

The Code for America

Qualitative Research Practice Guide

Spring 2020



Welcome

Code for America's Qualitative Research Practice Guide is a statement from our qualitative research team of how we approach qualitative research, why we believe research is critical to the effective delivery of government services, and how you can engage with our research practice. Through our work in government service delivery, we have learned how to conduct research in ways that can help everyone ensure that their products and services are as inclusive as possible.

This guide touches on everything from Code for America's core research philosophy, to our approach to ethics and trauma-informed research, to specific methods for conducting research and analysis. We have also included plenty of practical tips on planning and executing research, as well as suggestions on how to synthesize your findings into action.

This is version 1 of the guide. These pages are a snapshot of our research team's work and the approaches we use to lift up the voices of people as we work towards a world where government is oriented around an understanding of the needs of those it serves. As we continue this work, we hope to keep learning and sharing what we've learned with the broader research community. As part of that learning process, we would love your feedback. Please share any thoughts or suggestions you (or your team) have about this guide with us at research@codeforamerica.org.

Who is this guide for?

Government agencies and service providers

At Code for America, we want to inspire public servants to drive change by developing better ways to deliver government services and sharing our learnings. We believe that when government is committed to centering people in the development and implementation of technology, operations, and policy, it will be best equipped to serve the American public.

We encourage all government workers and agencies to learn about how we work, to adopt methods from our approach, and to hire qualitative researchers in their own offices.

Researchers and designers

Qualitative researcher, user researcher, UX designer, however you identify, we are all part of a growing and evolving field. At Code for America, we want to learn from our research colleagues across the industry from community organizers to tech to academia.

By being transparent about our own approach and processes we hope to contribute to conversations and growth in our field.

People engaged in civic tech and social impact work

Our civic tech and social impact colleagues across all levels of government in the US and abroad, and at nonprofits across the world, are in partnership with us to make change and to advocate for human-centered practices.

Together we can build a movement to push the work farther and faster than we ever could on our own.

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Research methodology & principles



Code for America's research methodology and guiding principles frame why research is critical to our design process. They are the foundation for our use of the research methods and tools in this guide.

Research philosophy

Code for America's mission is to develop tools and services that help government work for the people, by the people, in the digital age. The people we serve often belong to vulnerable communities, and their voices are not always heard in the context of government service delivery. The goal of qualitative research at Code for America is to infuse the voices of the people we serve into our process and, ultimately, the products and services we create.

Our research strives to see people as complete human beings acting within a broader community rather than just as isolated “users” of our products and services. Beyond product refinement and testing, our research seeks a broad exploration of a group of people and their beliefs, values, and desires so that those findings can be a jumping off point for innovative and life-changing products.

From interviews and in-person observations at the start of a project, to creating journey maps that display needs and pain points, all the way through to usability testing, **qualitative research ensures that we build the right thing at the right time for the people who need it most.**

We cultivate a “*research mindset*” in our engagement with research participants and in the analysis of their experiences. Our research mindset is humble, comfortable with uncertainty, and open to anything we might discover.

When we conduct research we are not hunting for interesting anecdotes or seeding quotes for a slide deck—we are answering real questions in order to provide actionable guidance that will push projects forward.

The point of research is to inspire action to build better products that solve real problems. The best-planned, most insightful research is worth little if the problems it finds are never fixed, or the opportunities it reveals go unrealized.

Ultimately, research is a tide that lifts all boats. It is fundamental to developing government services that better and more equitably meet the needs of communities. Raising the bar on quality of research raises the bar on quality and effectiveness for everything that we seek to do for the world.

Guiding principles

We strive to be humble, trauma-informed, and experience-led

We practice deep listening in order to treat every individual's lived experience with care and to ensure they feel heard. We cultivate humility, knowing that even if we have subject matter knowledge in a problem space, we are not the experts on anyone's life. We respond empathetically to a person's needs and concerns without explaining why technological capacity or government bureaucracy might limit our ability to implement a remedy right away.

People lead the way

We believe that the experiences and needs of the people we serve should drive product decisions and organizational vision.

People are not defined by the products and services they use

We believe that everyone we serve has needs and experiences that exist outside of just the product or service that we're working on. Research gives us the unique opportunity to think beyond the boundaries of organizational structure and government silos to discover new opportunities that serve our population best.

We ask big questions by starting small

We believe in creating systems change through building an understanding of individual experiences.

Research is a shared value and a respected practice

We believe that design, engineering, policy, marketing, development, operations, and leadership all benefit from proximity to the people we serve and their stories. We should all hear their voices often and firsthand.

While everyone should regularly participate in research, our skilled research staff are best equipped to plan and guide it. Rigorous research practices and protocols ensure valid data which help generate the most impact.

We care for ourselves and each other with the same respect we give our participants

We believe that community care for researchers is an ethical imperative. We care for ourselves and our fellow researchers in order to be able to best care for, serve, and respect our participants. We acknowledge the challenges of this work by giving ourselves breaks and protecting each other's time to process. Creating an interdependent community of researchers ensures we can show up fully for each other and for our participants.

A note about language

When communicating with participants and representing our research findings, we intentionally use language that reflects our values. Here are some ways that we try to do this:

Mirror the language that the person uses

Whenever possible, it is important to mirror the language that people use to talk about themselves and their situations. Wherever possible, enable research participants to talk about and define themselves using their own terms. This builds trust and compassion and allows them to have agency over their own experiences.

Use “people” over “user”

We believe in using the word “people” to talk about those we are trying to serve. This ensures that we view people as more than those who use our services or products, but as multifaceted human beings that have myriad experiences. It allows us to think holistically about the people we serve. Often, in the services that we work in, there is not one singular “user,” or our “user” is not the one directly interacting with the service, and using “people” ensures we acknowledge that distinction.

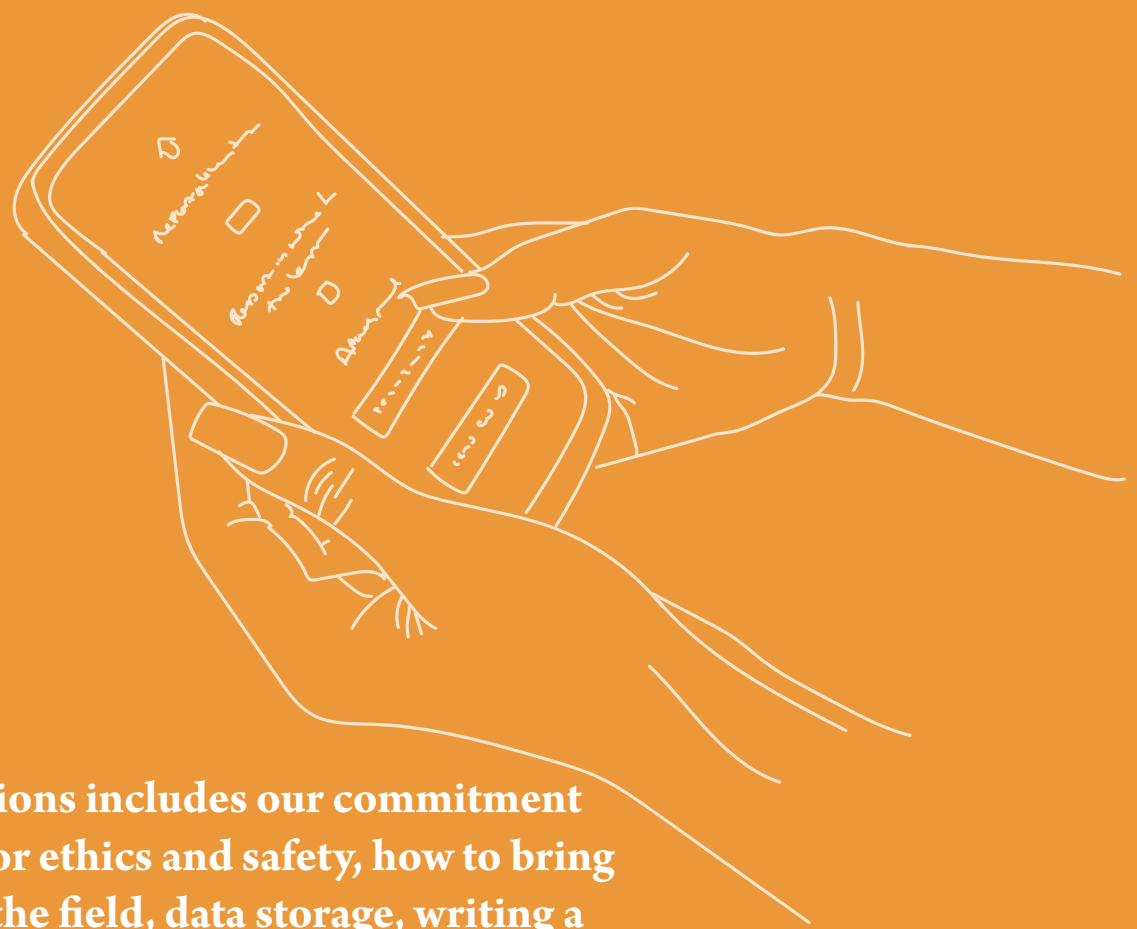
Embrace people-first language

People-first language centers people as human beings rather than as their particular circumstances or experiences. This language acknowledges that one experience or situation does not define a person’s whole life. Some examples of people-first language include using “people experiencing homelessness” rather than “homeless people” or “people living with convictions” rather than “convicted people,” “convicts,” or “former prisoners.” Language is tricky and always evolving, so if you are unsure what to say it’s okay to ask another researcher or, better yet, the person themselves.

