05

RESEARCH METHODS

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This section provides a wide selection of potential research methods to collect data, and to visualize, synthesize, and analyze the collected data. This is just a brief overview; many more methods exist, and often the same method has several inconsistent names. We can only give a very brief introduction for each method, but if you want to dig deeper, there is plenty of literature (and for some methods, even whole books) with detailed descriptions and examples.

**Methods of data collection**

There are a huge variety of research methods you can use to collect meaningful data in service design. We use both quantitative methods like surveys (offline and online), any form of automated statistics (e.g., conversion rate analysis), or manually collected quantitative data (e.g., frequency of shop visitors through simple counting). However, we mostly use qualitative methods and particularly methods based on ethnography.

**The methods of data collection are structured in five categories:**

- **Desk research**
  - Preparatory research
  - Secondary research

- **Self-ethnographic approaches**
  - Autoethnography
  - Online ethnography

- **Participant approaches**
  - Participant observation
  - Contextual interviews
  - In-depth interviews
  - Focus groups

- **Non-participant approaches**
  - Non-participant observation
  - Mobile ethnography
  - Cultural probes

- **Co-creative workshops**
  - Creating personas
  - Journey mapping
  - System mapping

These categories are not based on an academic standard, and as there are many variations and names for each research method, the boundaries between the categories might be rather fluid. However, as a rule of thumb, we suggest that you use at least one method from each category to give better method triangulation.

**Methods of data visualization and analysis**

This section introduces methods used in service design to visualize, synthesize, and analyze data collected as described in the previous section – sometimes this process is also called “sensemaking.” This is just a brief overview; there are many more approaches to visualize data, and plenty of appropriate ways to communicate the data and insights. Also, often the same method is known by several (and often inconsistently) used names. If you want to explore this further, there are a vast array of resources covering...
the various methods, with detailed descriptions and examples. This chapter presents eight methods of data visualization and analysis:

This section presents eight methods of data visualization and analysis:

- Building a research wall
- Creating personas
- Mapping journeys
- Mapping systems
- Developing key insights
- Generating jobs-to-be-done insights
- Writing user stories
- Compiling research reports

For more on how to select and connect these methods, see Chapter 5, Research, in This is Service Design Doing. Also check out Chapter 9, Service design process and management in This is Service Design Doing to learn more about how to orchestrate research tasks with the other core activities of service design.

KEY QUESTIONS FOR RESEARCH PLANNING
Consider the following key questions while planning for research activities

- **Research question**: What do you want to find out in this research loop?

- **Research methods**: What should be your sequence of research methods in this iteration, and what methods do you plan to use for analyzing and visualizing them?

- **Audience/sample selection**: Who will take part in your chosen research methods this time around? When and where will it happen?

- **Sample size**: How many participants should your research have? How flexible do you want to stay?

- **Researcher team**: Who is preparing, running, and analyzing your research activities?

- **Data types**: What different types of data will be generated? What kind of data do you need?

- **Triangulation**: How will you compensate for or overcome the bias of methods, researchers, or data types? How can you ensure method triangulation? What about for researcher or data triangulation?

- **Research loops**: How often do you need or expect to iterate between data collection, visualization, and analysis?
Qualitative research method planning checklist
As a rule-of-thumb we suggest you use at least one method from each of the following categories in your research:

<table>
<thead>
<tr>
<th>Desk research</th>
<th>Non-participant approaches</th>
</tr>
</thead>
<tbody>
<tr>
<td>☐ Preparatory research</td>
<td>☐ Non-participant observation</td>
</tr>
<tr>
<td>☐ Secondary research</td>
<td>☐ Mobile ethnography</td>
</tr>
<tr>
<td>☐ __________________________</td>
<td>☐ Cultural probes</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>Self-ethnographic approaches</td>
<td>Co-creative workshops</td>
</tr>
<tr>
<td>☐ Autoethnography</td>
<td>☐ Co-creating personas</td>
</tr>
<tr>
<td>☐ Online ethnography</td>
<td>☐ Co-creating journey maps</td>
</tr>
<tr>
<td>☐ __________________________</td>
<td>☐ Co-creating system maps</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>Participant approaches</td>
<td></td>
</tr>
<tr>
<td>☐ Participant observation</td>
<td></td>
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<tr>
<td>☐ Contextual interviews</td>
<td></td>
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<tr>
<td>☐ In-depth interviews</td>
<td></td>
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<tr>
<td>☐ Focus groups</td>
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<tr>
<td>☐ __________________________</td>
<td></td>
</tr>
</tbody>
</table>
Research analysis and visualization method planning checklist

Which of the following methods are you planning to use during research analysis (“sensemaking”) and visualization?

Data visualization

☐ Building a research wall
☐ Creating personas
☐ Mapping journeys
☐ Mapping systems
☐ ____________________________

Data analysis and synthesis

☐ Developing key insights
☐ Generating jobs-to-be-done insights
☐ Writing user stories
☐ Compiling research reports
☐ ____________________________

Download this list for free on www.tisdd.com
Preparatory research (or simply “prep research”) often includes digging deeper into the client’s perspective of what the research problem is: context, perceptions, internal conflicts, or interplays that may emerge during the project, and so on. Initial internal interviews in the organization are always very enlightening and provide a good starting point. Digging deeper also helps you recognize whether stakeholders are aligned in their vision and understanding of the problem or need that the research is seeking to address.\(^1\)

The aim of prep research is to learn more about an industry, an organization, competitors, similar products/goods/services, or comparable experiences. Prep research can include screening social media posts or hashtags for a certain research field, keyword, technology, or industry. It can include reading not only industry-specific

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**Preparatory Research**

Your own preparation before you start your actual research or fieldwork.

<table>
<thead>
<tr>
<th>Duration</th>
<th>Preparation: 0–1 hours</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Activity: 0.5–8 hours</td>
</tr>
<tr>
<td></td>
<td>Follow-up: 0.5–2 hours</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Physical requirements</th>
<th>Computer with access to research databases (internal and/or external), publications</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Energy level</th>
<th>Low</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Researchers/facilitators</th>
<th>Minimum 1</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Participants</th>
<th>n/a</th>
</tr>
</thead>
</table>

| Expected output | Text (other research), statistics, photos, videos |

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\(^1\) See #TISDD 9.2.2, *Preparatory research*, for a brief description of the importance of prep research for the overall service design process.
scientific or special-interest publications but also newspapers or general-interest magazines, as well as listening to podcasts or conference talks and watching online videos. Also, it can include a quick co-creative session with team members, colleagues, users, customers, or stakeholders to learn which different perspectives you need to consider in your research and to identify potential leads for your further preparation and who might be a good fit to include in your research team. Often prep research starts with very wide research questions or topics. These topics may be soft (such as “What does home feel like?” or “What is trust?”) or more business-oriented (such as “Who are potential competitors?” or “Where else is this technology used?”). Prep research can result in a summary of text snippets, or a collection of photos, screenshots, or videos visualized, for example, as a mind map or mood board.

“Prep” research often includes an online search for certain keywords, companies, and competitors as well as searching for any relevant publications and scholarly research on specific topics.

It helps to mark the source of any piece of information you discover during your prep research. Also, use mind maps, spreadsheets, or mood boards to handle your mess of notes.

Keep notes and explore potentially interesting topics iteratively.
Step-by-step guide

1 Define research question or topic
Start with a wide research question or topic. Prep research is mostly explorative, so keep an open mind and follow leads to other subjects that might be of interest.

2 Conduct prep research
Keep track of your references during your search: Where does the information come from? How old is it and how trustworthy is its source? Follow interesting links and references, or park them to explore them later. Prep research is less about finding answers and more about finding the right questions to ask in your research. It can help you to formulate more specific research questions or hypotheses. Wide and open research like this can also inspire you by learning what has been done already in different industries. This can help you to identify potentially interesting interview partners or can be the starting point for more resilient secondary research.

3 Summarize and visualize
Create a summary of your prep research, including conclusions but also assumptions or hypotheses for your later research. This can be more formal (as in a report) or more visual (as in a mood board or mind map). It’s important to keep track of your references throughout your summary.

Method notes

- Sometimes a framing workshop with the client or management is useful as the final stage of prep research to ensure that everyone is on the same page regarding the status quo and research aim.
- Block a dedicated time slot, like one hour, for your initial prep research to avoid it becoming too excessive. If you find interesting topics, plan how much time you’ll spend on each.
In contrast to primary research, secondary research (often also simply called “desk research”) uses only existing secondary data – information collected for other projects or purposes. Secondary data can be both qualitative and quantitative, including market research reports, trend analyses, customer data, academic research, and so on. Such secondary data can be from external sources (research published in academic papers, white papers, and reports) or from internal sources if research data has been made available within your organization. To conduct secondary research, you search for a specific topic or research question using online search engines or research platforms like Google Scholar; check out scientific databases and journals, libraries, conferences, and expert talks.

The main purpose of desk research is to check whether research regarding a topic or research question already exists and to formulate a research question more precisely and identify promising methods of data collection, visualization, and synthesis. Consider desk research as a valid starting point of a research process, simply to avoid reinventing the wheel and to stand on the shoulders of giants when you start your primary research.

### Secondary Research

The collection, synthesis, and summary of existing research.

<table>
<thead>
<tr>
<th>Duration</th>
<th>Preparation: O.5–2 hours</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Activity: 1–8 hours</td>
</tr>
<tr>
<td></td>
<td>Follow-up: 0.5–2 hours</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Physical requirements</th>
<th>Computer with access to research databases (internal and/or external)</th>
</tr>
</thead>
</table>

| Energy level              | Low                                                                     |

| Researchers/Facilitators  | Minimum 1                                                              |

| Participants              | n/a                                                                    |

| Expected output           | Text (other research), statistics                                      |

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Step-by-step guide

1. **Define research question or topic**
   For desk research it is important to start with a research question, or at least a field of interest for your research topic. Consider why you are doing research (exploratory vs. confirmatory research) and what you want to do with your findings (personas, journey maps, system maps, etc.).

2. **Identify sources**
   Collect a list of potentially promising internal and/or external sources. If an organization does not have a knowledge management system, you need to identify internal experts who can help you to find existing research, such as someone from the market research or UX department.

3. **Evaluate reliability of sources**
   Try to evaluate the reliability of each potential source – for example, a peer-reviewed academic journal is often more reliable than a newspaper. Rank your potential sources according to their reliability and plan approximately how much time you’ll spend in your search on each source.

4. **Conduct screening search**
   Keep track of your references during your search. Allocate a dedicated time slot for your initial screening search (e.g., one hour). If you find interesting information and/or other promising sources or links, park them somewhere and explore them later.

5. **Dig deeper**
   Go through the list you created during your screening search and explore potentially interesting information in more detail. Read articles or dig into statistics you’ve found. Also, have a look at the sources used in the articles. Maybe you can even cross-reference between different data and find underlying research.

6. **Summarize**
   Create a summary of your desk research. This can be more formal (a report) or more visual (a mind map).
Method notes

→ Block a certain amount of time (e.g., 2 hours) for the first three steps of your secondary research (define research question or topic, identify sources, evaluate reliability of sources). This often helps limit the temptation to digress too much.

→ Secondary research also helps to identify experts within a specific domain who might be interesting interview partners, participants for co-creative workshops, or peer reviewers.

A quick online search helps to estimate if it is worth investing additional time into a more structured review of existing research.

A structured review of academic papers regarding a certain topic often includes screening many papers and searching for patterns and cross-references between them. Even though this takes time, it helps.
“Real” (i.e., rather academic) autoethno-
graphic research might involve research-
ers immersing themselves for months
within an organization. In service design,
we often use a short version of this: team
members explore a particular experience
themselves in the real situational context,
mostly as customers or as employees.

Autoethnography is often one of the
first research methods undertaken as it
helps researchers to interpret behav-
iors they will see when they observe
participants. Also, it helps researchers
to conduct interviews more easily and
comprehensively when they already
have a rough understanding of the
subject matter.

Autoethnographic research can
be overt or covert. When you do
overt autoethnography, people around
you know that you are a researcher,
while a covert approach means they
do not know. When researchers are
visible to the people around them, it is
important to be aware of a potential
“observer effect” – the influence research-
ers have on their environment and on the

01 For a more comprehensive introduction to how autoethnography can be used as
a qualitative research method see, for example, Adams, T. E., Holman Jones, S., &
University Press.
research participant’s behavior simply by being present.

Autoethnography can include any on- or offline channel as well as actions with or without other people and/or machines. Often, autoethnography is useful as a first quick research method to understand cross-channel experiences. It can also focus on one specific channel, such as the online channel, zeroing in on a detailed experience within a journey map. In this context, the research method of autoethnography blends in with online ethnography.

**Step-by-step guide**

1. **Define specific research question**
   Define your research question or what you want to find out. Consider why you are doing research (exploratory vs. confirmatory research) and what you want to do with your findings (personas, journey maps, system maps, etc.).

