from those tests and revising the next solution accordingly, more effective and successful end solutions can be reached than if a single large solution was launched once and without testing.

Front Stage / Back Stage

Parts of services that are visible to the service user are called front stage. Part of services not visible to the service user but are interacted with by the service provider are called back stage.

Guided Tour

A research methodology during which a participant shows researcher(s) their physical space, collections, or other assets so that the researcher(s) understand the participant's context and reality through the participant's point of view.

How Might We Question

A "How Might We" (HMW) question serves two purposes. First, it is the frame of inquiry, or the area of research. And second, a HMW question should spur and inspire the research team. A good HMW research question will focus but also leave room for exploration.

Human-Centered Design

Human-centered design (HCD) is a design and management framework that develops solutions to problems by involving the human perspective in all steps of the problem-solving process. Human involvement typically takes place in observing the problem within context, brainstorming, conceptualizing, developing, and implementing the solution.

Ideate

To form an idea of; imagine or conceive. In Design Thinking, this refers to imagining or conceiving of multiple ideas for solutions to problems, usually in succession and building off each idea.

Innovation

A new idea, method, or device. In Design Thinking, usually characterized by a break from traditional or institutionalized methods, production methods, or products .

Intercepts

Intercepts (intercept interviews) are conducted on site with Veterans while they are interacting with services at the research site.

Internal bias

A universal situation in which humans feel or show inclination or prejudice for or against someone or something. In Design Thinking, the inherency of internal bias is accepted, and we correct for these biases is through awareness and acknowledgment of them.

LEAN (process)

An approach that focuses on people, process and purpose and the alignment between the three.

'No wrong ideas'

In Design Thinking, the principle that, in order to forward innovative thinking, the group or individual performing the thinking session must accept and consider all ideas as possible solutions.

Pain Points

In experience design, pain points are real or perceived problems experienced by customers within a system.

Problem frames

The area of research in regards to a particular problem.

Qualitative research

Primarily exploratory research. It is used to gain an understanding of underlying reasons, opinions, and motivations. It provides insights into the problem or helps to develop ideas or hypotheses for potential quantitative research.

ROI

Acronym for: Return on Investment.

Root cause

The fundamental reason for the occurrence of a problem.

Shadowing

A research methodology during which the researcher follows the participant through the participant's activities. These activities show the researcher the participant's physical context as well as their interaction within that context.

Sensemaking

To make sense of; to understand.

Snapshots

A representative sample of research. In design-oriented presentations, this refers to a collection of photographs, quotations, and synthesized research that is formatted to tell the story of the research endeavor.

Stakeholders

Persons, groups or organizations that have direct or indirect stake in an organization because it can affect or be affected by the organization's actions, objectives and policies.

Sympathy

The action of understanding, being aware of, being sensitive to, and vicariously experiencing the feelings, thoughts, and experience of thorough emotional and intellectual understanding of another's experience. Contrasts with empathy in that it does not include a shared experience.

Synthesis/synthesizing

To combine (a number of things) into a coherent whole. In Design Thinking, this refers to the collection and integration of the substance of the research instances into a logical and meaningful collection.

Touchpoints

Any point of contact between a customer and a service or service provider. This could be the design of a receipt, the comfort of a waiting room or the usability of a web page.

Yes, And

In Design Thinking, the logical opposition to the statement, "No, But..." Meant to set up acceptance and integration, this form of reply to statements can allow for expansive conversation instead of a negation of opinions and options.

Notes

Photocopy this Consent Form for use in the field.

Unique ID: _____

Project: _____

Quotes, Photography and Video Consent Form

Thank you for your willingness to participate in this research study.

Use of Quotes

When we write reports or presentations on what we learn from the interviews, we sometimes use specific quotes from study participants. Quotes bring to life what we learn and are an important part of sharing your experience with others. If you give us permission to use your quotes, we will not include your name or a photograph of your face next to the quote. This protects your identity and makes the quote anonymous. If you approve of your quotes being used in future publications or presentations of our work, please include your name and signature in the section below.

Name _____

Signature _____

Date _____

Photography and Video

The project team may take pictures or video during the interview. Photographs and Videos bring to life what we learn and are an important part of sharing your experience with others. If you give us permission to use photographs or videos of you, we will not include your name or a quote as part of the photograph or video description. This protects your identity. If you approve of photographs or video being used in future publications or presentations of our work, please include your name and signature in the section below.

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Signature _____

Date _____

Please keep a copy of this document in case you want to read it again.