Use a person’s voice when sharing their experiences

When we communicate research findings, we try not to paraphrase what we thought we heard, especially when communicating an individual’s stories. Instead, we use direct quotes where possible, with explicit permission from the participant about which quote is going to be used and how.

Research operations



Research operations includes our commitment and guidelines for ethics and safety, how to bring teammates into the field, data storage, writing a research plan, recruiting participants, and when to ask for research.

Ethics & safety

Code for America's qualitative research practice is grounded in creating safe and ethical environments both for ourselves and for our research participants. The following are general safety and ethics guidelines that we believe should be followed in all research engagements. We encourage you to discuss safety and ethics openly with your team at the beginning of each project and update or add to this list as necessary.

Research ethics

Understand and address power dynamics

When conducting research, you should be conscious of the power dynamics between yourself as the researcher and research participants. In the role of researcher, you set the tone and assert power dominance, intentionally or not, by establishing a hierarchy where you ask the questions and the participant is compelled to answer them. We grapple with these power dynamics both in our drive towards equity and inclusion and as to not bias research findings. While we can never truly erase the power dynamics we bring into the room, we do have several practices designed to acknowledge them:

- We provide incentives at the beginning of a research session right after the participant has signed a [consent form](#) so people feel comfortable leaving at any time. For more on our incentives practices, see *"Incentives"* on page 19.
- We dress for research engagements to mirror our participants in casual, approachable clothes.
- We use non-threatening body language and room set-ups.
- We set the expectation with research participants that there is no right or wrong answer, that their stories are valid, and that we come to research humbly, to learn from them. When bringing prototypes or products to get feedback on, we find ways to demonstrate that these are works in progress and we encourage honest criticism.
- We talk openly and vulnerably about how power manifests in the work we do. To explore more about power in design research, read this medium post by George Aye of Greater Good Studio: [Design Education's Big Gap: Understanding the Role of Power](#).

Set realistic expectations

When beginning any research with a participant, explicitly lay the groundwork of what will happen during and after the conversation. Participants should understand what sorts of

questions they are expected to answer and why those questions are being asked. Researchers should be clear about what the outcome of the study is and how the participant's input will be used to further the project.

Obtain informed consent

[Code for America's consent forms](#) explicitly speak to the purpose of the study as well as how information and data will be shared and used. When obtaining consent, we highlight the specific aspects of the consent form that may be relevant and are explicit that the participant can stop the conversation at any point. We allow participants to opt in to different documentation methods (e.g. audio recording, photos, or videos) and explain how those artifacts will be shared or used. **Obtaining consent is asking for ownership of their words, stories, pictures.** Therefore, we do not push participants to consent to something they are uncomfortable sharing and make sure they receive their incentive whether they complete the interview or not.

If your organization doesn't have a consent form, [download our starter template](#).

Make best use of participant's time

As you recruit and screen research participants, confirm that each person is of the population you are trying to target to ensure that you are best using everyone's time. Pick an interview length that optimizes for time. You want research conversations to be long enough to build rapport, but not too long as to exhaust both the researcher and the participant. Additionally, always be conscious about what questions are most important to be answered during the interviews to ensure you effectively manage everyone's time.

Acknowledge and notice biases

While it is impossible for us to be able to remove all biases, we need to notice and acknowledge when biases may be affecting our interactions with participants. This helps to understand how biases may change our research outcomes. Over time, using what we learn from those self-evaluations we can work to decrease the role personal biases play in our work. This process can take the form of having frank conversations with the team about the assumptions you have entering a research project and periodically checking in on how those biases might be manifesting in the work.

Be trauma-informed when engaging with participants

Participants that we work with may have experienced significant trauma, especially as it relates to the services and programs that we are trying to redesign or reform. As such, it's important to be trained to recognize signs of trauma (e.g. body language, tone, etc.) and respond (e.g. offering space, cold water, time to breathe) in a way that does not retraumatize

participants. Being trauma-informed also means giving participants agency and choice over what activities they participate in and what topics they talk about. Make sure participants understand that they have control to stop a research session at any time, for any reason without any repercussions. We must also recognize what information is actually useful and not ask participants to open up in ways that may be retraumatizing.

Read more about [Code for America's approach to trauma-informed research in our criminal justice work](#). For more in-depth guidance on accounting for trauma in research activities, see the *Substance Abuse and Mental Health Services Administration (SAMHSA) manual on Trauma and Trauma-Informed Approaches*.

Listen and empathize, but don't offer advice

The research team acknowledges that we are not experts in providing services for every field that we conduct research in. It is not our role to offer professional advice to participants, even if we believe we know what the right approach is. The reality of our work is that we are often talking to people who are asking for assistance with their benefits application, their tax filing, or something else entirely. This may mean that they are seeking assistance with a government program that we are working within. In cases where it is applicable, we may refer participants to service providers, but ultimately the researcher's job is to listen, not to problem solve.

Represent participants' information honestly

When presenting or sharing out what you learned from your research, information and quotes gathered from participants should represent what participants actually said (i.e. direct quotes from people shared in their appropriate context, not cobbled together phrases or broad quotes applied to different situations). When we speak about a participant's experience we are careful and thoughtful about placing that experience in context to ensure that we represent people as accurately as possible. We don't look through data for quotes that confirm what we want to hear. We are open to what was said, even if it contradicts our hypotheses or criticizes a product direction. In reports, we are intentional not to hide or mislead findings—reports should be as close to what we heard and observed as possible.

Keep participants' data safe and anonymous

After research has been conducted, ensure that participants' personal information and data is kept securely and anonymized so that it cannot be connected back to individuals. This does not just mean changing names, but also any other personal identifying information that may allow someone to discern who a participant is from their unique data or story. For more on this see *"Organizing & storing data"* on page 43.

Staying safe as a researcher

This work can be exhausting and draining, and ensuring that both researchers and participants are cared for is especially important for the sustainability and longevity of a research team.

Prepare researchers and participants for a comfortable and safe conversation

When scheduling an interview, consider safety and ethics for both the interviewer(s) and the participants. In-person interviews should always be conducted by staff in pairs (or more). Interviews should be conducted in a neutral location such as a library or a coffee shop and, if possible, in a private room, especially if sensitive information is going to be discussed.

Protect researcher's personal contact information

It is often our job to text and call research participants with interview reminders or to conduct phone interviews. It is our practice to not distribute a researcher's personal phone number and to conduct all participant communication through a third-party communications platform such as [Google Voice](#) (or [Front](#), [Intercom](#), [ZenDesk](#), or similar).

Choosing a location for in-person research

When scheduling in-person research, it is our practice to schedule around the research participant's needs, which often means being invited to a participant's house or to a coffee shop or restaurant nearby. We do not want to force research participants to make a potentially difficult trip for the convenience of the research team, but we also don't want researchers to put themselves in situations that feel unsafe or insecure.

If you, as a researcher, have been invited and are comfortable visiting a participant's home you must (1) bring another researcher, staff member, or partner along and (2) tell someone else where you'll be and at what time.

It is your prerogative as a researcher to end any research session at any time that you feel discomfort (whether that session is in a participant's home or a McDonald's or a library). If something about the interaction does not feel right, that's okay. Politely end the interview, compensate the participant for their time, and leave.

Cultivate self-care practices

We care for ourselves and each other with the same respect we give our participants—we believe in the importance of researcher care particularly during long rounds of on-the-ground research. It is natural to feel strong emotions while conducting or while processing

qualitative research.