2. **Plan and prepare**
   Based on your research question, define when and where you will conduct your research. For autoethnographic research involving a group of people, such as mystery shopping/working or (explorative) service safaris, plan who you want to include as researchers, how you will approach them, what expectations you will set, how you will give instructions, and how much time you will need. For interventions like service safaris in particular, it is important to consider who to include from the client side or from other departments involved in the project.
   
   Decide if you’ll do overt or covert autoethnography and how you will document your experiences, and set up legal agreements if necessary to take voice recordings, photos, or videos, in addition to your field notes.

3. **Conduct autoethnography**
   During autoethnography, try to distinguish between first-level and second-level concepts. First-level concepts (“raw data”) refer to what you (objectively) see and hear, while second-level concepts (“interpretations”) refer to how you feel or how you interpret what you experience.
   
   If you take field notes, write up both separately: for example, on the left page what you see and hear and on the right side how you interpret this and how it feels. If you conduct overt autoethnography, be aware of a potential observer effect. The length and depth of autoethnography varies with the research objective: from a very quick five-minute experience at a specific moment in a journey to research over several days, or sometimes even weeks or months.

4. **Follow-up**
   Write up your individual key learnings from the observations right afterwards, and if other researchers did autoethnographic studies as well compare these. Keep track of all your collected data by indexing your field notes, transcripts, photos, audio and video recordings and collected artifacts. Go through your data and highlight important passages. Write a short summary that includes your combined key findings as well as raw data to exemplify these, such as quotes, photos, or videos.
Variants

Besides comprehensive autoethnographic research, there are different, shorter ways to use autoethnography in service design:

— **Mystery shopping** is one way to do autoethnographic research: researchers act as customers and follow a purchase process or a specific customer experience, and self-document their own experiences. Often in mystery shopping, the mystery shoppers are assigned certain tasks – for example, to challenge a service, or to evaluate a service based on a checklist. Mystery shopping is therefore an approach often used for more evaluative research. A criticism of this approach is that mystery shoppers often only pretend to be customers and are not real customers. This affects their expectations, their needs, and ultimately also their experiences, resulting in biased data.

— **Mystery working** is performing autoethnographic research as an employee in a company. Unlike “real” autoethnographic research, mystery working refers to researchers spending only a limited time disguised as an employee in a company. Like in mystery shopping, researchers document their own experiences (e.g., going through an application process or a work day). Often, this also includes certain tasks – for example, challenging colleagues – or check lists to go through. Mystery working is subject to the same criticism as mystery shopping, based on the fact that researchers only act as employees and often spend very limited time in a company.

— **Service safari** is often used as an intervention. The term describes sending out a group of people to do autoethnographic research regarding a particular experience. While they are experiencing a specific product or service on their own, they are often also asked to observe and talk to other customers (see participant and non-participant observation, contextual interviews). The aim is to immerse oneself in an experience, to “go out into the wild,” to explore a subject matter on your own, to observe customers “in their natural habitat,” and to “hunt for insights.” Documenting your experience and observations with photos and/or audio or video recordings is very useful for subsequent discussions with your peers. A service safari is really powerful as an intervention when it includes people from management, from the client, or from various departments, as it often helps participants gain a common understanding of a specific issue, building on a contextual bottom-up approach instead of a rather abstract description of an issue.

— As opposed to a conventional service safari, an **explorative service safari** refers to sending out a group of people to explore and collect some examples of what they think are good and bad service experiences. Usually, explorative service safaris do not have a particular focus or have a rather wide focus. For example, they can have a company focus to experience services provided by your client or your own company, an industry sector focus to experience services...
offered by your competitors within the industry, or a focus outside of your industry to look for examples in other industries that can provide inspiration for your own services. Although explorative service safaris are less useful to collect data for a specific research project, they often help teams find starting points for their own research or decide what to focus on in later research.

— **Diary studies** are longitudinal studies in which participants describe their own experiences regarding a subject matter over a longer period of time. Data collection and analysis can be done by researchers themselves as autoethnographies. Alternatively, researchers can invite participants to collect data themselves in a diary and then analyze the data. Often, diary studies are part of cultural probes or they are combined with in-depth interviews based on the diary. Diary studies can be done with a classic physical diary, or online with diary study software, or on smartphones optionally with diary or mobile ethnography apps.

**Method notes**

- A smartphone is often the best device to take with you; if you aim to create journey maps, consider using a mobile ethnography app to directly document your experiences as a journey map.

- Depending on the country and organization you’re working with, do not forget to check what kind of legal, ethical, and confidentiality agreements you need up front and, if necessary, communicate them in advance to your research participants.
SELF-ETHNOGRAPHIC APPROACH

ONLINE ETHNOGRAPHY

An approach to investigate how people interact with one another in online communities, also known as virtual or cyber ethnography.

<table>
<thead>
<tr>
<th>Duration</th>
<th>Preparation: 0.5 hours–1 week (depending on approach and accessibility)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Activity: 1 hours–12 weeks (depending on research aim and approach)</td>
<td></td>
</tr>
<tr>
<td>Follow-up: 0.5 hours–2 weeks (depending on amount and type of data)</td>
<td></td>
</tr>
</tbody>
</table>

| Physical requirements | Computer, notebook, software for screenshots or screencasts, and if needed, legal agreements (consent and/or confidentiality agreement) |

| Energy level | Low |

| Researchers/Facilitators | 1 (depending on approach, more may be needed) |

| Participants | n/a |

| Expected output | Text (quotes, transcripts, field notes), screenshots, recordings (screencasts or audio recordings) |

Often online ethnographies include a mix of methods, such as contextual interviews conducted online with screen sharing or in-depth retrospective interviews with other community members. There are different ways to do online ethnography, including:

— Self-ethnographic research, where a researcher becomes part of a community and documents her own experiences.

— Non-participant online ethnography, where researchers decide to only observe, for example, an online community.

— Participant online ethnography, where researchers get in touch with specific participants to “shadow” their online activities (e.g., through screen sharing).

Online ethnographies can focus on many different aspects, such as social interactions within an online community or the differences in self-perception of people when they are online in comparison to their self-perception in real

life. Online ethnography can be overt or covert. When you do overt online ethnography, people you interact with online know that you are a researcher, while a covert approach means that people you interact with do not know that you’re a researcher. When researchers are visible to the people around them, it is important to be aware of a potential “observer effect” – the influence researchers have on their environment and on their community’s behavior simply by being present (also virtually).

**Step-by-step guide**

1. **Define specific research question**
   Define your research question or what you want to find out. Consider why you are doing research (exploratory vs. confirmatory research) and what you want to do with your findings (personas, journey maps, system maps, etc.).

2. **Plan and prepare**
   Based on your research question or topic, define which online communities might be suitable and whether you will conduct your research overtly or covertly. Consider when you want to conduct your study and how much time you will plan for it. Decide how you will document your experiences (e.g., through screenshots or screencasts, system or journey maps, or simply field notes). Check if you need any legal agreements to do recordings or screenshots; sometimes you will need to disguise other community members if you want to distribute screenshots and the like.

3. **Conduct online ethnography**
   During your online ethnography, try to distinguish between first-level and second-level concepts: what you (objectively) see and hear vs. how you feel about or interpret what you see and hear. If you take field notes, write up both separately. If you conduct overt online ethnography, be aware of a potential observer effect (also virtually). The length and depth of online ethnography varies with the research objective: from a few hours to several days, weeks, or months.

4. **Follow-up**
   Review your data and highlight important passages. Write up your individual key learnings, and if other researchers have done online ethnography as well, compare their work with yours. Keep track of all your collected data by indexing your field notes, transcripts, screenshots, and recordings. Write a short summary that includes your conflated key findings as well as raw data to exemplify these, such as quotes, screenshots, or recordings.

**Method notes**

→ Use an indexing system to keep track of your screenshots and screencasts.

→ Depending on the country and organization you’re working with, do not forget to check what kind of legal, ethical, and confidentiality agreements you need ahead of time. If necessary, communicate them in advance to your research participants.
PARTICIPANT APPROACH

PARTICIPANT OBSERVATION

Researchers immerse themselves in the lives of research participants.

With this approach, the people who are being observed know that researchers are present and that they are currently being observed in situations that are relevant to the research question. This is the difference compared to non-participant observation, where research subjects do not know that they are being observed. Since researchers are visible, it is important to manage the “observer effect” – the influence researchers have on their environment and on their research participants’ behavior simply by being present. There’s a fluid transition between participant observation and contextual interviews, and often these go hand in hand. Try to balance out biases like the observer effect by cross-checking with other (non-participant) research methods.  

Researchers can observe situations that include digital and physical actions with or without other people and/or machines. In this context, participant

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According to one of the seminal books on participant observation from 1980, there’s a continuum in the level of researcher involvement from non-participatory to passive, moderate, active, and complete participation. See (new edition) Spradley, J. P. (2016). Participant Observation. Waveland Press.

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<table>
<thead>
<tr>
<th>Duration</th>
<th>Preparation: 2 hours–8 weeks (depending on accessibility and legal regulations) Activity: 4 hours–4 weeks (depending on number and availability of interviewees and researchers) Follow-up: 2 hours–4 weeks (depending on amount of data)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical requirements</td>
<td>Notebook, photo camera, voice recorder, video camera, legal agreements (consent and/or confidentiality agreement)</td>
</tr>
<tr>
<td>Energy level</td>
<td>High</td>
</tr>
<tr>
<td>Researchers/Facilitators</td>
<td>Minimum 1 (a better approach is to have teams of 2–3 researchers)</td>
</tr>
<tr>
<td>Participants</td>
<td>Minimum 5 (but aim for at least 20 per group)</td>
</tr>
<tr>
<td>Expected output</td>
<td>Text (transcripts, field notes), audio recordings, photos, videos, artifacts</td>
</tr>
</tbody>
</table>
Observation is particularly useful to understand cross-channel experiences, as the method focuses on people and not on one particular channel. Depending on the research question and context, observations might be at the participants’ workplace, in their homes, or even following them throughout a process like a holiday trip.

**During participant observations it is important to observe not only what people are doing, by interpreting their body language and gestures, but also what people are not doing** (e.g., do they ignore instructions or refrain from asking for help or assistance?).

When researchers conduct participant observations, they often switch between rather passively observing situations and actively asking questions to get a deeper understanding of user needs.

Humor sometimes helps to create trust between researchers and participants. Trust is particularly important for longer participant observations.
Step-by-step guide

1 Define specific research question
Define your research question or a set of questions about what you want to find out. Consider why you are doing research (exploratory vs. confirmatory research), what you want to do with your findings (personas, journey maps, system maps, etc.), and what sample size you’ll probably need.

2 Identify participants
Based on your research question, define criteria for selecting suitable participants, considering not only who you interview, but also when and where. Use sampling techniques to select your research participants, and consider including internal experts or external agencies for participant recruitment.

3 Plan and prepare
Plan how you will approach your research participants, what expectations you will set up front, how you will start and end, and how much time you will plan for the participant observation. Write up observation guidelines based on what you want to find out. Also consider who you want to include as researchers from the client side or from other departments involved in the project. Agree on how you’ll document the observations and set up legal agreements if necessary, to take voice recordings, photos, or videos, besides your field notes.

4 Conduct observations
During participant observation, try to balance out a possible observer effect by striving to influence the research participants as little as possible while at the same time being as close as necessary. Research subjects often consciously or unconsciously behave differently when they feel observed – it’s even worse when they are filmed or photographed. To handle this, it’s crucial to establish trust between researchers and participants during participant observations. This often requires more time than initially expected. You can mix participant observation with other methods, such as contextual or retrospective interviews. Use the situational context and ask participants to explain their specific activities, artifacts, behavior, motivations, needs, pains, or gains. Sometimes contradictions between what people say and what people do can be very revealing if you mirror behavior back to participants. During your observations, try to collect as much unbiased “first-level construct” raw data as possible. The length and depth of participant observations varies with the research objective: from several quick 15-minute observations at a specific moment in a customer journey to observations over several days or sometimes even weeks.
5 Follow-up

Write up your individual key learnings right after the observations and compare them within your team. Keep track of all your documentation (e.g., by indexing your field notes, transcripts, photos, audio and video recordings, and collected artifacts) and highlight important passages. For each participant observation, write a short summary that includes your conflated key findings as well as raw data to exemplify these, such as quotes, photos, or videos. Don’t forget to link the summary to your underlying data (that’s where indexing comes in very handy).

Variants

Participant observation is an umbrella term for a variety of methods, such as shadowing, a day in the life, or work-along. The main differences between these methods are based on who you observe (e.g., work-along) and if you follow research subjects over time (e.g., a day in the life) and sometimes also through different physical spaces (e.g., shadowing). However, the terms overlap to a large extent and are often used interchangeably:

— A day in the life uses participant observation to understand the everyday lives of people (mostly customers) over a certain time span, from a few hours up to several days. It is useful to develop or validate personas as well as to understand the wider context of customer needs. Researchers mostly focus on customers’ routines, rituals, behaviors, environment, interactions, and conversations, or products customers use during the day. “A day in the life” often uses a combination of participant observation with contextual or retrospective interviews to understand the reasons behind why subjects do certain activities, their motivations and attitudes. Often, the research is visualized in the form of a journey map to show the actions of a customer during that day in a timeline or as a system map to visualize the various stakeholders that customers interact with during a day.