As a researcher you are encouraged to do any or all of the following whenever you need to:

- **Bring up emotions you are struggling with during team meetings, or by scheduling one-on-one time with anyone you feel comfortable sharing with.** Commit to prioritize supporting each other and have a shared agreement to make time for these meetings as they are needed. For example, at Code For America, we have a weekly meeting specifically dedicated to being a safe space for team members to share their emotional reactions to research experiences.
- **If you're feeling emotionally drained, end research activities early or have a discussion with your manager about the cadence of research activities.** Conducting good research is more of a marathon than a constant sprint. Make sure that you do not schedule too many activities in one day and allow for enough debriefing time between activities.
- **Take time off.** Conducting research in a safe and ethical way can be incredibly stressful. Anyone engaged in this should feel empowered to take time off as they need it to mentally, emotionally, and physically recover from the work.

When to ask for research

Research and the product lifecycle

Research is most useful when conducted in the right way at the right time to best inform new understanding, feature updates, or product direction. The research method that you choose will depend highly on the point in the product lifecycle that your product is in and what you want to learn. In this guide you will learn about the core methods that we use during discovery, prototyping, scaling, and evaluation.

At Code for America we plan research according to the stages in our product lifecycle:

- In the **Discovery Phase** we conduct generative research, meaning that our research questions are broad and our mindset is one of learning and generating new ideas without a specific endpoint in mind. The goal of the discovery phase is to identify opportunities to develop new products, services, or features.
- In the **Prototype Phase** we refine ideas (often identified during discovery) by using research and design probes to understand how our prototype ideas could impact our target population and begin to turn user understanding into design principles.
- In the **Scaling and Evaluation Phases** we keep an eye on continuous product improvement while also broadening our approach to focus on storytelling, impact assessment, and new improvements on the horizon.

What makes a good qualitative research project?

Here are some questions to ask yourself before starting a research project:

- *Can this be answered by Googling?*
- *Can SMEs (Subject Matter Experts) answer my question?*
- *Is the answer to this question “yes” or “no”?*
- *Has this research been done before, either by myself or by someone else?*

If the answer to any of these questions is “yes,” you probably do not need to conduct qualitative research.

Research isn’t for everything

There are many times that due to time, scope, or product, research may not be what your team needs right now. There are often best practices for design flows and interactions that we rely on. It is often easier to understand what other people have done and remix it than it is to conduct your own research from scratch.

In addition to collecting data from impacted populations using the methods in this guide we also talk to government partners and subject matter experts, conduct product teardowns, do literature reviews, and work with our quantitative research team so that we can use our qualitative research team’s time and energy where it will have the most impact for the people we serve.

Planning research

Before beginning any research project, the first step is to write a research plan that captures the project at a high level. Research plans are necessary for planning timelines, budget, recruiting, and staffing, and importantly, communicating research goals to the team. Normally our research plans consist of sections for background or context, goals, research questions, timeline, target participants, methods, and plans for recruiting.

Define the research project overall

The first step is to create a research plan. Ultimately, anyone should be able to scan through a completed research plan and understand both why and how you are conducting the research.

Research rationale

There should be a reason for every research project. We often include the research rationale in our plans as a statement that includes the context or background for the research, any assumptions about the issue we undoubtedly have, a problem statement for the work if applicable, or—when looking to evaluate potential solutions—any hypotheses we are seeking to investigate.

Being clear about where the research is coming from helps to surface assumptions and existing knowledge, as well as align and orient the team.

Research goal

Research goals help align the team around what you plan to use the research for. A research project kickoff meeting can help teams decide collaboratively what the goals of the research might be.

In writing research goals, ask yourself:

- *What unanswered questions exist about the population we're trying to serve or our existing designs or service offerings?*
- *What are we trying to answer with this research?*
- *What does success look like post-research?*

Here are examples of how research goals might read:

- *Our goal is to understand how people navigate public transportation in rural Colorado in order to inform conversations with Workforce centers about wraparound services.*

- *Our goal is to uncover the issues that SSI (Supplemental Security Income) recipients face in applying for benefits, and evaluate our current product, so that we can make changes in product, outreach, and service design to improve their experience.*

Research questions

Posing open-ended framing questions like the examples below help researchers define the scope of their inquiry, decide their methodological approach, align the team on shared knowledge, and ensure that questions that have been answered in previous research aren't being asked again. In general, research questions are open-ended, but well scoped and ask for unique insight that only your participants can give you.

For example, research questions might read:

- *What are the life experiences of SSI recipients that affect their applying for benefits?*
- *What factors influence why low income Californians avoid filing their taxes?*

Once the research goal and main research questions are written, the research plan should focus on execution—thinking through every stage of the process at a high level including target participants, timeline, logistics, and which methods are best able to answer those questions.

Select the approach

Methods

In the research practice guide, we've outlined the most common qualitative research methods that we use at Code for America. Some of them can be used at any point in the process and some are best used during a specific phase. As a research team we believe in a "mixed methods" approach meaning that we use a combination of qualitative research methods and seek opportunities to collaborate with our quantitative research team at every phase of the research process.

To help in method selection, we often consider the following questions:

- *Who do we need to focus on?*
- *How much time do we have to conduct the research?*
- *How large does our sample size need to be?*
- *Will this research happen in person or remotely?*
- *Where will this research take place?*
- *Who will be staffing the research (participating, facilitating, taking notes)?*
- *How can we bring in quantitative data or quantitative researchers?*

Prepare research materials

See each method page for more guidance on research materials (e.g. a discussion guide for in-depth interviews, journey maps, etc) beginning on

Find participants and plan the activities

Participants for research

The next step is to define who you will target as research participants and how many people you will conduct research with. We call this “*designing the sample*.” We use a few methods to design research samples, often working with quantitative researchers, getting ideas from subject matter experts, and understanding priorities of focus from the team.

It is important to be clear about what characteristics, behaviors, attitudes, and experiences must be represented in your sample and be tenacious about recruiting those participants.

Recruiting and screening

We recruit from a variety of sources depending on the desired characteristics of participants. For example, if we’re looking for low income seniors who don’t necessarily use technology, we might connect with a senior center that serves a low income lunch. Other projects might recruit from a regional Craigslist site or a Facebook group.

Once we recruit a number of potential participants, we screen them to select the research participants who best represent the population, are thoughtful about their experiences, and are willing to share. Screening also forms an early human connection between researchers and participants, often resulting in higher show rates for the research. In our experience, screening potential participants through short phone calls is the best way to ensure high show rates. We also find that texting or calling to remind participants the day before their participation also helps.

Timeline and logistics

It is important to think through when the research is going to occur. This includes thinking through how the research will overlap with project timelines, partner opportunities, or external events like policy changes.

At a minimum, you must account for questions like:

- *How long will recruiting take?*
- *How long are the research sessions?*
- *How much time will you need for synthesis?*

This is a great place to gather a “research bag” with supplies such as Post-It notes, consent forms, pens, and any other materials needed. If you are using recording devices or other tools that require batteries or charging, be sure to include spare batteries, cables, or a portable power bank.

Conduct research

Follow your plan and collect data! Often, we will design data collection in phases or sprints with time planned for analysis and reflection in between. This allows us to respond to what we’re learning in real time. Research should be planned but it is just as important to stay flexible as you learn new things along the way.

Analyze data, synthesize findings, and share

After a round of data collection, the research team needs time to organize, analyze, synthesize, and define next steps. Next steps from research are dependent on the research question and the data collected along the way. Research can produce an idea for a new feature, refinement of an existing idea, a new way of thinking about a problem, or even opportunities for further inquiry.

Thoughtful, thorough analysis is imperative to the creation of actionable insights. **Research synthesis often takes twice as long as data collection.** For example, if we are planning to conduct 10 hours of interviews we try to plan at least 20 hours for analysis and synthesis. See “Analyzing & synthesizing data” on page 45 for more.

Here are some questions you can ask to determine what analysis to include in your research plan:

- *How long will synthesis take?*
- *What are the next steps post research?*
- *Who needs to be involved in the synthesis?*
- *Who needs to be in the room when insights are presented?*
- *How do you expect the research will be used?*
- *What material or artifacts will you create from your research?*

Incentives

A core belief of our ethical research practice is to compensate research participants for the time they spend with us. This compensation can be in-kind or non-monetary, like coffee and pastries, but most often we provide Visa gift cards as incentives.

Because of accounting constraints, we cannot often offer cash to research participants, but if you are able, this is best practice. Cash is the easiest form of incentive for our participants to use and can communicate trust between the researcher and participant. We default to Visa gift cards because they can be used flexibly, like credit cards, and are widely accepted at retailers.

As of 2020, we use these rates to reimburse clients for their time:

Time	Amount
30 minutes or less	\$25
31 minutes to 1 hour	\$50
1-2 hours OR 1 hour in-home	\$150

We generally do not spend more than two hours with research participants. On the rare occasions that we do (for longer shadowing engagements or workshops), we adjust our incentive amounts appropriately.

In addition to monetary incentives, we often bring snacks when we conduct workshops or interviews in human services or legal offices. We recognize that we often work with research participants who are food insecure. More than just a gesture of goodwill, providing food often ensures that people are able to focus and participate fully in research.

For more on the ethics of incentives, we recommend Sarah Fathallah's essay [*Why Design Researchers Should Compensate Participants*](#).

Researching with non-researchers

Code for America product teams are small, cross-functional, collaborative, and advocates of user-centered design. Whenever possible, we try to bring team members along for research in well-defined roles and provide them with well-defined tasks.

Some of the benefits of bringing team members into the field include:

- Extra help
- Communicates the value of research
- Seeing the user experience in-person is more effective for staff than reading a report or seeing a slide presentation

That said, bringing team members into the field puts a little more responsibility on our researchers because we have to prepare more, be more organized, and scope tasks for our teammates.

Tips for researching with non-trained researchers

- Understand your team members prior experiences with research and ask them what they feel comfortable doing. Usually team members feel the most comfortable in notetaking or shadowing roles, but some may want to develop greater research skills and practice interviewing.
- Onboard team members to the research plan, research goals, and the activities of the day and clearly assign roles to each team member.
- Go over user research essentials and what will be expected of them.
- Be conscious of the number of people you bring to a given participant engagement. For example, do not include so many additional team members in an interview that you risk overwhelming a participant or making them uncomfortable.
- Provide worksheets or note taking templates to maximize the quality and consistency of data collection.
- The morning of the research activity, remind people of the role they are playing in the research and the responsibilities that go with it.
- Book time after research sessions or the end of each day in the field for debriefs. Be sure to give everyone the chance to reflect on what they learned and on the research process.

- Proactively schedule time for synthesis. All team members who observe research should have an opportunity to discuss and reflect as part of the synthesis process, but not all team members are required to produce final synthesis documents. See “*Analyzing & synthesizing data*” on page 45 for more.
- Collect all data captured (notes, photos, recordings, etc.) and ensure that team members have deleted anything sensitive from their personal devices.

It’s also important to note that we have a practice of pairing on our research team. As schedules and product timelines allow we prioritize researchers from across product teams conducting research together. Pairing helps our research team grow the practice, provide each other valuable feedback, and requires less onboarding. For more, read Will Myddelton’s *User Research is a Team Sport*.

Qualitative research methods



These are the qualitative research methods that we use most often at Code for America. For each method, we break down what the method is, the types of research questions that method can answer, when to use the method, some guidance on how to do it, and links to reference materials to learn more.

In-depth interviews

What is it?

In-depth interviews are long (usually one hour) conversations with research participants to understand their experiences and perspective.

The goal of in-depth interviews is to deeply study people, exploring not only their behaviors, but the reasoning and emotions behind those behaviors. In-depth interviews can be used when first exploring a new subject, or they can help deepen an existing understanding. Interviews are designed to be fully open ended and do not look to validate or confirm any hypotheses.

What research questions can it answer?

In-depth interviews are a great way to build an understanding of a participant's world and develop the "why" of what we see in the data. In-depth interviews can reveal the complex human, emotional side of trends and observed behaviors.

When do you use it?

In-depth interviews are insightful throughout the design process, but can be most useful during **Discovery**, when you are trying to build a broad understanding of the context of a particular user group or experience. They are also valuable during **Evaluation** when you are trying to understand the impact of your product.

What is the output?

Interviews generate lots of rich qualitative data in the form of pages of notes and hours of audio recordings. Rich qualitative data produces insights, which can be used to generate "*How Might We's*," (specific problems to address, i.e. "*How might we make it easier to apply for benefits?*") and open the door for product improvements and opportunities.

See "*Analyzing & synthesizing data*" on page 45 for more details.

How do you do it?

Preparation

- **Develop a discussion guide.** Interview questions should follow this basic order: gaining consent, building rapport, asking questions based on your core research questions, and wrapping up.

- **Gaining consent.** Before conducting an interview, explain the purpose of the interview and what the client is consenting to and have them sign a consent form (read more in *“Ethics & safety”* on page 9).
- **Building rapport.** The interview should start with some easy, general questions to give the participant an opportunity to warm up. Ask participants about themselves outside the scope of the research topic. This is also a time for the researcher to understand the participant’s communication style in order to guide the rest of the interview.
- **Asking core research questions.** Review the research questions from your Research Plan and use them to build out your interview protocol—mapping your research questions to the questions you’ll ask of the participant. The mapping ensures you are covering all topics. There is more guidance on crafting questions below.
- **Wrapping up.** At the end of an interview, allow time for big picture thinking and offer clients space to reflect on what may have come up during the interview.
- **Plan and schedule**
 - **Each interview should be conducted with an interviewer and a notetaker present.**
 - **Interviews can be conducted remotely via phone or video chat, but be cognizant of the potential challenges to building rapport that come with remote interviews.** If you are conducting the interview remotely, be sure to include clear instructions about how to use any video chat software and build in time for troubleshooting any connection issues. Also be sure to include an alternative means for the participant to get in touch with you if something goes wrong.
 - **Schedule interviews wherever the participant is most comfortable** (e.g. the library, a community-based organization’s office, a coffee shop, the participant’s home). If possible, schedule in a place where you and the participant will both be comfortable and where audio recording can be clearest. See *“Staying safe as a researcher”* on page 12.

Interviewing

- **Get the conversation started.** Start by explaining the purpose of the research, gaining consent, distributing the incentive, and building rapport.
- **While you are interviewing:**
 - **Ask clear and direct questions.**
 - Ask short, open-ended questions that don’t bias the participant.
 - Don’t give options or over-explain what you’re looking for.
 - Ask *“How do you feel about x?”* not *“Do you like x?”*

- Don't answer your own question for the user, it is often natural to pose a question and then give "multiple choice" options. For example, "Where did you apply for SNAP? Was it in the office or online?" Just ask the opening question. If clients are quiet, pause to give them time to think about the question.
- **Ask specific questions.** People are bad at synthesizing their own experience, but good at telling specific stories. Ask about specific moments in time. Instead of asking "What do you usually get at the grocery store?" ask "What did you buy the last time you went grocery shopping?" To prod participant thinking, you can also ask about extreme examples. For example, ask, "What was the best experience you ever had at the HSS office?" or "What is the toughest experience you ever had with a case manager?"
- **Let the conversation breathe.** Do not interject or attempt to finish a participant's sentence. If the participant is thinking or just finished a sentence, wait a few breaths before continuing to give them the opportunity to add or correct. You can count 10 seconds of silence in your head before proceeding. Alternatively you can take a slow mindful sip of a drink. During this time, it's common for participants to add more to a previous statement.
- **Mirror back the participant's response before building on it.** You might ask, "It sounds like this process is confusing for you. Can you talk about what was confusing specifically?" Mirroring can also be used to confirm you understand what they have just communicated. "So I heard you say X, Y, and Z—did I understand that correctly?"
- **Conduct co-creation activities.** Co-creation or participatory design activities are a great way for participants who process visually to capture processes and experiences that might be difficult to articulate otherwise. You might try to:
 - Draw a journey with the participant and map emotions over it
 - Conduct a card sorting exercise
- **Pay attention to your tone.** Treat the participant's experience as the gold standard of truth. Our favorite quote about interviews is "*Treat everyone you interview like they just won the Nobel Prize in their own life experience.*" No matter your expertise on a topic, the research participant is the source of truth for their own story. You can even tell them this at the outset of an interview.
- **Bring genuine curiosity and clear research goals, but not anticipated responses.** Be warm, friendly, and invite honest responses, but remain professional.
- **End early if you need to.** Don't be afraid to shut an interview down early if you find yourself in an unproductive situation. Sometimes an interview subject turns taciturn or hostile. It happens, and the best thing you can do is move on to the next one. There is no rule that says you need to hang on until you've answered every single one of your questions. Likewise, if an interview subject begins to exhibit signs of trauma or is becoming visually distressed, you can offer to pause or stop an interview in order to give them space to recover.

Taking notes

Transcriptions are the best record for interviews. Ideally, the participant is comfortable being audio recorded. If not, the note taker should do their best to capture what the participant says verbatim. Direct quotes are the best way to mitigate researcher bias during synthesis.