— Work-along focuses on employees in their work environment to understand their daily routines and informal networks. Work-alongs are mostly a mix of participant observation and contextual interviews, but can also include call monitoring, virtual ethnography, and non-participant observation. Researchers often behave as trainees or interns and work together with employees for several days. They look over employees’ shoulders to learn about their everyday work routines and their interactions and conversations with fellow employees, clients, customers, and other stakeholders,
to understand internal processes as well as formal and informal networks, corporate culture, and tone of voice. Researchers should pay attention to the workarounds employees use to cope with existing corporate structures and processes. Often, looking at the sticky notes you find around the workplace is a great start to understand the hacks and shortcuts people use to operate more efficiently. Researchers need to be sensitive to their work-along participants, as their presence can be very invasive at times. Also, the presence of researchers often affects people’s behavior (the observer or Hawthorne effect), so researchers should be mindful of this. To enrich data collected during a work-along, researchers can collect artifacts, such as instructions, internal documents, catalogues, emails, transcripts, and so on.

Shadowing refers to researchers following research subjects (mostly customers) over time and often also through the physical spaces of their lives, like a shadow, in order to observe their behavior and understand their processes and experiences. Shadowing is often much shorter than a work-along, sometimes lasting only a few minutes, or up to several hours. It is important to clarify researcher status and boundaries with all participants before you start your research. Shadowing enables researchers to gain an in-depth understanding of experiences from the participants’ perspective. It normally also includes contextual interviews at critical moments (e.g., when a customer has a problem or someone uses an interesting workaround). Often, the research participants themselves wouldn’t recognize a critical situation as such, since they are accustomed to it (e.g., common problems they have every day). Shadowing will reveal insights you won’t find with mere interviews – either because participants do not tell the truth (e.g., due to social pressure) or simply because they are not aware of their own behavior.

Method notes

→ If research participants communicate or retrieve information, collect information on which channels they are using; if they choose from various available channels, try to find out why they prefer a certain channel over others.

→ Depending on the country and organization you’re working with, do not forget to check what kind of legal, ethical, and confidentiality agreements you need up front and if necessary communicate them in advance to your research participants.
PARTICIPANT APPROACH

CONTEXTUAL INTERVIEW

Interviews conducted with customers, employees, or any other relevant stakeholders in a situational context relevant to the research question; also known as contextual inquiry.

Duration
- Preparation: 0.5 hours–8 weeks (depending on accessibility and legal regulations)
- Activity: 0.5 hours–4 weeks (depending on number and availability of interviewees and researchers)
- Follow-up: 0.5 hours–4 weeks (depending on amount of data)

Physical requirements
- Notebook, photo camera, voice recorder, video camera, legal agreements (consent and/or confidentiality agreement)

Energy level
- High

Researchers/Facilitators
- Minimum 1 (a better approach is to have teams of 2–3 researchers per interview)

Participants
- Minimum 5 (but aim for at least 20 per group)

Expected output
- Text (transcripts, field notes), audio recordings, photos, videos, artifacts

Contextual interviews can be done, for example, with employees at their workplace or with customers during a specific moment of their customer experience. Contextual interviews are used to understand a certain group of people better: to understand their needs, emotions, expectations, and environment (useful for personas), but also to reveal formal and informal networks and hidden agendas of specific actors (useful for system maps). Besides, such interviews help to understand particular experiences as interviewees can demonstrate actions in detail and in context (useful for journey maps). Try to ask your interviewees about a specific experience that they’ve had (e.g., the last time they used the service) and to demonstrate details of this concrete experience. It is often easier for people to articulate pains and gains when they refer to concrete examples than when describing an experience in more general terms.

Contextual interviews can be conducted rather openly, following one leading research question, or in a semi-structured way, following interview and observation guidelines (see participant observation).

In contrast to retrospective interviews, contextual ones are conducted in situ, with the advantage that researchers can observe the environment and interviewees can point to elements in the environment. This makes an interview much more tangible and active. Interviewees tend to be more open and engaged, as they are often conducted in a context that is familiar to the interviewee. Interviewees also tend to remember more specific details than in retrospective interviews or focus groups, and researchers gain a much more holistic understanding. Often, contextual interviews use techniques like the Five Whys to gain a deeper understanding about the underlying motivations for specific actions of the interviewee. It’s important to document the situational context in which the interview takes place. Besides season, weekday, time, and place, other factors may affect the situational context, such as weather conditions or other customers. Also, be aware of the interviewees’ mood, and observe their gestures and body language.

Contextual interviews help interviewees to articulate problems and needs as they are in the situational context, as they can simply show things right where they are.

If possible, also take audio or video recordings as less-biased raw data sources.

Collecting artifacts or taking photos of relevant artifacts can help to understand the situational context of your interview.
Step-by-step guide

1 Define specific research question
As always, you need a leading question or a set of questions representing what you want to find out. Also, consider why you are doing research (exploratory vs. confirmatory research), what you want to do with your findings (personas, journey maps, system maps, etc.), and what sample size you’ll probably need.

2 Identify interviewees
Based on your research question, define criteria for selecting suitable interviewees, considering not only who you interview, but also when and where. Use sampling techniques to select your interviewees and consider including internal experts or external agencies for interviewee recruitment.

3 Plan and prepare
Plan how to approach your interviewee. What expectations do you set beforehand, how do you start, how do you end, and how much time do you plan for the interview? Write up interview guidelines based on what you want to find out and what experience you are trying to achieve for your interviewee. Such guidelines should be semi-structured, so that they help you not to forget anything during the interview, but give you the flexibility to change your agenda if useful. Also, consider who you want to include as interviewers from the client side or from other departments involved in the project. Agree on how you’ll document the interviews and set up legal agreements if necessary to take voice recordings, photos, or videos.

4 Conduct interviews
During the interview, ask open and non-leading questions. Consider using specific interview techniques, such as the Five Whys, to reveal underlying motivations. Use the situational context and ask interviewees to demonstrate specific activities or artifacts they are talking about; saying “show me” in a contextual interview is very useful, as people often say something different from what they actually do. Agree in advance on the roles within your interviewer team; establish beforehand who will ask questions, and who will observe and take notes. During your interview, try to collect as much unbiased “first-level construct” raw data as possible. The length and depth of contextual interviews varies with the research objective: from several quick, 5-minute interviews at, say, a ticket machine in a train station to interviews of 2–3 hours at home or at a workplace.

5 Follow-up
Write up your individual key learnings right after the interview and compare them within your team. Keep track of all your documentation (e.g., by indexing your field notes, transcripts, photos, audio and video recordings, and collected artifacts) and highlight important passages. For each interview, write a short summary that includes your key findings as well as raw data to exemplify these, such as quotes, photos, or videos. Don’t forget to link the summary to your interview data (that’s where indexing comes in very handy).
Researchers might conduct several in-depth interviews with relevant stakeholders (e.g., front- and backstage employees, customers, suppliers, etc.) or external experts to understand different perspectives on a specific subject matter. These interviews can help researchers learn more about particular expectations, experiences, products, services, goods, operations, processes, and concerns, and also about a person’s attitude, problems, needs, ideas, or environment.

In-depth interviews can be conducted in a structured, semi-structured, or unstructured manner. While strictly structured interviews are rather uncommon in design, following a semi-structured guideline helps a researcher to collect useful data. The interview questions should be structured in a “funnel” manner, starting with general and broad questions to get the participant comfortable with the interview and talking and to build rapport, then gently becoming more specific and detailed on subjects related to the research question. Interview guidelines can be customized for a project or a group of interviewees or can be based on more general templates, such as an empathy map following the interview topics of “Think & Feel,” “Hear,” “See,” “Say & Do,” “Pain,” and “Gain” to collect data for personas.

In-depth
Introductions are mostly done face to face so researchers can observe body language and to create a more intimate atmosphere, but can be also conducted online or by telephone.

These interviews can be supported by creating boundary objects, such as simple scribbles or mind maps as well as personas, journey maps, system maps, or other useful templates. These can be co-created with the interviewee to support a mutual understanding of rather complex issues. The tools can be paper-based, with interviewees filling out templates as part of an interview, or they can take a more tangible form, such as using game pieces or figures to visualize networks or systems. Sometimes in-depth interviews also include tasks like card sorting to understand user needs or storytelling supported by tangible touchpoint cards to visualize experiences. Touchpoint cards are particularly useful for retrospective interviews of past experiences as they help interviewees to make their memories more tangible. During retrospective interviews, interviewees recap and evaluate their experience with a product, service, event, or brand. It is useful to not only capture the final result (a journey map created with touchpoint cards) but also to document the whole creation process followed by the interviewee.

Pay attention to your interviewees’ body language and gestures and write down interesting observations. This often leads to further questions.

Using touchpoint cards or a journey map as a boundary object during an in-depth interview helps interviewees to recap experiences.


Step-by-step guide

1 Define specific research question
Specify your research question or a set of questions based on the type of research (exploratory vs. confirmatory research), what you want to do with your findings (personas, journey maps, system maps, etc.), and what sample size you’ll probably need.

2 Identify interviewees
Based on your research question, define criteria for selecting suitable interviewees. Use sampling techniques to select your interviewees and consider including internal experts or external agencies for interviewee recruitment.

3 Plan and prepare
Plan how to approach your interviewee. What expectations will you set in advance, how will you start, where and when will you conduct the interview, will you include any tasks for the interviewee, how will you end, and how much time do you plan for the interview? Consider that the environment – when and where you do the interview – could have an impact on the interview itself. Write up interview guidelines based on what you want to find out and what kind of experience you want to give your interviewee. The guidelines should be semi-structured, so that they help you not to forget anything during the interview, but give you the flexibility to change your agenda if useful. Also consider who you want to include as interviewers from the client side or from other departments involved in the project. Agree on how you’ll document the interviews and set up legal agreements if necessary to take voice recordings, photos, or videos.

4 Conduct interviews
During the interview, ask open and non-leading questions. Consider using specific interview techniques, such as the Five Whys, to reveal underlying motivations. Agree up front on the roles within your interviewer team; establish beforehand who will ask questions and who will observe and take notes. The length of in-depth interviews varies with the research objective, anywhere from 30 minutes to 2 hours.

5 Follow-up
Write up your individual key learnings right after the interview and compare them within your team. Keep track of all your documentation (e.g., by indexing your field notes, transcripts, photos, audio and video recordings, and collected artifacts) and highlight important passages. For each interview, write a short summary that includes your conflated key findings as well as raw data to exemplify these, such as quotes, photos, or videos. Don’t forget to link the summary to your interview data (that’s where indexing comes in very handy).

Method notes

→ In-depth interviews can apply techniques like the Five Whys to gain more depth and learn more about the underlying motivations.

→ If possible, document interviews with video or audio recordings and photographs so that you collect raw (first-level construct) data. In this context, pay attention to the interviewee’s mood, and observe gestures and body language.
PARTICIPANT APPROACH

FOCUS GROUPS

A classic qualitative interview research method in which a researcher invites a group of people and asks them questions on specific products, services, goods, concepts, problems, prototypes, advertisements, etc.

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**Duration**

**Preparation:** 1–4 hours (depending on accessibility of participants and legal regulations)

**Activity:** 1–2 hours (depending on questions and process)

**Follow-up:** 1–8 hours (depending on research focus and amount of data)

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**Physical requirements**

Notebook, voice recorder, video camera, photo camera, legal agreements (consent and/or confidentiality agreement)

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**Energy level**

Middle

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**Researchers/Facilitators**

1–2

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**Participants**

4–12 (6–8 is often regarded as an ideal size)

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**Expected output**

Text (transcripts, notes), audio recordings, photos, videos

With a focus group, researchers strive to understand the perceptions, opinions, ideas, or attitudes toward a given topic. Focus groups are mostly carried out in a rather informal setting, like a meeting room or a special room where researchers observe the situation in a non-participant manner through a one-way mirror, or via live video coverage in another room. The aim is that participants feel free to discuss the given topics from their own perspective.01

Researchers often ask only an initial question and then observe the group discussion and dynamics. Sometimes a researcher acts as a moderator, guiding the group through a set of questions. In a dual-moderator focus group one researcher facilitates the process while the other observes interactions between the participants. In contrast to co-creative workshops, researchers do not act as facilitators and the participants do not work with boundary objects in order to create an outcome together.

Although focus groups are often used in business, they have only limited applicability in service design.

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They are not useful when we need to understand existing experiences in context as they are done in a lab setting without a situational context. Unlike co-creative workshops, focus groups usually do not use boundary objects the group can work on together, such as personas, journey maps, or system maps. This often leads to limited informative value as results depend on the moderated discussion. Therefore, moderators need to take care to avoid results that are biased by issues like observer effect, group think, or social desirability bias, to name but a few.