Even in cases where you are recording an interview, it's a good idea to write a summary, even a brief one, as soon as possible following an interview. Those notes will make it easier for you to effectively return to a transcript to find key information.

In-depth interviews at Code for America



GetYourRefund

We interviewed people who are eligible for the Earned Income Tax Credit to understand the barriers to claiming it in Colorado.

GetCalFresh

We interviewed people experiencing homelessness about the CalFresh enrollment process in California.

Integrated Benefits Initiative

We interviewed moms (and held quite a few babies) about WIC in Louisiana.

Observation/shadowing

What is it?

Observation, sometimes called “*shadowing*,” is when a researcher observes a process or service in action.

You can conduct observation with workers delivering a service or with the participants who are receiving the service. Observation can happen alongside a worker performing their duties, in a waiting room, as a “*ride along*” through a participant’s day, or at some other site of a service. Either during or directly following an observation, researchers ask the participant questions about actions they saw them do and why. This process of observing activities—and asking clarifying questions—in the context within which they are performed is also sometimes referred to as “*contextual inquiry*.”

What research questions can it answer?

The goal of observational research is to learn how a service is experienced or managed on a day-to-day basis. It is also useful for getting a first-hand look at all of the steps of a process. This method can help you learn more about the root causes of issues and add a frontline service perspective to any recommendations for improvements.

You should use observation whenever you want to know what people’s actual behavior is in the delivery of services, the daily, or routine experience of customers interacting with a service, or when you want to understand more about the context in which some interaction or service is happening.

When do you use it?

Observation can be useful in all phases of research. It can be particularly useful in **Discovery** when you are seeking to learn about a range of pain points and are open to seeing many experiences. It can also be effective in the **Evaluation** phase, where you can assess unobtrusively how an intervention is working in real life.

What is the output?

You should have pages of notes that you can then read over, and gain insights from. You can visualize aspects of what you observed through maps and journeys (see “*Journey mapping & service blueprinting*” on page 30), and/or spaghetti diagrams. From these visuals and notes you can also synthesize into insights about what the service experience is like for different stakeholders. What you learn may also influence what or who you may want to observe next.

How do you do it?

Carefully choose which workflow, service, or location to observe to make sure you're getting an accurate view into people's real-life experience. Observe the process or service, take extensive notes, and ask clarifying questions if it's not disruptive. Collect copies of forms or take photographs, if appropriate.

Document as much as you can

You can add small indicators to your notes to help you and your team review what you learned. Some tactics and marks we use:

- **What happened:** The play-by-play.
- **What was said:** Paraphrase or use quotation marks to clearly indicate a direct quote.
- **Environmental interactions:** Draw out the space and how the person moves within it.
- **Your assumptions/interpretations:** Mark these separately (for example, you can enclose them in angle brackets like this: "< Assumption 1 >") and follow-up later to get the whole story.
- **Questions:** Identify questions to ask at the end of the session with a different mark (e.g. "?").

What to pay attention to

- **Process specifics:** Document every step of the workflow, including the time each takes to complete. Watch for steps that people appear to do "automatically," as those are often overlooked when someone recounts how they perform their work during in an interview.
- **Tools:** Record all the technical systems and non-technical objects like calculators or written notes (e.g. process "cheat sheet" Post-Its on computer monitors) people use and how each factors into the workflow.
- **Forms and documents:** Note each document the person interacts with and how are they used and/or processed.
- **Interpersonal interactions:** Map how people communicate and interact with each other to complete tasks. Be sure to document how and when things are passed off and who is responsible for what steps in the process.
- **Pain points:** Log all interruptions, inefficiencies, delays, frustrations, emotional strains, etc.
- **Physical environments:** Make a map of the space and call out where are people sitting or moving. Environmental factors provide clues of how the services are doing (i.e. "What is broken or heavily used?"). Look for zones that get high amounts of traffic or use, places that are empty, physical separation points, etc.

Observation/shadowing at Code for America



We often shadow caseworkers and front-line staff to understand their processes and job responsibilities. This helps us when designing products or services as we are able to better understand their constraints.

Journey mapping & service blueprinting

What are they?

Journey mapping and service blueprinting are two ways to visualize a product or service over time. We find one of the most powerful uses for these maps is working together in the field with research participants or stakeholders to understand a product or service, from the point of view of the person or from different vantage points.

- **Journey maps** focus on the experiences of a person interacting with a product or service, mapping the steps they have to take, and how they feel or experience those steps.
- **Service blueprinting** captures a person's experience as one important piece of a service that also includes what is happening in the front office, back office, and any technical processes that underlie or support that experience.

What research questions can they answer?

We often integrate elements of these two types of maps together in order to gain a holistic view of service delivery from a client or caseworker experience, a manager, and to the technical systems far behind the scenes. Additionally these are methods that we often integrate with design, especially in creating final versions of service maps because their information density often benefits from visual design clarity.

When do you use them?

There are two main times when it may be useful to use journey mapping and/or service blueprinting:

During discovery

- **Journey maps** can provide a well-rounded understanding of what a person feels during a process, build empathy, and uncover pain points that can lead to insights or prioritize design interventions.
- **Service blueprinting** is an excellent way to get people on the same page about issues within a service early on in the project. By collecting information from different “actors” in a system into one coherent visual map, we build knowledge, shared understanding, and uncover questions to answer through further research.

During prototyping

- **As ideation tools:** After understanding what a service looks like and the pain points that exist within it, journey maps and service blueprints can be useful for teams brainstorming opportunities to intervene. Using maps in the **Ideation** and **Development** phases also ensures that any interventions that are created fit into the service as it is, hopefully reducing friction during implementation.
- **Communicating to external stakeholders:** In workshops, reports and presentations, and meetings with stakeholders, both maps are a great tools to spark conversation and to set a baseline of understanding. Service maps additionally can be continually updated as more knowledge is gained and can serve as a source of truth for the life of the project and potentially after.

What is the output?

- **Journey maps** can be research documents produced for each research participant or synthesized at the end of research into a general journey map combining the commonalities of all participants journeys.
- **Service blueprints** generally result in complicated, in-depth maps that show the full service or several smaller maps that break out the individual steps of a service.

How do you do them?

- **Gather baseline information on the basic steps of the journey or service.** This typically involves a number of coordinated research activities. Examples of such activities include:
 - Researching and reading about the process or service online.
 - Talking to subject matter experts about what they know of the process or service.
 - Conducting—or reviewing notes from—in-depth interviews with research participants to identify the steps and associated feelings. For more on that, see *“In-depth interviews”* on page 23.
 - Observing the process or having someone talk you through the process in context it is performed in. For more details, see *“Observation/shadowing”* on page 27.
- **Map out the basic steps, starting with a person’s journey.** Try to be detailed enough to capture what is important (instead of putting down *“Get their RAP sheet,”* break that process into each major step someone takes to accomplish a goal: *“(1) Go to the central court,” “(2) Pay fee,” “(3) Be fingerprinted,” “(4) Wait,”* and *“(5) Get RAP sheet in the mail”*).
 - For **service blueprints** you should also start listing out the different actors involved. Actors can be specific individual roles (like *“eligibility worker”*), teams and

departments (like “front desk staff” or “document processing”), or tools or software (like “eligibility assessment system”).

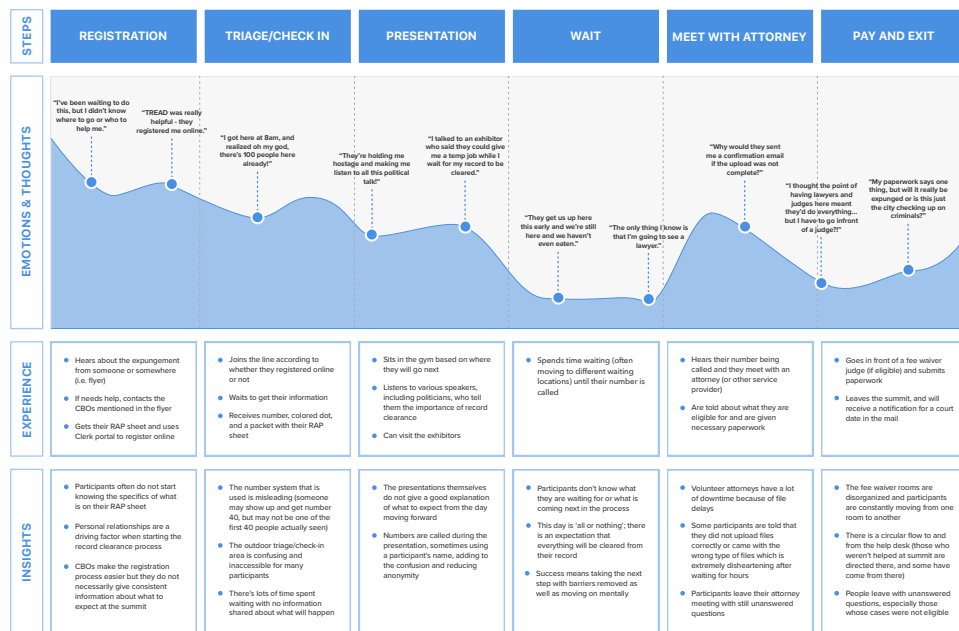
- **Go out into the field to draft the rest of the map.** While journey maps and service blueprints may be done following an interview or as a post-research deliverable, we find that both maps are helpful tools for collaboration with research participants or government stakeholders in the field. Take the basic steps (and list of actors) as the start of the map and then expand them using the following approaches:
 - For a **journey map**, use interviews to add supporting information to the map underneath the step by showing participants the draft map and probing with questions like:
 - *What touchpoints did they interact with at each step?*
 - *How long did each step take?*
 - *Are there any other steps they took that are missing from the map?*
 - *Most importantly: How did the person feel at each step? What was painful and why?*
 - For a **service blueprint**, convene a group of stakeholders or people from different parts of a service and run a workshop.
 - Walk the group through the steps and the actors who have a part in each step. Ask for additions or clarifications of either steps or actors
 - Then collaboratively add to the map by asking the group to fill out the actions and tasks that each actor takes at each step along the timeline. Consider using the following prompts:
 - *During this step, how are they interacting with the participant?*
 - *While [x] is happening, what is happening for another actor in this process?*
 - *Is information being shared with any other actor? How?*
 - *What technical actor (technical system) is involved in this step?*
 - It is helpful to delineate which parts of a service are visible to the person experiencing the service, and which are tucked away behind the scenes. We often mark this as a “line of visibility.”
- **Get feedback and iterate!** It is useful to get information on your map to ensure that it is accurate. This can be done with subsequent participants, service providers, front line or back office, or IT staff, and managers and administrators. Update the map based on the feedback gathered and repeat as necessary.

Journey mapping and service blueprinting at Code for America

We have used journey mapping to describe what is happening and share our interviews and insights. The following is a map that we made after visiting summit on record expungement in Cook County.

Cook County Expungement Summit

June 1, 2019



[Download a PDF of this journey map.](#)

Intercept testing

What is it?

Intercepts are when a researcher goes into the field and conducts unscheduled research activities with their targeted population. Due to the lack of scheduling, these are usually short, unintrusive, and should be flexible.

What research questions can it answer?

Research questions for intercepts should match with the time constraints. They usually last about 10 minutes and during that time you can ask about facts, get a review of an existing program or service, or receive feedback on a paper prototype.

Intercepts can also be a good way to have a first conversation that can act as general inquiry or as recruitment for an in-depth interview later.

When do you use it?

Intercepts are best used for quick information gathering and design probes. They are great for reaching out to a population that may be harder to recruit.

We often use intercepts during the **Discovery** and **Prototyping** phases.

What is the output?

Because intercepts are a lightweight data collection method, they often provide clarity and direction on what you might want to focus on during the next round of more in-depth research.

How do you do it?

- **Identify the population that you are looking to learn from, then determine the best place to meet them (in the context of your question).** We conduct intercepts in locations where our research questions will be top of mind. This could be in an office lobby, bus stop, resource center, etc. Be sure to inform any necessary staff ahead of time and get permission to be there.
- **Think about how you will set yourselves up in the space.** This could be sitting down next to participants as they wait for a service or setting up a table with a sign and having participants approach you. However you decide to engage, it is important to balance professionalism and approachability. For example, dress in a way that will put your audience at ease—wearing jeans is completely acceptable when doing intercepts.

- **Two people should conduct intercepts, one lead interviewer and one notetaker.** Quality interviewing and notetaking can be difficult to do at the same time, but having too many researchers may leave the participant feeling overwhelmed. If possible, and if the participant agrees, it is a good idea to audio record interviews to assist with documentation.
- **Your interview guide and activity should be short yet substantive.** Keep the following things in mind:
 - Focus on your main research questions and be sure to ask those questions to everyone you speak with. Remember, you're encroaching on someone else's time.
 - It's important to be flexible. If your participant needs to leave after five minutes, then that's okay.
 - Consider activities that may be quick and easy to engage with, like concept testing.
- **When speaking with participants, introduce yourself, explain why you're there, and how they can help.** If you are able to compensate them, this is the best time to mention that. At Code For America, our standard practice is, whenever possible, to compensate for intercepts. See *"Incentives"* on page 19 for more details.
- **Lastly, keep in mind that your goal sample size and the amount of time you carved out might not match.** You may talk to one person in one hour today, and eight people in one hour tomorrow. Be open to adjusting your approach and set a limit for yourself.

Intercept testing at Code for America

When researching food assistance needs in California for GetCalFresh, we conducted intercepts at food bank distribution sites and senior centers with Meals on Wheels.



Concept testing

What is it?

Concept testing is testing an idea for a service or a low level prototype with real people.

What research questions can it answer?

Concept tests are one of the best ways to quickly determine if a product or service will address a real pain point. They are especially useful early on in the design and development cycle and can prevent a team from going down the wrong path. Concept tests help us understand how the target audience might perceive a given solution. They also provide a sense of which solution features and use cases are the most important. Finally, tests often surface previously unconsidered pain points and unexpected new directions to explore.

When do you use it?

You would want to use this during **Prototyping** before developing any one concept to a high level of fidelity. We often test multiple concepts at once while we are ideating, designing, and strategizing a product or feature direction.

What is the output?

Data from concept testing should feed directly into the next round of concept development. Not every round of concept testing should result in picking one “winning” concept to move forward with. Rather, evaluate why people respond to certain concepts, what features resonate most, and what needs and pain points were surfaced. Use those inputs to iterate and design the next concept.

How do you do it?

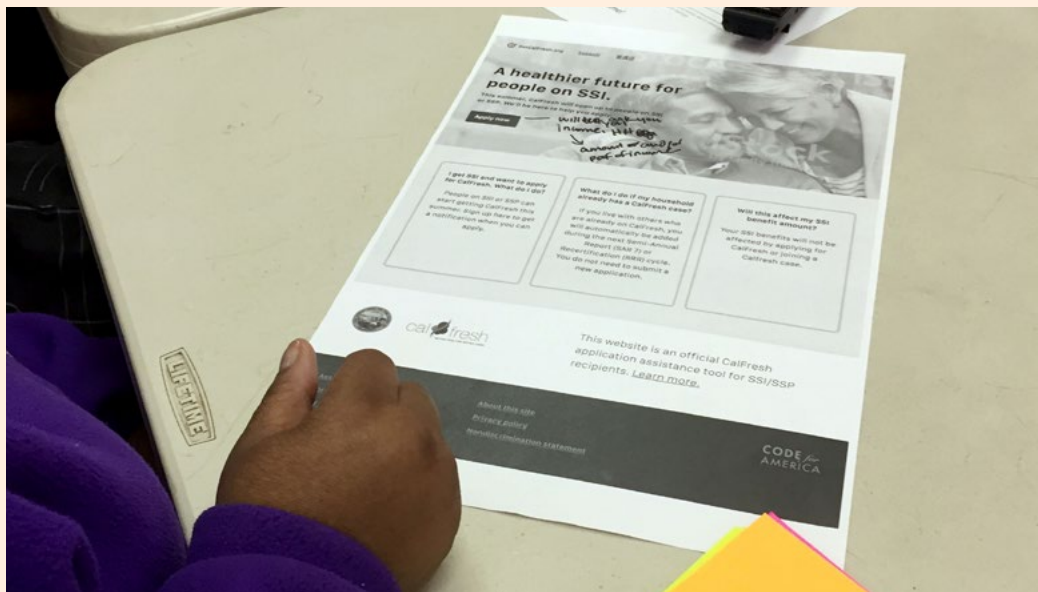
- “Concepts” can be anything from service improvement ideas (for example, imagine you were able to handle the request process for a copy of your criminal history entirely online) to paper sketches and low fidelity prototypes (for example, three sketches of content for the homepage for a new service offering). Concepts can evolve out of previous rounds of generative research that and/or new ideas you have about feature improvements.
- Come up with prototypes for some of these ideas. These can be mockups or wireframes or a storyboard—in fact, **the less detailed the better, because then participants can help you co-create together.**
- It is best to test several concepts at once that display different ideas for how a service might work. When research participants have several ideas to react to they are more likely

to provide nuanced feedback and preferences rather than feeling pressure to respond positively to the one concept you share.