**Step-by-step guide**

1. **Define specific research question**
   Specify your research question or a set of questions for the focus group. Questions mostly refer to perceptions, opinions, ideas, or attitudes regarding a specific product, service, software, concept, problem, prototype, or advertisement.

2. **Recruiting interviewees**
   Based on your research question and aim, define criteria for selecting suitable participants. Use sampling techniques to select your focus group participants and consider including internal experts or external agencies for participant recruitment. Often focus groups aim for homogeneity among participants to maximize disclosure. Following the approach of triangulation, at least have a second focus group as a control group for the first one.

3. **Plan and prepare**
   Plan how to approach your participants and what incentives you will offer them for their participation. Find a comfortable venue and decide how you'll record the focus group. Prefer unobtrusive recording methods to ensure a comfortable environment, and in case of sensitive or stigmatized topics use only audio recording. If you conduct the focus group in teams, agree on the roles within your interviewer team; establish beforehand who will ask questions, and who will observe and take notes. Write up a guideline of open and non-leading questions; avoid technical terms and jargon. Consider the participant experience when you create your guideline: start with rather general engagement questions (e.g., introduction of participants and general opinions about a given topic), move into exploration questions (e.g., digging deeper into understanding details, pros and cons of a topic, emotions, etc.), and finish with exit questions (such as “Did we miss something on that topic?” or “Something else to add to this?”).

4. **Conduct interviews**
   Start by explaining the purpose of the focus group and introducing everyone in the room, including the moderators and their roles. During the focus group, follow your question guidelines, make sure not to ask closed or leading questions, and keep your questions short and clear. The moderator should stay neutral and empathic, and prevent individual participants from dominating the conversation. Try to engage the quiet ones and make it clear that a focus group is not about finding a consensus within the group, but more about understanding different perspectives. If appropriate, the assistant might also visibly record key answers of participants as a list, mind...
map, or graphic recording. At the end of the focus group, offer participants follow-up options to give feedback and review the content. The length of a focus group is typically 1.5–2 hours.

**Follow-up**

Write up your individual key learnings right after the focus group and compare them within your team (you might have external observers besides the moderators). Review and index your collected data and highlight important passages. For each focus group, write a short summary that includes your conflated key findings as well as raw data to exemplify these, such as quotes, photos, or videos. Compare the key findings of your different focus group. Do they match, and can you identify patterns? If you see differences try to find out why, and conduct more focus groups until you identify the reason for a specific bias or until your sample is large enough that you find patterns (or until you don’t find patterns, which would be a result as well). Don’t forget to link the summary to the collected data of your focus groups (e.g., by indexing your data).

**Method notes**

- Often a focus group is influenced by the researcher’s opinion (e.g., through an unconsciously biased briefing) – this is referred to as the observer effect. Another issue is group think – participants might be influenced by the most outgoing or powerful group member. One way to overcome this issue can be to first create an “isolated” step before the focus group in which participants write down their opinions alone, and then discuss their ideas in pairs or with the researcher. Only afterwards will they meet the entire focus group. Optionally, you can start by reading out all the individual ideas, or start by looking for common patterns as a group to stimulate discussion in a non-threatening way, allowing for some voices to be “heard” without being directly attributed to individuals. This can make people feel more self-confident and ready to express their own opinions, and less likely to be influenced by the most outgoing or powerful members of the group.

- Another problem focus group moderators often need to deal with is social desirability bias – participants say what might be considered as the “right” choice instead of what they really think or do. People in observed situations often say what they think they should say, instead of truthfully describing what they actually do. To combat this, use a mixed-method approach and start by showing some of your raw data that shows what people “really” do. Address openly that you are aware of the reality and consider techniques to establish a safe space to comfort participants and to ease them into speaking openly.

02 See #TISDD chapter 10, Facilitating workshops, for a detailed description of how to establish a safe space in a workshop.
Many books have been written and numerous papers published about how to conduct interviews. Here are just a few tips we often consider when we do interviews:

- **Establish trust**
  Consider some of the rules of safe space\(^1\) for interviews. Introduce yourself and potentially other people in the room. Make it clear that you care about the interviewees’ answers, and that you are there to learn and not only to confirm your assumptions.

- **Use clear language**
  Ask questions in clear language, one question at a time. Otherwise, you might confuse interviewees. Avoid slang or technical terms. Try to speak with careful articulation.

- **Avoid closed questions**
  Avoid closed questions that could be answered with a simple “yes” or “no.” Your questions should inspire interviewees to elaborate on specific topics. Follow your interview guidelines if you conduct semi-structured interviews, but be open to following other directions your interviewee might take as well.

- **Avoid leading questions**
  Try to avoid leading questions in which you propose a specific assumption or hypothesis and, thereby, lead your interviewee to a certain answer. Leading questions are often a symptom of an underlying confirmation bias by the interviewer. A second researcher cross-checking questions for these symptoms helps to reveal such a bias.

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\(^1\) See #TISDD chapter 10, *Facilitating workshops*, for tips on creating a safe space.
→ **Listen**

This sounds much easier than it actually is. Give interviewees time to think and do not urge them to answer right away. Sometimes a moment of silence feels uncomfortable for interviewers, but giving interviewees time to think helps them to structure their thoughts, to dig deeper, and often to open up more.

→ **Paraphrase**

Paraphrasing describes a technique where the interviewer repeats in his own words what the interviewee has just said. This helps interviewers to check if they correctly understood or if they only heard what they wanted to hear. Paraphrasing also gives interviewees more time to reflect on what they just said and elaborate more on it.

→ **Use the Five Whys**

The Five Whys is a simple but effective interview technique. An interviewer paraphrases the initial answer from an interviewee approximately five times into questions starting with “Why.” With each successive answer the participant will move from rather simple and superficial answers more toward underlying motivations and root causes.

→ **Plan your interview questions**

What interview questions will you pose? These might not be the same as the research question, but may instead approach the theme tangentially or indirectly.
NON-PARTICIPANT APPROACH

NON-PARTICIPANT OBSERVATION

Researchers collect data by observing behavior without actively interacting with the participants.

In contrast to participant observation, researchers take a more distant role in non-participant approaches and do not interact with the research subjects; they behave like a “fly on the wall.”

Research subjects are often customers, employees, or other stakeholders, observed in situations that are relevant to the research question, such as using or providing a service or product, whether physical or digital. Often, non-participant observation is used to level out researcher biases in other methods and to reveal differences between what people say and what they actually do.

Non-participant observation can be overt or covert. Overt means that research subjects know that researchers are present, but they do not interact with each other.

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**Duration**

**Preparation:** 0.5 hours–2 weeks (depending on accessibility and legal regulations)

**Activity:** 1 hour–4 weeks (depending on number of observations and research objective)

**Follow-up:** 0.5 hours–2 weeks (depending on amount of data and collected data types)

**Physical requirements**

Notebook, photo camera, video camera, voice recorder, legal agreements (consent and/or confidentiality agreement)

**Energy level**

Middle

**Researchers/Facilitators**

Minimum 1 (it’s better to have 2–3 researchers)

**Participants**

Minimum 5 (but aim for at least 20 per group)

**Expected output**

Text (field notes), photos, videos, audio recordings, sketches, artifacts, statistics (e.g., counting customers per hour)

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01 You can also do overt non-participant observation, for example, when researchers sit in on meetings or workshops on site, but do not actively participate. See also the textbox in #TISDD called Overt vs. covert research in 5.1.3.
other – for example, when a researcher joins employees for meetings without interfering at all. This can be combined with other methods, like in-depth interviews to debrief afterwards and learn the different perspectives and hidden agendas of people attending the meeting. Overt non-participant observation can be biased through the observer effect, when people change or seek to improve an aspect of their behavior just because they are aware of being observed. Covert non-participant observation refers to observing research subjects without them knowing that they are being observed at all. Sometimes researchers pretend to be customers or passers-by, or even use one-way mirrors, for example. Covert non-participant observation minimizes the risk of people being affected by the presence of a researcher. Setting aside potential ethical concerns, it is also often the method of choice if people are unwilling to participate in your research.

During non-participant observations, it is important to observe not only what people are doing (for example, by interpreting their body language and gestures), but also what people are not doing (perhaps ignoring instructions or refraining from asking for help or assistance). Depending on the country and organization you’re working with, do not forget to check what kind of legal, ethical, and confidentiality agreements you need in advance and which forms of data you are allowed to collect, particularly in covert non-participant observations. Avoid taking photos or videos of strangers without their consent. If you cannot take photos or videos, use sketching or reconstruct the situation with a colleague afterwards to capture the situational context.
**Step-by-step guide**

1. **Specify research question**
   Define your research question or the focus of what you are interested in. Consider why you are doing research (exploratory vs. confirmatory research), what you want to do with your findings (personas, journey maps, system maps, etc.), and what sample size you’ll probably need.

2. **Plan and prepare**
   Based on your research question, define criteria for selecting suitable locations and situations for your non-participant observation. Depending on the research focus it might be more important to think about whom you observe and in what situation, or it might be more important to focus on the situational context: the when and where. Think about what types of data you are allowed to collect and if you’ll do overt or covert non-participant observation. Also, consider who you want to include as researchers from the client side or from other departments involved in the project. Summarize this in some brief observation guidelines based on what you want to find out, how you will do this, and what you aim to do with the data.

3. **Conduct observations**
   During non-participant observation, try to interfere with the research subjects as little as possible. Using a smartphone or any other unobtrusive device to collect your data might help. You can mix non-participant observation with other methods such as in-depth (retrospective) interviews afterwards to debrief observed situations. During your observations, try to collect as much unbiased “first-level construct” raw data as possible. The length and depth of participant observations varies with the research objective: from many quick, two-minute observations at a specific moment in a customer journey to observations of several days or sometimes even weeks – for example, when you do overt non-participant observations of a project team over the entire project duration.

4. **Follow-up**
   Write up your individual key learnings from the observations right afterwards and compare them within your team. Review all your data and index it; highlight
important passages. Try to find patterns within your data. For each non-participant observation session, write a short summary that includes your conflated key findings as well as raw data to exemplify these, such as quotes, photos, or videos. Don't forget to link the summary to your underlying data by using indices.

Method notes

→ Besides obvious qualitative research, such as observing body language, gestures, flow, usage of space or artifacts, interactions, and the like, researchers can also do some quantitative research, such as counting (a) how many customers within the hour pass by a shop, (b) how many of these come into the shop, and (c) how many of these start interacting with employees. The numbers can be aggregated to a simple conversion funnel, (a) → (b) → (c), and compared with data from other shops or other channels, like an online conversion funnel. In this context, researchers can observe situations with other people, digital interfaces, or machines.

→ A rather special approach to carrying out non-participant observation is call monitoring: researchers listening to phone calls. This is mostly used in call centers to research conversations between call-center agents and customers. Call monitoring can be done live or based on recorded phone calls. Conversations can then be analyzed to understand common problems of both customers and employees.

Today, augmented-reality headsets, wearable sensors, and other recording devices are providing service designers with new data-collection methods that present fresh avenues of inquiry, as well as emerging demands for privacy and consent-management discipline. ◀
A mobile ethnography project might include 10, 100, or even 1,000 participants documenting their experiences with a brand, product, service, event, or similar. Participants are included as active researchers self-documenting their own experiences as a kind of diary study on their own phones. Participants document their experiences, but researchers can review, synthesize, and analyze the collected data. In some cases, researchers can get in touch with participants through push notifications for ongoing guidance, tasks, or to ask for more details on reported experiences.

Mobile ethnography mostly focuses on customers or employees who document their own daily routines, or follow a specific research task to document whatever might be of interest regarding a given research question or topic.

Dedicated apps for mobile ethnography allow participants to self-document almost any experience along their entire customer journey and across all on- and offline channels. Besides text, photos, videos, and quantitative evaluations, these apps also collect information on time and location that can be used to visualize data as journey maps or even as geographic maps. Mobile ethnography follows a self-structured approach, so that participants are invited to document anything that they themselves perceive as important enough. As the collected data is aggregated in web-based software, analysis can be done in real time by a dispersed team of researchers.

Mobile ethnography works well for longer research over one or a few days, as well as for rather intimate subject matters people hesitate to talk about with others. The collected metadata of time and geolocation support any project in which geography is important (e.g., tourism or city experiences).
**Step-by-step guide**

1. **Specify research question**
   - Define your research question or the focus of what you are interested in. Consider why you are doing research (exploratory vs. confirmatory research), what you want to do with your findings, and what sample size you’ll probably need.

2. **Plan and prepare**
   - Based on your research question and aim, use sampling techniques to select your research participants and consider including internal experts or external agencies for participant recruitment. Plan to offer incentives for your participants (remember, it is work for them!) and consider how you will communicate the project: what expectations do you want to set and what is the leading task you’ll give them? Recruiting participants is often the hardest part of mobile ethnographic research. Check if there are any legal restrictions for taking photos or videos and if you need to set up a consent and/or confidentiality agreement for your participants. Also, consider who you want to include as researchers from the client side or from other departments involved in the project.