- Introduce each of the concepts to the participant using the visuals created. Don't over explain exactly how a concept might work—**remember, these are low fidelity ideas generated so that your team can learn and refine based on user response.**
 - Ask questions about each concept.
 - Try to make these questions as open-ended as possible, but remember to not just ask “What do you think?” in order to get specific feedback.
 - It is often useful to conduct activities around each concept for more directed feedback (e.g. *How clear is this page about what to do next? When in the process do you look for technological support?*)
 - This is also a time to use some participatory design techniques—ask for advice from your participants and have them sketch or add to your concepts if they are willing and able.

Concept testing at Code for America

As part of GetCalFresh, we test design concepts with people and ask them to mark up the portions they found confusing or felt could be improved.



Usability testing

What is it?

Usability testing is the research of a product, interface, or other design that consists of observing a participant interact with it. The goal of usability testing is to capture information that allows you to make recommendations about improvements or changes that will increase people's ability to use the product or service.

What research questions can it answer?

Usability testing helps us determine how a product or feature will work for the intended audience. Through testing we learn if a design helps or hinders folks in completing specific tasks. We see what aspects of an experience testers find confusing and explore if additional tools or information could be helpful for people using the product or service. Ultimately, usability testing helps us predict whether or not changes made to an experience will improve our client's success and satisfaction.

When do you use it?

The timing of usability testing often depends on the type of project you are working on.

On existing products, usability testing should be a part of **Evaluation** as a continuous process to identify problems, bugs, or confusions during use.

During **Prototyping** of new products or features, usability testing works best on late-stage, high-fidelity designs or prototypes, before they are finalized.

What is the output?

Usability tests deliver data about using a product or service ranging from what testers liked and where they struggled to the amount of time it takes to complete critical tasks. The findings are synthesized into recommendations about which pages or features need improvement and which may be ready for development. The final format of those recommendations varies from quick insights shared orally or via email to formal reports.

Be prepared to repeat and iterate testing as needed. If you finish a round of testing without enough reliable data to confidently make decisions, you need to test with more folks.

How do you do it?

Prepare the prototype or product

Use an existing or realistic version of the product you want to test. While it's great to have a functioning digital product to test, even a fake, but clickable simulation can produce valuable insights. It's often not necessary to code an application before testing it for usability concerns; products like [Invision](#) and [Figma](#) can help create clickable versions of designs. A clickable version should be developed in conjunction with the testing plan to ensure the right features are simulated and tested.

Write your plan

When you write your testing plan, choose a task or two that you want to investigate. Then, decide on the types of information you will collect during the test that will allow you to evaluate what you're trying to measure. Some types of information might be time to complete, findability of features or buttons, readability, frustration, comprehension, correct expectations, ability to complete, and more.

Taking notes and capturing data

We often use “*Rainbow Spreadsheets*” or other ways to capture client input in a structured, page-by-page way so feedback is easier to connect directly to design changes.

On our Rainbow Spreadsheets, the first column lists every page of the product we are testing followed by the goal for that page if it were designed successfully. For example, for the homepage of a product, success might mean that the purpose is clear and is described in a way that inspires trust. Each research participant gets a column in the spreadsheet and we mark with green, orange, or red fill colors whether or not each page was successful for each participant.

At the end of a round of usability testing, this spreadsheet acts like a dashboard allowing us to see at a high level what part of the flow requires improvement (by a cluster of red boxes) and which pages might be ready for development (by a cluster of green boxes).

You can read more about how some other organizations use Rainbow Spreadsheets in Tomer Sharon's article [The Rainbow Spreadsheet: A Collaborative Lean UX Tool](#).

Getting started

Once you have recruited and scheduled participants, carefully introduce your participants to the activity. With usability testing, a careful introduction is crucial because of how easy it is to introduce bias into your test, particularly when you associate yourself with the thing you are testing. If participants are aware of a researcher's personal stakes in a design, the results may be affected by “*demand characteristics*,” a response bias where a researcher's hypothesis is

conveyed to the participant, who then adjusts their behavior in relation to what they perceive to be the researcher's expectations. This may be even more pertinent when researchers are working with disadvantaged populations. For more on controlling for bias, see this CHI publication by Nicola Dell, Vidya Vaidyanathan, Indrani Medhi, Edward Cutrell, and William Thies: [*"Yours is Better!" Participant Response Bias in HIC.*](#)

Use a sample usability script and make sure you say the following things (or versions of them):

- *We are not testing you, I'm trying to learn how to improve the product.*
- *There are no right or wrong answers.*
- *Please be as honest as you can, I did not design this and you will not hurt my feelings.*
- *I am trying to understand how you would use this, and I want to hear your thoughts and expectations, I will not offer answers immediately if you ask, instead I'll ask you what you think first.*
- *Please remember to think out loud/try to explain your thought process.*

A few prompts to ask your participants as they use the product or prototype:

- *What do you see first when you look at this? How would you complete this task?*
- *What would expect to happen if you clicked here or chose this option?*
- *(After an action) Was that what you expected?*

If your participants can't complete the task, you've learned highly valuable information for the next version or revision of your prototype. Some good follow-ups are:

- *What was difficult or confusing?*
- *How would you expect or prefer to do this?*

Avoid telling the participant where to click or pointing to the screen to prompt them to take an action. It might take time for them to complete the task but that will give you valuable information about what might need to be changed about the application.

Usability testing at Code for America



We do continuous usability testing on our product, GetCalFresh. For example, to prepare for the CalFresh expansion to SSI recipients, we tested our product in various phases with participants who were receiving Social Security Income. With each phase of testing we were able to inform design that allowed for a better experience for those living with disability and low income seniors. The picture above is from a usability test of the mobile website. [Learn more about this project and the related research.](#)

Making sense of qualitative data

Organizing & storing data

Research generates a lot of raw data in the form of digital notes, paper notes, audio recordings, video recordings, and pictures, and that data needs to be available to review, synthesize, and return to over time. **Because of the intersecting experiences of injustice that the people we conduct research with at Code for America have, and the ways they are already tracked by government and/or predatory technology, our researchers have heightened responsibilities to protect our participants' data.** A cautious approach is necessary because researchers may move from project to project, use shared cloud-based servers, and bring team members (who are not trained researchers) along for research.

Our main choice for data storage at Code for America is Google Drive. We use this for the storage of documents and data ranging from spreadsheets to media. Individual teams are able to create Shared Drives with nested folders where access can be limited to specific team members and restricted to anyone outside of the team or organization.

Organizing

With whatever storage solution you use, it's important to consider how you will be looking up this information in the future. It's a good idea to standardize naming conventions and date your documents in their titles. Doing this from the beginning is much easier than retroactively organizing an entire folder.

Researchers have full responsibility and control over data collection as part of planning a study and in field work and must see themselves as the stewards of this data.

Problems with data storage commonly result when any one of four situations occur:

- Too much data is collected and kept for too long.
- The data collected contains personally identifiable information (PII).
- The data collected is used publicly without the participant's consent.
- People beyond the research team can access the data.

Delete as soon as possible

As mentioned in the informed consent section, you should only collect data that participants affirmatively agree to with full knowledge of how the data will be used. But even when a participant consents to data collection it is still the researcher's responsibility to actually collect and keep only what is necessary to complete quality research. Not only should you be limiting the collection of personally identifiable information, but extra care should be taken

when processing the data during synthesis to strip out and delete any unnecessary details that can be used to re-identify participants. This means, for example, deleting the name of a chronic illness a participant suffers from or even an anecdote containing the name of the store they work in.

Access to participants' contact information

During field work, only the research team should have access to the participant's contact information. A spreadsheet, we often call it a "*Participant Linking Document*," can be used to link names and demographic data to a participant numbering system (or "*P numbers*") or pseudonyms, and those should be the only link to the actual contact information.

Participant linking documents should be securely stored in folders with controlled access. Notes, documents, and other synthesis documents that have been scrubbed of PII and are labeled with a P number can be shared with other members of your team.

Audio

Audio recordings should usually only be kept as long as you have verified the accuracy of the information collected. In some cases, audio recordings can be used to communicate research findings to team members, but these should be audio clips, never entire interviews, and never shared publicly unless the participant has been fully informed and signed a *Media Release Agreement* (which is separate from our standard consent form).