3. **Set up project and invite participants**
   - Choose suitable software for your mobile ethnography project and set up your project. Pay attention to the task you give to your participants: keep it short and clear. Define questions for your participant profile so that you can cluster them into groups matching your target groups or personas. Create an invitation in which you explain the project’s aim and their task. Give them clear instructions on how to join the project, how to document their experiences, and the incentive they will get. It helps if you add a gamification component to this and give out different incentives depending on how useful their collected data is. Also, if possible, arrange interviews with participants before the study to clarify the process and to learn about their backgrounds and expectations regarding your research topic. Start with a small pilot project to double-check if your instructions are clear and the collected data is actually useful for your research aim.

4. **Data collection**
   - Once you have invited participants and started your data collection, you can see your data arriving in real time. You can start to synthesize and analyze your data right away, codifying it by tagging documented experiences or exporting journey maps as input for your research wall or workshops.
Optionally, you can decide to use a guided research approach: guided research refers to sending push notifications to your participants either at defined times, such as after an event or every morning as a reminder, or whenever you would like specific participants to elaborate on interesting or unclear data. Set a clear deadline for your participants so that there is an understanding of the time frame and they know when you’ll stop collecting data.

Follow-up
Go through the collected data and try to find patterns across the reported journey maps (both positive and negative). If possible, conduct debrief interviews with participants to probe further on key issues that arise. Use sorting and filtering options to search for different issues for different groups based on their participant profiles. Once you are done with your individual analysis, write up your key learnings and compare them within your team. Review all your data and index it; highlight important passages. Try to find patterns among your data and between all researchers. Write a short summary that includes your key findings as well as raw data to exemplify these, such as quotes, photos, or videos. Alternatively, create a conflated journey map for each participant group you discovered.

Method notes
Like all research methods, mobile ethnography has some disadvantages, such as the method’s strong dependency on the participants’ motivations, and the lack of cues like body language and tone of voice. Also, mobile ethnography does not work for experiences with a very short time span: the minimum duration is approximately 2–4 hours. With shorter experiences, the usage of a mobile phone affects the individual participant’s experiences too much and you’ll see a strong bias in your data.

One way to tackle potential biases is through method triangulation. Mobile ethnography works particularly well in combination with in-depth interviews in which researchers debrief participants. In such debrief sessions, they go through the participant’s data together to reflect and decode what they meant and why they chose what they documented. This also allows researchers to dig deeper with regard to key issues.
With this approach, researchers prepare and send a package to participants which can include a set of instructions, a notebook, and a single-use camera. Nowadays, cultural probes are often also done virtually using online diary platforms or mobile ethnography apps. Research participants are then asked to follow the given instructions and self-document certain experiences with field notes and photos, and/or to collect relevant artifacts based on an autoethnographic approach.01

Cultural probes can include diaries kept over a day, a week, or even several years. Participants may be asked to take videos with their own smartphones following a simple script defined by the researcher, or to take photos of how they use specific products in various contexts. There are numerous variations of cultural

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01 For an introduction on how to use cultural probes in design see, for example, Gaver, B., Dunne, T., & Pacenti, E. (1999). “Design: Cultural Probes.” Interactions, 6(1), 21-29.
probes and what they might contain. Sometimes researchers guide participants through daily or weekly emails or text messages, giving them tasks to document or focus on. Cultural probes are often used to get the most intimate insights from participants without the need to have a researcher physically present. They help researchers to understand and overcome cultural boundaries and bring diverse perspectives into a design process.

The aim of cultural probes is to gain unbiased data that has been collected by participants themselves in context without having a researcher present. They often suggest input for further research using other methods such as participant observation approaches or co-creative workshops, or are used as a sensitizing exercise for in-depth interviews.

The content of a cultural probe (the observation package) to research flight travel experiences.

The observation package for customers includes clear instructions, a disposable camera, and some floor plans of airports and airplanes.

This diary was part of a cultural probe to understand how people with long-term conditions feel throughout an average day.

01 Photo: Martin Jordan.
02 Photo: Martin Jordan.
03 Photo: Lauren Currie and Sarah Drummond.
Step-by-step guide

1 Specify research question
Define your research question or the focus of what you are interested in. Consider why you are doing research (exploratory vs. confirmatory research), what you want to do with your findings (personas, journey maps, system maps, etc.), and what sample size you’ll probably need.

2 Identify participants
Based on your research question, define criteria for selecting suitable participants, considering not only who you’ll send a cultural probe package to, but also when and where. Use sampling techniques to select your participants and consider including internal experts or external agencies for participant recruitment.

3 Plan and prepare
Depending on your research aim, plan what you want to include in your cultural probe package and write up detailed instructions. These can include instructions for a diary study, taking photos, describing how participants are using products/services/goods, mapping out experiences or systems, and much more. It is crucial to test your instructions to ensure they are clear to avoid misunderstandings between researchers and participants. Define how participants should document their tasks: physical diaries, online blogs, smartphone apps, or a mix of different media. Don’t forget to communicate general information about the research project as well as a deadline establishing the time frame in which participants should upload their data. Also, consider incentives for participants (it is work for them!). Once you have all the components of your cultural probe package, prepare it so that it is ready to be sent out to your participants.

4 Send out cultural probe packages
Send out your cultural probe packages, including a preaddressed return package for physical packages. Also, provide information regarding who to contact if participants have questions or lose items included in the package. The length and depth of cultural probes varies with the research objective: from one day to several weeks.

5 Follow-up
Review your returned packages and index the included data. Highlight important passages and try to find patterns among your data. If useful, schedule follow-up interviews with participants. Write up your individual key learnings and if possible use researcher triangulation to review the same content with different researchers. Compare your key findings afterwards within your team. Write a short summary that includes your conflated key findings as well as raw data to exemplify these, such as quotes, photos, or videos. Don’t forget to link the summary to your underlying data by using indices.

Method notes

→ Cultural probes are often a mix of various approaches like autoethnography, diary studies, and mobile ethnography, and are often combined with in-depth interviews to review the collected data retrospectively.

→ Depending on the country and organization you’re working with, do not forget to check what kind of legal, ethical, and confidentiality agreements you need up front and which forms of data you are allowed to collect.
The outcomes of co-creative workshops are mostly assumption-based personas, journey maps, or system maps. These outcomes should be understood as tools in development and can be very valuable for a team as a common starting point to design their research process, or to evaluate and enhance their collected data.

Assumption-based journey maps help you to design an efficient research process by giving you a better idea of who to ask, when, and where, as well as what to ask or observe. However, the risk is that during your research, you only look for data that confirms your assumptions: the confirmation bias. To avoid this, triangulate researchers, methods, and data to level out potential biases. Also, inviting external people for “crit sessions” or project supervision (sometimes called “devil’s advocates”) might help you uncover such biases. If you start with assumption-based journey maps, constantly challenge your assumptions with solid research. Over time, assumption-based personas, journey maps, and system maps should develop into research-based tools with improved rigor and significance.

It is important to consider who you invite to such co-creative workshops, as the outcome will depend solely on the participants’ knowledge of the subject matter. With your decision on who to invite and who to leave out, you also determine which perspectives might be interesting enough to include. This is of particular relevance when your project includes marginalized groups in society. If the workshop does not have enough concrete results, invitees might feel that the co-design was just a sham. They may feel disrespected: consulted, but not empowered to have a genuine impact on the project. When you invite people to co-creative workshops, make sure that you follow basic ethical standards by hearing their opinions and considering their perspectives.

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A critique session, or simply “crit session,” is often used in design and art schools, where the term describes a session in which either peers or faculty critically evaluate a student’s work. In service design, crit sessions refer to inviting people who are not familiar with your project to critically reflect on your work. This often includes asking the really stupid questions no one within the design team dares to ask anymore – similar to the approach of “rubber duck debugging” in software development. See, for example, Hunt, A., & Thomas, D. (2000). *The Pragmatic Programmer: From Journeyman to Master*. Addison-Wesley Professional.
The quality of the results of any co-creative workshop depends on the knowledge of the workshop participants. In this case, it will depend on how much participants know about the group of people you want to exemplify with personas. For example, if you want to create personas of customers you would do well to invite frontline employees who are in direct contact with customers every day. Be careful if you conduct a co-creative workshop with people who do not have sound knowledge or only a superficial or abstract knowledge of the subject matter. The results might look convincing, but often they are very biased. For example, if a marketing team without prior qualitative research and without deep knowledge of the daily lives of customers conduct a co-creative workshop on personas, the outcomes tend to represent their ideal customers. Using such
idealized personas as a basis for a design process is risky, as you could end up with concepts that lack a customer base.\footnote{\textit{See TiSDD} 3.2, Personas, and \textit{TiSDD} chapter 10, Facilitating workshops, for hands-on tips on facilitation and how to build a safe space.}

In addition to the know-how of the workshop participants, a second important factor for any co-creative workshop is the qualitative research you do prior to such workshops. As a rule of thumb, the more valuable data you bring to a co-creative workshop, the more representative your outcome will be.

Even though age and gender is always an easy start for a persona, demographics might be quite misleading. Instead, think of factors that differentiate the groups you would like to represent with your personas.

The quality of personas created in a co-creative workshop depends on the participants’ knowledge of the group you want to base your personas on and on the process you use to create them. First diverge to create many different personas, then converge to the most useful and realistic ones.
**Step-by-step guide**

1. **Plan and prepare**
   Determine who you’ll invite as workshop participants and prepare your invitations. Describe the aim of the workshop, set expectations for your workshop, and think of an incentive for participating in the workshop if appropriate. Prepare the room (or any other venue you choose for your workshop) and write a list so that you don’t forget any essential material (templates, sticky notes, pens, research data, etc.). Write a facilitation agenda and establish facilitation guidelines to create a safe space through warm-ups and so on.

2. **Welcome and split into smaller groups**
   Start your workshop with a welcome, describing the workshop’s aim and agenda, and facilitate an introduction of all the participants. After a warm-up, split the participants into subgroups of 2–3 people. Introduce the concept of personas, explain the templates, and give them clear instructions on how to work with these.

3. **Create initial personas**
   Have each group create 3–5 personas of their most common customers. Additionally, they can create some extreme customer personas (their most stressful customer, their dream customer). The facilitator should check that all teams have a common focus and are following the same instructions.

4. **Present and cluster**
   Have each group present their personas and stick them on a wall. Cluster similar personas together right away. You’ll realize when the group recognizes familiar customers from their laughter, nodding, and smiling. Ask the group to elaborate on such personas and try to find out which details actually made them recognize the underlying customers each particular persona represents.

5. **Discuss and merge**
   Give the participants some time to reflect, rearrange, and cluster. Let the group choose the most common personas. These are typically the biggest persona clusters on the wall or the personas where most participants laughed or nodded. Ask the participants if the chosen

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01 See also TiSDD chapter 3, Basic service design tools, and method description Creating personas.
personas represent the diversity of gender, age, and other quantitative factors you know about your customers. If not, modify some of the personas to match these factors. The final distribution does not need to be representative, but if elderly female customers are a significant part of your business, it would be a mistake to only have young male personas. Create new personas for the main clusters based on the merged data.

6 Visualize and validate
Enrich the personas with facts derived from research data or by sharing with other stakeholders. Visualize and finalize your personas. This step can be done after the workshop or in another workshop with different participants.

7 Iterate
Run the workshop several times with different participants. Watch for patterns and maybe invite participants back for a final workshop to merge all the personas into your final set.

8 Follow-up
Go through your notes and check different positions taken by your workshop participants. Index the generated data and highlight important passages. If needed, process your journey map into a format that is easier to comprehend (physical or digital). Write a short workshop summary that includes your key findings as well as the journey map and raw data you collected during the workshop from your participants, such as quotes, photos, or videos.

Method notes

→ Consider repeating the workshop with different participants to identify patterns between different participants or different workshop settings.

→ Sometimes it is useful to schedule follow-up interviews with some or all of the participants to understand their perspective and ask follow-up questions. Look for rather quiet participants, who might prefer to talk with you in a one-on-one situation instead of a workshop situation.
In a co-creative journey mapping workshop, invite participants who have solid knowledge about the experience you are mapping. If you want to create a journey map about customer experiences, this might mean inviting customers (yes, real ones!) and/or frontline employees. Be careful if you conduct this type of workshop with participants who only have a superficial or abstract knowledge of the experiences you focus on. The results might look convincing, but often they are very biased. For example, if an IT team without prior qualitative research and without deep knowledge of the daily lives of customers conduct a co-creative workshop on the journey map of their online customer experience, the outcomes tend to represent their idealized process rather than the actual customer experience.