Images

Pictures are one of the best ways to communicate research findings, but pictures and videos should take care to not capture the faces of research participants or any identifying characteristics. Images that include faces or identifying characteristics should never be posted publicly or in a form that other well-meaning colleagues can use for their well-meaning purposes without the participant's consent.

Paper

Paper ephemera, worksheets, or surveys containing any PII should be synthesized and then shredded. If it is absolutely necessary to maintain a specific process document, it should be scanned or digitally photographed, the original destroyed, and the digital file kept in a secure location. Consent forms, likewise, should be signed, scanned, and shredded with the digital copy locked down in a private folder.

Restricting permissions on shared drives

Digital storage of all data, including participant linking documents, interview transcripts, and photos should be securely stored and available only to those doing research. After the need for the data is over, the data should be securely deleted.

Analyzing & synthesizing data

What is it?

Analysis is setting up the data so it can be synthesized. Synthesizing is the art of making sense of qualitative data. This process is the bridge between data collection and insights.

When do you do it?

Analysis and synthesis are conducted after collecting qualitative data to understand what has been learned.

Research is often conducted in phases: doing a sprint of collecting, analyzing, and synthesizing data, followed by another sprint of data collection, analysis, and synthesis. Because synthesis is the work of making sense of the analyzed data, it requires thoughtfulness and time.

Teams often want a readout or takeaway immediately after research is conducted, but it can be dangerous to prematurely share research outcomes before synthesis. Synthesis gives researchers the time and space to check their assumptions and eliminate bias before a product or policy team begins implementing a response to an insight.

What is the output?

The goal of research is ultimately to spark action. Synthesis produces a list of insights that can be captured in a deck or a document. From those insights we can:

- **Brainstorm design and prototyping opportunities.**
- **Conduct a gap analysis.** A gap analysis helps you determine future research efforts. Take a step back, look at all of your current data, and ask yourself questions like:
 - *Now that we have this round of insights, who else do we need to talk to?*
 - *What areas can we dig into further?*
 - *What additional questions do we have?*
- **Present your findings and insights back to research participants and stakeholders.**

Note that as part of the synthesis process, we may also use methods like “Journey mapping & service blueprinting” on page 30 to help illustrate the findings.

How do you do it?

Everyone who conducted, took notes, or observed the research should be involved in both analysis and synthesis. This process works best in person for large chunks of time because of the time required to analyze qualitative data as well as the mutual understanding and buy-in that synthesis creates. However, synthesis can also be done remotely using cloud based-tools like [Mural](#) and [Airtable](#). When doing remote synthesis, you should consider stretching the analysis across a number of shorter sessions to accommodate the challenges of remote participation.

Organize and tag the data

Once the data (interview notes, recordings, photos, etc.) are stored and organized, individual data point are “coded” to prepare for synthesizing. Codes are short identifiers/tags (e.g. “food insecurity” or “pain point”) that are assigned to each piece of data. A data point can have as many codes as is useful for your analysis. There are two types of coding methods:

- **Deductive coding** is using an already established codebook.
- **Inductive coding** is building your codes from scratch.

You will have to go through these codes a few times, especially if multiple team members are coding data at once. With each pass of updating and editing codes, the coding set should become more precise and profound.

We analyze and code our data in Airtable. Airtable makes it very easy to both code data and analyze the data using the codes. For example, we will check how many times each code has been applied to our data to understand how frequently we observed a common behavior or sentiment in the field. We also look to see which codes tend to occur together.

Synthesize

The next step is to synthesize. **Our rule of thumb for project planning is that synthesis should take two to three times the amount of time it took to conduct the research.** For example, if you conducted 8 hours of interviews you should expect to spend at least 16 hours doing synthesis.

- **Set up the space.** We like to conduct synthesis in person in a large conference room, with several foam boards, lots of Post-Its of varying sizes, Sharpies, and preferably, no laptops. When we conduct synthesis remotely we often use Mural.
- **Review all of the notes and artifacts from your data collection to pull out quotes, observations, photos, survey results, and anything else you captured.**
- **Externalize all of the data from the round of research you are synthesizing.**
 - Write out direct quotes and observations onto individual Post-Its or on Mural squares (we also often mail merge from Airtable so we can print out quotes and

observations along with their corresponding codes and P numbers).

- Do not capture early conclusions or analysis yet (this will be generated by this process).
- Be intentional and clear with the team about what you are synthesizing—for example, “*Are you synthesizing client needs?*” If so, leave out what you learned during a literature review and focus on who you interviewed. Although other learnings can color your approach, they can also be distracting from the synthesis process.

Affinity mapping

The synthesis process at Code For America typically involves using affinity maps to uncover themes and specific insights from the data.

- **Affinity map:** Cluster your quote and observation Post-Its into various categories. This map categorically represents what you heard. This clustering typically takes a lot of discussion and multiple passes. If you are not sure where to begin in this process, you can start the sorting by creating clusters using your codes. Also, don’t be afraid to start over.
- **Themes:** The relationship between the Post-Its in an affinity map cluster is called a “*theme*.” For example, Post-Its about the challenges people face getting food could be clustered into a theme like “*food insecurity*.” You will also often identify additional themes by looking across clusters. Themes lead you to insights.
- **Insights:** These are the ultimate research findings—answers to research questions and/or new perspectives on the challenges facing your participants. The way to start to articulate insights is to look at your affinity map and its themes and ask:
 - *Why do these clusters matter?*
 - *Why should we care about this takeaway?*

What does this process look like in practice?

When we were synthesizing in depth interviews conducted in Los Angeles County with people who receive SSI (*Supplemental Security Income*) we first created an affinity map by grouping our quotes into descriptive categories. For example, we gathered together 10 quotes about how difficult it is to make rent. We combined those quotes into a theme about the challenges of making ends meet and then asked ourselves “*Why is this important? What does it mean that people who receive SSI struggle financially?*” to create the insight:

Without enough money for both rent and food, people often only eat when they can afford it, and suffer the health consequences.

This finding connects people’s rent issues to poor health outcomes via food. Our interviewee’s health suffers when they were not able to eat regular, healthy meals. Skipping meals exacerbates existing conditions, leading to medical issues like blood sugar crashes that force them to rely on emergency rooms for treatment. Emergency rooms are expensive to

administer, raising the overall costs for a community. Additionally, difficulties with making rent also led people to move residencies, losing access to consistent medical care. We can talk about profound systems change when we consider this insight and that's what makes it powerful. For more on that synthesis process, see our blog on [Improving Food Access for Seniors and Adults with Disabilities](#).

Rules for synthesis

- **One conversation at a time.** In a big group with everyone reflecting and drawing conclusions, it is essential to stay together and on the same page.
- **Name and label assumptions.** Making assumptions is natural; our brains do it all the time as we make sense of complex information. But failing to recognize assumptions and assuming they are facts is dangerous and can bias research results. We often save a space on our board and label it assumptions. The assumptions space is an easy section to fill up. Some of them will be validated by the research. Others won't, so be sure to let them go.
- **Keep insights simple and straightforward.** Don't try to express too many ideas in single insight. If the core of an insight takes multiple sentences to communicate, it probably can be broken into multiple findings. As a general rule, each insight should only contain one theme or concept.
- **Always ask: "Are we reasonably confident in this insight?"** Insights are both art and science. The whole team should feel reasonably confident that each insight is a reflection of our data. We shouldn't feel forced to generate an insight that doesn't feel right, nor should we hold ourselves back from generating an insight that doesn't fully capture every edge case.

Note that if you are unsure about an insight, make it the focus of your next research question to get more detailed information. Research is a constantly evolving and iterating process, and synthesis helps you decide where to go next.

- **Document the synthesis process.** As you go through affinity mapping process, be sure to record your work. One of the easiest ways to do this during in-person synthesis is to take photographs of the map and/or its individual clusters—just be sure to confirm that you can read the insights in the photo.
- **Embrace analysis and synthesis as an iterative process.** Stepping away and then revisiting your data and insights is a critical part of the process. **No one ever uncovers all key insights on the first pass.** Don't be afraid to reorganize your Post-Its if you suddenly notice a new theme (though we suggest taking a picture of the in-process map first to ensure you don't lose any synthesis).
- **Exit row confirmation.** When we are finalizing insights for a large project we do a round of what we call "*exit row confirmation*" (basically just ensuring that everyone has nodded yes). Each individual participating in the synthesis should be in agreement before finalizing a decision and moving on to the next discussion.

Analysis and synthesis at Code for America

Here are some photos of our research team engaging in the various steps of affinity mapping.



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If you have suggestions or comments on the guide please email us at research@codeforamerica.org.

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