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01 See #TiSDD 3.3, Journey maps, and #TiSDD chapter 10, Facilitating workshops, for hands-on tips on facilitation and how to build a safe space.
Think about inviting workshop participants with either a shared perspective (such as customers of a particular target group) or from differing perspectives (such as customers of various target groups or customers and employees). Clearly communicate the scope of the journey map, such as a high-level journey map vs. a more detailed journey map focusing on one specific situation within a high-level journey map.

**Step-by-step guide**

1. **Define main actor and journey scope**
   Select a main actor, such as a persona, whose shoes you want your workshop participants to walk in. Define the time frame (“scope”) of your story. Are you talking about an experience of 10 minutes, 2 hours, 5 days, or 10 years?

   **A** Participants share their individual experiences or findings from their research during co-creative journey mapping.

   **B** Visualizations help to understand the context of each step and enable participants to navigate quicker.

   **C** Using large templates forces participants to stand up and gives them a common focus point.
2 Plan and prepare
Determine who you’ll invite as workshop participants and prepare your invitations. Describe the aim of the workshop, set expectations for your workshop, and think of an incentive for participating in the workshop if appropriate. Prepare the room (or any other venue you choose for your workshop) and write a list so that you don’t forget any essential material (templates, sticky notes, pens, personas, research data, etc.). Write a facilitation agenda and establish facilitation guidelines to create a safe space through warm-ups and so on.

3 Welcome and split into smaller groups
Start your workshop with a welcome, describing the workshop’s aim and agenda, and facilitate a round of introductions. After a warm-up, split the participants into subgroups of 3–5 people and give them clear instructions on what to do.

4 Identify stages and steps
Let the workshop participants start with the rough stages of a journey map, such as “inspiration, planning, booking, experience, sharing” for a holiday. Now fill up the stages with the persona’s story. Sometimes it helps if you start “in the middle” with the most crucial steps and then ask yourself what happens before and what happens after these. Use simple sticky notes for this so you can easily add or discard steps and stages.

5 Iterate and refine
Refine the journey by going through it from end to end to check if you missed a step or if you need more/less detail in certain parts. You can always break up a step into two or more steps or condense several steps to one. Depending on the project, it might make sense to find a consistent level of detail throughout the whole journey map or to highlight a specific part of the journey in more detail.

6 Add perspectives (optional)
Add more perspectives, such as a storyboard, an emotional journey, channels, involved stakeholders, a dramatic arc, backstage processes, “What if?” scenarios, etc.

7 Emotional journey exercise (optional)
Ask the subgroups to number the steps of their journey maps, and let a participant from one subgroup present their main actor and journey map step by step to either the entire group or a partner group. Each workshop
participant should write down on their own how they think the main actor feels at each step step – for example, from –2 (very dissatisfied) to 0 (indifferent) to +2 (very satisfied). In a second step, let each participant mark their values on the emotional journey of the journey map. You’ll see steps where the entire group agrees that it is a positive or negative experience, but you’ll also discover steps with very diverse ratings. Use this as an input for discussion and try to find out if you need to clarify the main actor (persona), or the description of the step, or if there are other reasons why the group is not yet on the same page.

8 Discuss and merge
Give participants some time to reflect. Discuss similarities and differences between the journey maps of the different subgroups. Let the group merge the different maps into one map (or several), but make notes on different opinions and insights – they might be useful for you later.

9 Follow-up
Go through your notes and check different positions taken by your workshop participants. Index the generated data and highlight important passages. Sometimes it is useful to schedule follow-up interviews or further workshops with some or all participants. If needed, process your journey map into a format that is easier to comprehend (physical or digital). Write a short workshop summary that includes your conflated key findings as well as the journey map and raw data you collected during the workshop from your participants, such as quotes, photos, or videos.

Method notes

→ Define the situational context of the experience you want to map in your workshop (weekdays vs. weekends, daytime vs. nighttime, summer vs. winter, rainy vs. sunny, etc.). This will help workshop participants to develop a shared frame of reference.

→ Consider repeating the workshop with different participants, or a different situational context, or basing your journey map on different personas to identify patterns and understand particular distinctions between these.
Define a specific perspective (e.g., from a customer’s or an employee’s perspective) for each workshop and invite participants with a sound knowledge of the ecosystem either from a shared perspective (such as customers for a customer’s perspective) or from differing perspectives (such as various internal departments if you want to map the internal stakeholder system). It helps to have a clear scope (e.g., a specific situation within a journey map) as well as the situational context if applicable (e.g., weekdays during daytime). This will help workshop participants to get on the same page.

In addition to the know-how of the workshop participants, a second important factor for any co-creative workshop is the qualitative research

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01 See also TiSDD 3.4, System maps, and TiSDD chapter 10, Facilitating workshops.
you do beforehand. As a rule of thumb, the more valuable data you bring to a co-creative workshop (through a research wall, a simple mind map, or a research report), the more representative your outcome will be.

Be careful if you conduct workshops like this with participants who only have a superficial or abstract knowledge about the system. The results might look convincing, but often they are very biased. For example, if a management team without prior qualitative research and without deep knowledge of the daily lives of employees conduct a co-creative workshop on their internal stakeholder system, the outcomes tend to represent more their idealized organizational structure than the existing formal and informal network.

Paper templates often help participants to get started and to take a task seriously. The more familiar they become with a tool, the less important templates are for them.

Value network maps quickly can become quite messy. Try to give a map a specific focus to keep an overview.
CO-CREATING SYSTEM MAPS

**Step-by-step guide**

1. **Plan and prepare**
   Determine who you’ll invite as workshop participants and prepare your invitations. Describe the aim of the workshop, set expectations for your workshop, and think of an incentive for participating in the workshop if appropriate. Prepare the room (or any other venue you choose for your workshop) and write a list so that you don’t forget any essential material (templates, sticky notes, pens, research data, personas or journey maps, etc.). Write a facilitation agenda and establish facilitation guidelines to create a safe space through warm-ups and so on.

2. **Welcome and split into smaller groups**
   Start your workshop with a welcome, describing the workshop’s aim and agenda, and facilitate a round of introductions. After a warm-up, split the participants into subgroups of 3–5 people and give them clear instructions on what to do.

3. **Create initial stakeholder maps**
   Create a first version of a system map per team. The facilitator should check that all teams have a common focus and are following the same instructions, such as:
   - **List actors/stakeholders**
     Catalog the actors or stakeholders that are (potentially) part of the ecosystem you want to visualize. Use a list or sticky notes to write down or sketch the actors or stakeholders.
   - **Prioritize actors/stakeholders**
     Prioritize the actors/stakeholders based on common criteria. Either give participants the criteria or let each group define their own.
   - **Visualize actors/stakeholders on map**
     Arrange the actors/stakeholders on the map according to the prioritization. If you use one sticky note per stakeholder, you can simply move the sticky notes around.
   - **Illustrate relationships between stakeholders (optional)**
     Sketch relationships between actors/stakeholders to visualize interdependencies within the ecosystem.

4. **Present and compare**
   Have each group present their system maps. Hang the different versions on a wall beside each other to compare them with the whole team.

5. **Discuss and merge**
   Give the participants some time to reflect. Discuss similarities and differences between the system maps. Let the group agree on one
map, but make notes on different opinions and insights – they might be handy later. Merge the different maps into one that most participants can agree on.

6 Test different scenarios within the ecosystem (optional)
Split the group again and let them test different scenarios within the created stakeholder map.

7 Iterate and validate (optional)
Do some quick research to check any open issues you discussed during the workshop. Also go through your notes and check different positions taken by your workshop participants. You could repeat the workshop with different invitees to identify patterns between different participants.

8 Follow-up
Index the generated data and highlight important passages. Sometimes it is useful to schedule follow-up interviews or further workshops with some or all participants. If needed, process your journey map into a format that is easier to comprehend (physical or digital). Write a short workshop summary that includes your conflated key findings as well as the journey map and raw data you collected during the workshop from your participants, such as quotes, photos, or videos.

Method notes

You can use stakeholder mapping during a first client meeting to understand their internal formal and informal structures (e.g., to test how customer-centric the organization is). Without mentioning the customer focus, let them visualize everyone involved in, for example, a B2B sales process prioritized by “importance.” If the “customer” or “user” is not in the center of this map, you just learned a lot about how customer-centric this organization really is.

Instead of paper templates, you can use a stakeholder constellation in a co-creative workshop on system mapping. Use real people or figures to illustrate stakeholders and arrange them in a room or on a stage. This is much more interactive, and participants often can easily empathize with some stakeholders. You might even be able to use theatrical tools like investigative rehearsal to explore specific relationships.  

See TiSDD 6.7.3, Ideas from future-state system mapping, for more on stakeholder constellations and Investigative rehearsal in 7.2, for an explanation of investigative rehearsal.
You can imagine a research wall as a more complex version of how detectives structure their crime scene data in many thrillers (think of any CSI episode). You’ll find many types of data on these walls (quotes, photos, screenshots of websites or videos, statistics, artifacts, etc.).

A research wall enables you to identify patterns within your data, while also providing a place to share your research with others as it develops. Often, you start synthesizing data by simply clustering it according to specific categories or by creating a simple mind map of your dataset. Using an interactive convergent method, such as octopus clustering, is usually a good start.

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<thead>
<tr>
<th>Duration</th>
<th>0.5–8 hours (depending on complexity and amount of data)</th>
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<tbody>
<tr>
<td>Physical requirements</td>
<td>Research data, wall space, paper, pens, masking tape</td>
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<tr>
<td>Energy level</td>
<td>Middle</td>
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<tr>
<td>Researchers/Facilitators</td>
<td>Minimum 1 (a better approach is to have teams of 2–3 researchers)</td>
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<tr>
<td>Participants</td>
<td>2–12 (optional, if possible from the research team)</td>
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<tr>
<td>Expected output</td>
<td>A visual arrangement of research data</td>
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01 See TiSDD 8.3, Service design and software development, for an example of how a research wall is used to connect different service design activities of research, ideation, prototyping, and implementation. There are many similar approaches with different names, for example, the “Saturate and Group” method from IDEO/d.school.

02 See the octopus clustering method in TiSDD 6.4, Ideation methods, for a detailed description.
You can consider the various patterns you identify as intermediate research outcomes. These can be then further explored, visualized, or condensed with tools like personas, journey maps, system maps, key insights, jobs to be done, user stories, or research reports. However, before researchers start working with these tools, they usually create some form of intermediate-level outputs – perhaps visual representations that describe patterns in the data. Often these patterns also lead to new or modified assumptions that need further research. Look for contradictions to your initial hypothesis, and start “building your case” with the support of user verbatims, photos, and audio and/or video recordings. Many of these intermediate insights can be illustrated with simple diagrams and sketches that will be useful when presenting them to your team and beyond.
Step-by-step guide

1. Prepare and print out data
   You’ll need wall space or large cardboard sheets or foam boards to hang up your research data. Prepare your research data by printing out your most important photos, writing out great quotes visualizing audio recordings or videos as quotes, or screenshots, and putting out your collected artifacts and all other data that might be useful. Prepare the room with the essential material you’ll need, such as paper, sticky notes, pens, and of course your research data. Also, think about who should join you to create a research wall.

2. Create a data inventory
   Make an asset catalog of your data, such as “5 video interviews of families, 25 customer quotes on common problems, 15 photos of critical situations …” to make sure nothing gets lost. This might be a simple list or a mind map based on your data index.

3. Build research wall
   Hang the material on the wall and start clustering it in a way that seems meaningful to you. You could start with topics like certain customer segments, interview contexts, or common problems, or with steps along the journey map, etc. Name these clusters and look for connections between clusters as well as connections between single materials. You can repeat clustering and connecting several times with different initial topics.

4. Follow-up
   Document your research wall with photos and write a summary of your key findings. You can also give the same material to different groups for cross-checking and researcher triangulation. You can build a research wall right at the beginning of your data collection and iterate it with new data coming in from your research.

Method notes

→ During clustering, you will notice that you are already starting to make connections (often subconsciously) while you are building the wall. Try to avoid confirmation bias, where you start looking for evidence that supports your assumptions while ignoring other input.

→ Keep your research wall visible throughout the project so that team members can always come back and review the data when making design decisions later on.
CREATING PERSONAS

Creating a rich description of a specific fictional person as an archetype exemplifying a group of people, such as a group of customers, users, or employees.

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<th>METHOD</th>
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<tbody>
<tr>
<td>CREATING PERSONAS</td>
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<tr>
<td>Duration</td>
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<td>Participants</td>
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<td>Expected output</td>
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Personas\(^1\) usually represent a group of people with shared interests, common behavior patterns, or demographic and geographical similarities. However, demographic information such as age, gender, or residency is often rather misleading, so be careful to avoid stereotypes.\(^2\) You can either use existing market segments or use the opportunity to challenge current segmentation and try more meaningful criteria.

When developing customer personas, you should aim to create approximately 3–7 core personas representing your main market segments that could be used company-wide. If you create more than this number of personas, it is unlikely that you will really use them in your work simply because people won’t remember all of them. We often see these core personas used throughout a company – they become like friends. Employees remember their background stories, including their different expectations.

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01 See #TiSDD chapter 3, Basic service design tools, for a brief introduction to personas. For a comprehensive introduction to how to create and use personas, see, for example, Goodwin, K. (2011). Designing for the Digital Age: How to Create Human-Centered Products and Services. John Wiley & Sons.

02 See, for example, the Wired article “Netflix’s Grand, Daring, Maybe Crazy Plan to Conquer the World” from March 27, 2016, that quotes Todd Yellin, Netflix’s VP of product innovation: “There’s a mountain of data that we have at our disposal. That mountain is composed of two things. Garbage is 99 percent of that mountain. Gold is one percent … Geography, age, and gender? We put that in the garbage heap.”
and behavior patterns. Following the principle of “design for the average – test with extremes,” you can have many more “edge-of-the-curve” personas to test ideas and prototypes with people from rather extreme ends of your user spectrum. Although you’ll mainly use your core personas during a design process, it makes sense to test ideas as early as possible with these extreme cases, too. Such extreme or edge-of-the-curve personas could, for example, be people who would never use your offerings. You might be able to tweak a concept to cover these and thus increase its usefulness not only within your core target group, but also beyond it.

In a project, you often mix different approaches to create personas – for example, starting with some quick, assumption-based personas on your own, then inviting frontline staff and other stakeholders to a co-creative workshop to develop some more assumption-based personas. In a third step, these assumption-based personas are then aggregated, enriched, and backed with research-based data.

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**A**

By starting personas with demographics like age, gender, nationality, job, and so on, you run the risk of following certain stereotypes. Instead, try to build your personas from your research and patterns you find within your data.

**B**

Enrich your personas with contextual photos of the personas’ lives. These mood images should reflect your research findings. For example, a photo of what personas typically carry with them might help you during ideation and prototyping if you have questions like “Do they have coins with them or just a credit card?”

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See method description Co-creating personas for a detailed description of how to run co-creative workshops for this purpose.
Step-by-step guide

1 Prepare and print out data
Use your research wall or prepare your research data by printing out key pictures, writing out great quotes, visualizing audio recordings or videos as quotes or screenshots, and putting out your collected artifacts and all other data that might contain information about your personas. Prepare the room with material you’ll need to create personas, such as persona templates, paper, sticky notes, pens, and of course your research data, as well as existing personas, journey maps, or system maps. Also, think about who should join you to create your personas.

2 Define groups
Define groups of customers, employees, and/or stakeholders that you would like to exemplify with personas. Use your research wall, your research data, or existing segments to define these. Sometimes it can be useful to base personas on different patterns within the journey maps when you can see significantly different usage of channels, sequences of steps, or patterns in the emotional journeys.

3 Create personas
Define certain criteria that differentiate the groups you defined. These are the starting points for your personas. Create a list of other criteria you’d like to include in your personas and start to merge your research data and findings into the different personas. Take a step back from time to time to cross-check if the personas are realistic or if they feel too artificial, too constructed, too much like patchwork. Remember, one of the main reasons to create personas is to be able to have empathy with them, so you need to balance out the different factors and criteria you want to include in your personas with the need for authenticity. Sometimes it helps to visualize how the different personas relate to one another – for example, with a simple matrix or a portfolio.

4 Iterate
Validate your underlying assumptions, find gaps in your research, and iterate:
Creating Personas

1. Are you missing some data for your personas? Iterate your research and formulate research questions to fill any gaps.

2. Do others agree with your personas? Present your core personas to frontline staff and ask them to match customers with your personas. Check which aspects are wrong or missing.

3. Can you really find people who match your personas? Use existing research data or conduct more research to find this out. If necessary, create new personas, change existing personas, and discard useless personas.

Follow-up

Document your progress with photos and write a summary of your persona portfolio. If needed, progress the fidelity of your personas into a format that you can distribute in your organization or to your client (physical or digital).

Method notes

1. Quotes make personas more vivid. What do the personas often say about their lifestyle or about your company? Also, photos help to create more empathy toward personas. Choose images of normal people and always avoid using celebrities; you normally do not have just famous people as your customers.

2. When creating personas, giving these fictional archetypes realistic names makes them more approachable.

3. There are many templates to create personas or guidelines that you can use to build comprehensive personas. One often-used approach is empathy maps that identify potential pains and gains and include topics like “What does the customer think & feel/hear/see/say & do?”

4. To take personas further, use a persona’s goals, issues, and unmet user needs to stimulate development of “What if?” scenarios and ideation sessions on iterations of an existing service or to develop a new service. You can also use them to guide recruitment in ethnographic studies, or as a starting point to create journey maps or build service blueprints from.

5. The most common pitfall when creating personas is to create “idealized customers,” not customers you will find in reality. This often happens when people who are not in touch with customers on a daily basis create personas that are purely based on assumptions and not backed by research data. These personas are rather useless and can even be dangerous, as they may tempt you to base parts of your design process on wrong or misleading assumptions. You might develop ideas, concepts, or prototypes that do not truly fit your target group.

01 This is a tip by Philippa Rose. See also her case study on how to use personas in a service design project: #TiSDD 5.4.3, Case: Developing and using valuable personas.
MAPPING JOURNEYS

Visualizing specific experiences of a main actor, often exemplified by a persona, over time.

<table>
<thead>
<tr>
<th>Duration</th>
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</tr>
</thead>
<tbody>
<tr>
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<tr>
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<td>Minimum 1 (a better approach is to have teams of 2–3 researchers)</td>
</tr>
<tr>
<td>Participants</td>
<td>2–12, with good knowledge of the research data or of the experience the journey map represents (optional)</td>
</tr>
<tr>
<td>Expected output</td>
<td>Journey maps</td>
</tr>
</tbody>
</table>

Journey maps can visualize either existing experiences (current-state journey maps) or new experiences that are planned but do not yet exist (future-state journey maps). Unlike service blueprints or business process maps, journey maps focus on human experiences, illustrating the story of a specific actor as a sequence of steps.

The basic structure of a journey map consists of steps and stages defining the scale of the visualized experience. The scale can range from a high-level journey map that shows the entire end-to-end experience to a very detailed journey map showing only a few minutes. You can think of the scale of a journey map like the zoom levels of a map: a map of a whole country helps you to navigate on a bigger scale, while a map of a region or a map of a city helps you to find a specific destination. You need both if you want to drive from one place to another: you need to navigate on the larger scale and zoom in whenever necessary. With an increasing scale (i.e., a longer time frame), the level of detail for each step usually decreases: a high-level

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01 Anke Helmbrecht of Deutsche Telekom describes their usefulness as follows: “We started to document all core customer experiences with current-state journey maps based on quantitative and predominantly qualitative research. Now that we know where we are, we can make educated decisions on what exactly needs improvement and why.”

02 Service blueprints are often used in management and focus mainly on how customer actions relate to internal and external processes. Business process maps are often used in engineering and focus mostly on the technical process of a service and less on customer experience. There are many ways to visualize experiences as maps. See, for example, Kalbach, J. (2016). Mapping Experiences: A Complete Guide to Creating Value Through Journeys, Blueprints, and Diagrams. O’Reilly.
A journey map gives an overview of the entire experience, while a detailed journey map focuses on the details. In addition to the basic structure of steps and stages, journey maps can be enriched with various additional lanes.\(^1\)

Research-based current-state journey maps are a visualization of existing experiences based on research data. Another option is to create current-state journey maps that do not use research data, but are rather built on assumptions. Assumption-based journey maps are relatively easy and fast to put together. Therefore, teams are often tempted to work only in an assumption-based manner. This is risky as journey maps that are just built on our assumptions can be very misleading.

Sometimes, it makes sense to start with an assumption-based journey map to get an idea of how to structure the research process: who to ask, what, when, and where. However, mind the risk of confirmation bias. If you start with assumption-based journey maps, constantly challenge your assumptions. Over time, assumption-based journey maps should develop into research-based ones with a solid foundation on research data.\(^2\)

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\(^1\) See #TiSDD chapter 3, Basic service design tools, for an overview of possible additional visualizations.

\(^2\) See #TiSDD 5.4.4, Case: Illustrating research data with journey maps, and 5.4.5, Case: Current-state (as-is) and future-state (to-be) journey mapping, for case studies detailing how to use journey maps in service design projects.
Step-by-step guide

1. **Prepare and print out data**
   Journey maps are often created iteratively together with data collection to gain a quick overview of your research data. Prepare the room with the materials you’ll need to create your journey map, such as journey map templates, paper, sticky notes, pens, and of course your research data, as well as existing personas, journey maps, or system maps. Decide who should join you to co-create your journey map.

2. **Choose main actor (persona)**
   Select the main actor of your journey map – into whose shoes do you want to slip? Alternatively, start without a dedicated persona and use journey mapping to cluster your data and discover different customer experience patterns shown by your customers. These might be a very useful indicator to help segment your customers and then build your personas.

3. **Define scale and scope**
   Define the time frame of your story. Are you talking about an experience of 10 minutes, 2 hours, 5 days, or 10 years? Write down the stages of the customer journey. Stages are the high-level sections of an experience, such as “inspiration, planning, booking, experience, sharing” for a holiday. Then, cluster your research around these stages and again look to identify gaps in your data. Don’t hesitate to go back and do some more research if you find gaps. This is an iterative process!

4. **Create steps**
   Fill up the stages of your customer journey with steps. Root your steps in your data and use indexing to keep track. Sometimes it helps if you start with the most crucial steps and then ask yourself what happens before and what happens after these. Use simple sticky notes for this so you can easily add or discard steps, but also use the material from your research wall. Photos, sketches, screenshots, and artifacts help visualize the experience and can be added as a storyboard to the journey map.

5. **Iterate and refine**
   Refine the journey by going through it from end to end to check if you missed a step or if you need more/fewer details in certain parts. You can always break up a step into two or more steps or condense several steps to one. Depending on the project,
it might make sense to find a consistent level of detail throughout the whole journey map or to highlight a specific part of the journey in more detail. Invite real customers or frontline staff to give feedback and use their feedback to refine it.

6 Add lanes
Depending on the aim of the journey map, add more lanes to visualize specific aspects of the experience, such as a storyboard, an emotional journey, channels, stakeholders, a dramatic arc, backstage processes, “What if?” scenarios, etc. A storyboard visualization of each step is often considered essential as it helps people understand the context of this step and get to grips with a journey map much faster. Also, an emotional journey is often considered a main feature of a journey map as it makes it easy to understand where the pain points are from the persona’s point of view. Often, the research data at hand defines which additional lanes you’ll need to add to be able to visualize this.

7 Follow-up
Document your progress with photos and write a summary of your journey map. If useful, create a well-visualized journey map that is easy to understand for people outside your team. Choose a format that you can distribute in your organization or to your client (physical or digital) and add enough context information to make your key findings clear.

Method notes

→ A customer journey always represents a single customer experience without mapping if/then decisions, loops, or decision trees and the like. Alternative routes not taken by the main actor can be added as possible options, but these should be mapped out in separate self-consistent journey maps.

→ To increase the rigor of research-based journey maps, they should include real data – in particular, first-level construct data, such as quotes from customers or employees, photos, or screenshots from videos.

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#TiSDD chapter 3, Basic service design tools, provides an overview of potentially useful additional lanes. See also the textbox Dramatic arcs in #TiSDD 3.3, which describes a great approach for analyzing existing experiences in current-state journey maps.
DATA VISUALIZATION, SYNTHESIS, AND ANALYSIS

MAPPING SYSTEMS

Visualizing the ecosystem around services and physical or digital products.

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</tr>
<tr>
<td>Expected output</td>
<td>System maps</td>
</tr>
</tbody>
</table>

“System maps” is an umbrella term for different visualizations of systems: stakeholder maps, value network maps, and ecosystem maps. All of these can be created from various perspectives. A system can be mapped from a customer’s perspective, including competitors within their consideration set as well as external players that might not have a direct relationship with the organization. Alternatively, a system map can focus on the business itself and visualize external stakeholders involved in support processes: as an alternative or addition, it could illustrate various departments and business units.

System maps have obvious relationships to other tools in service design, such as personas and journey maps. Personas can be integrated as stakeholders within a system map. This becomes particularly interesting when customers have contact with one another or when there are (potential) conflicts between different customer groups. As stakeholders can be part of journey maps (e.g., through a specific lane on the journey map that summarizes which internal and/or external stakeholders are

01 See #TiSDD chapter 3, Basic service design tools, for an overview of possible system map types.

involved at each step), you can use this data as a basis for a system map to understand relationships between the involved players within a particular journey.

As system maps can become very messy, you should maintain a clear focus for a map. Don’t try to visualize every stakeholder you can think of on the same stakeholder map; it’s more useful to make various maps for different purposes. Such maps could, for example, focus on internal stakeholders to visualize the formal and informal internal network, focus on one specific experience (e.g., based on a journey map) to get an overview of the system of actors, or focus on financial transactions between stakeholders to understand financial streams within a system.

System maps are an excellent tool to synthesize your research data and to identify promising interview partners. Remember that research is iterative, and it makes sense to use these maps to find gaps in your research data which you can investigate in later research iterations.

System maps, like stakeholder maps, value network maps, or ecosystem maps, are often hard to understand for people outside of your core team. Reduce them to the most important facts when you use them for communication.

Besides helping you understand the wider network around a service or physical/digital product, a system map can also be a great tool to understand your own or your client’s organization.
**Step-by-step guide**

1. **Prepare and print out data**
   System maps are often created iteratively together with data collection to gain a quick overview of your research data. Use your research wall or prepare your research data by printing out key pictures, writing out great quotes, visualizing audio recordings or videos as quotes or screenshots, and putting out your collected artifacts and any other data that might contain information about the particular system or network you want to visualize. Prepare the room with the materials you’ll need to create your system maps, such as system map templates, paper, sticky notes, pens, and of course your research data, as well as existing personas, journey maps, or system maps. Also, think about who should join you to create your system maps.

2. **List actors/stakeholders**
   Go through your data and catalog the actors or stakeholders that are (potentially) part of the ecosystem you want to visualize. Use a list or sticky notes to write down or sketch the actors or stakeholders.

3. **Prioritize actors/stakeholders**
   Prioritize the actors/stakeholders based on your research data. Either give participants the criteria or let each group define their own.

4. **Visualize actors/stakeholders on map**
   Arrange the actors/stakeholders on the map according to the prioritization. If you use one sticky note per stakeholder, you can simply move the sticky notes around.

5. **Illustrate relationships between stakeholders (optional)**
   Sketch relationships between actors/stakeholders to visualize interdependencies within the ecosystem. You can also progress your system map into a value network map that illustrates what kind of value is exchanged between them. Think about values such as trust and mistrust, any kind of information that is exchanged (and via which channel/medium), any kinds of artifacts that you need to provide a service or that customers use, formal and informal hierarchy levels (who gives support or power to whom), and so on.
6 Find gaps and iterate
Are you missing some data for your system maps? Use these gaps as research questions and iterate your research to fill the gaps with data. Depending on the focus of your system map, it might make sense to find a consistent level of detail throughout the whole map or to highlight a specific part of the system in more detail. Invite real customers or employees to give feedback and use their feedback to refine it.

7 Follow-up
Document your progress with photos and write a summary of your system map. If needed, progress the fidelity of your map into a format that you can distribute in your organization or to your client (physical or digital).

Variants
A stakeholder map visualizes stakeholders in a system according to a specific prioritization. One of the simplest ways to prioritize stakeholders is to rate how important each one is from a customer’s point of view, from (a) essential, to (b) important, to (c) interesting. In a B2B context, it might make more sense to base your evaluation on the contact level between a stakeholder and your organization, from (a) direct contact/first level, to (b) semi-direct contact/second level, to (c) indirect/third level and more.

A value network map builds on a stakeholder map, but additionally visualizes the value streams within an ecosystem of various stakeholders. It might follow the flow of information throughout the network, or visualize financial streams within an ecosystem. You can use this to identify bottlenecks or hidden champions within a network.

Ecosystem maps build on stakeholder maps or value network maps but also add other actors, such as channels, places, (digital) platforms, websites, apps, ticket machines, and so on, besides more typical stakeholders such as people and organizations. This might help you to uncover hidden relationships to other – less obvious – stakeholders. Think of a ticket machine for public transport: Who takes care of maintenance or cleaning? What happens to the information gathered? What infrastructure does it need beyond electricity, and who provides this? Who is responsible for buying or designing the machines? And so on.
DEVELOPING KEY INSIGHTS

Summarizing main findings in a concise and actionable format for communication within and across project teams.

<table>
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<td>2–12 with good knowledge of the research data (optional)</td>
</tr>
<tr>
<td>Expected output</td>
<td>Key insights</td>
</tr>
</tbody>
</table>

First insights are often generated based on patterns you find while you are collecting data, building your research wall, or codifying your data. It helps to write down initial assumptions, hypotheses, and intermediate insights at any stage of the research process and then critically reflect on them using your collected research data. If you don’t have enough data to critically reflect on an assumption, use this as a starting point for another fieldwork session and collect more data. Design research is iterative.

Key insights help researchers to summarize and communicate their main findings. They should be built on research data and supported by raw data, such as quotes, photos, and audio and/or video recordings. Use indexing to keep track of the raw data that supports your key insights. Key insights should be carefully phrased as they will serve as points of reference for the further design process. You might use them as the basis for ideation or later on to evaluate ideas, concepts, and prototypes.

01 See also TISDD 5.1, The process of service design research, and method description Building a research wall.
02 “In contrast to this abundant data, insights are relatively rare. […] When they are generated, though, insights derived from the smart use of data are hugely powerful. Brands and companies that are able to develop big insights – from any level of data – will be winners.” Kamal, I. (2012). “Metrics Are Easy; Insight Is Hard,” at https://hbr.org/2012/09/metrics-are-easy-insight-is-hard.
03 TISDD 5.1, The process of service design research, provides more information on indexing and how much data you need to collect during your research until you reach theoretical saturation.
There are many ways to formulate insights, and which framework makes sense will depend on the research data and the aim of your project.

**ONE WAY TO FRAME AN INSIGHT IS WITH THIS TEMPLATE:**

```
...................................................... (persona, character, role)
...................................................... (activity, action, situation)
**because**
...................................................... (aim, need, outcome)
**but**
...................................................... (restriction, obstacle, friction).
```

For example: “Alan eats chocolate because it makes him feel safe, but it makes him fat.” Formulating insights in such a way is particularly useful when your research is followed by an ideation stage to improve a given situation. The structure of this key insight framework allows you to tackle the issue on three different levels:

— **Activity/action/situation:**
Looking at the activity/action/situation level (“eats chocolate”) could lead to a design challenge like “Which alternative or additional activities could Alan do so that he still feels safe, but that positively affect the given friction of the

Using templates or a specific structure helps to develop key insights, but constantly ask yourself if every aspect of your insight is specific and clear enough and if it is backed by sufficient research data.
original activity?” (This opens up the opportunity space to think about, e.g., offering additional sport activities so that he can still eat chocolate, but also achieves his goal of not getting fat.)

— **Aim/need/outcome:** Looking at the aim/need/outcome level (“it makes him feel safe”) could lead to further research questions like “Why does Alan not feel safe?” or to a design challenge like “What other things might help Alan feel safe?” (This opens up the opportunity space to offer alternatives that might help make him feel safe, like self-defense courses or anything else that might affect his self-confidence, but also help him achieve his goal of not getting fat).

— **Restriction/obstacle/friction:** Looking at the restriction/obstacle/friction level (“makes him fat”) could lead to a design challenge like “What other food could Alan eat that doesn’t make him fat, but still makes him feel safe?” (This opens up the opportunity space to offer other food options, like low-carb chocolate or fruits or vegetables, that still make him feel safe but also help him achieve his goal of not getting fat).

### Step-by-step guide

1. **Prepare and print out data**
   Key insights are normally created iteratively together with data collection to gain a quick overview of your research data and to formulate further research questions, hypotheses, or assumptions. Use your research wall or prepare your research data by printing out key pictures, writing out great quotes, visualizing audio recordings or videos as quotes or screenshots, and putting out your collected artifacts. Prepare the room with materials, such as paper, sticky notes, pens, and of course your research data, as well as existing personas, journey maps, or system maps. Also, think about who you should invite to develop key insights.

2. **Write initial insights**
   Go through your research data and write down initial insights based on your research findings or patterns you find within your data. If you work in teams, split up into subgroups of 2–3 participants and list initial insights based on your research. In this first step, it is important to document many potential insights; in the following step, you’ll merge them and prioritize them to create a limited number of key insights.

3. **Cluster, merge, and prioritize**
   Hang up your insights on a wall and cluster similar ones next to each other. You can merge similar insights or rephrase them to make clear that they are different. Then try to prioritize them, for example, from a customer’s perspective: which of these have the biggest impact on the overall customer experience?

4. **Link key insights to data**
   Key insights should always be based on solid research data. Link your key insights to your research data (e.g., by using an indexing system). When you present your key insights, it helps if you add some of your research data to back them. If possible, prefer first-level constructs as evidences for your key insights, such as photos, videos, or quotes from real people.

5. **Find gaps and iterate**
   Are you missing some data for your key insights? Use these gaps as research questions and iterate your research to fill the gaps.
with data. Also, consider inviting real customers or employees to review your insights and give feedback on them.

6 Follow-up
Document your progress with photos and write a summary of your key insights. Support each key insight with at least 2–3 pieces of evidence from your research data. If you have more, use an indexing system to link your insights to all the underlying data.

Method notes

→ Key insights like these need to be phrased carefully, concretely, and precisely. If they are formulated too vaguely, the design challenges and opportunity spaces they lead to are usually too vague as well.

→ Developing key insights may seem easy, which can lead design teams to formulate them too quickly and not carefully enough. These insights must actually be built on extensive research and supported by raw data.

→ Use strategies like peer review and co-creative workshops to ensure that your key insights are meaningful for your team and for the project and that they are useful as a springboard for a later diverging ideation stage.\(^1\)

→ Try “laddering” insights for depth. For example, if your insight is “Alan wants to eat fewer cookies because he wants to lose weight,” follow this with “Alan wants to lose weight because ….” Then take the answer to this question and feed it into a third insight, and so on. In each stage, the “because” statement of one insight becomes the “what” statement of a new one. You will soon come to the limits of your data, which could guide some more research. ◀

\(^1\) See #TiSDD 5.1, The process of service design research, for more information on peer review and co-creative workshops, as well as chapter 6, Ideation, on how to use key insights for ideation.
DATA VISUALIZATION, SYNTHESIS, AND ANALYSIS

GENERATING JOBS-TO-BE-DONE INSIGHTS

Summarizing the bigger picture of what customers want to achieve when they use certain services or physical/digital products.

---

**One way to frame a JTBD is with this template:**

**When**

.................................................................................................................................. *(situation)*,

**I want to**

.................................................................................................................. *(motivation or forces)*,

**so I can**

.................................................................................................................. *(expected outcome)*.

---

Jobs to be done (JTBD) is another way to formulate insights. Originally named by Clayton Christensen from the Harvard Business School, JTBD provides a valuable perspective with regard to innovation. The “job to be done” describes what a product helps the customer to achieve. Looking for the JTBD is a method to move away from the current solution and create a new frame of reference for a different future solution. The JTBD framework includes a social, a functional, and an emotional dimension.

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**DATA VISUALIZATION, SYNTHESIS, AND ANALYSIS**

**GENERATING JOBS-TO-BE-DONE INSIGHTS**

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<td><strong>Expected output</strong></td>
<td>Job-to-be-done insights</td>
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</tbody>
</table>

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**ONE WAY TO FRAME A JTBD IS WITH THIS TEMPLATE:**

**When**

.................................................................................................................................. *(situation)*,

**I want to**

.................................................................................................................. *(motivation or forces)*,

**so I can**

.................................................................................................................. *(expected outcome)*.

---

Sometimes an additional starting line can be added when you have at least two distinct jobs for the same situation: “As … (persona/role), when …” However, JTBD is mostly used without a persona or role. Clayton Christensen explains the jobs-to-be-done framework with

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his classic milkshake example:

he investigates the question “Why are half of all milkshakes at a fast food brand sold before 8 a.m.?” Based on iterative ethnographic research (short observations and interviews), the research team realized that customers were trying to accomplish a very specific job and this is why they “hired a milkshake.” Clayton formulates the job story somewhat like this: “When I am commuting to work by car, I want to eat something that I can get quickly and that doesn’t distract me from driving, so that I can work until lunch without feeling hungry.”

The reason customers buy a milkshake instead of a banana, a doughnut, a bagel, a chocolate bar, or a coffee is because they need something easy to eat that will keep them full until lunch. In this example, from a customer’s perspective, competitors are not other fast food chains, but rather alternatives that would do a similar job for them, like a smoothie, for example.

A JTBD insight based on this framework is quite similar to a key insight – the main difference is that a key insight focuses on the restriction/friction/problem, whereas a JTBD focuses more on the larger picture of the situational context and motivation. One of the key advantages of the JTBD approach is that it helps a design team break away from a current solution in order to discover new solutions based on what customers really want to achieve.

**Step-by-step guide**

1. **Prepare and print out data**

   JTBD insights can be created iteratively together with data collection or they can be used to move from research into ideation. They are also useful to find gaps in your research data and to formulate further research questions, hypotheses, or assumptions. Use your research wall or prepare your research data by printing out key pictures, writing out great quotes, visualizing audio recordings or videos as quotes or screenshots, and putting out your collected artifacts. Prepare the room with materials, such as paper, sticky notes, pens, and of course your research data, as well as existing personas, journey maps, or system maps. Also, think about who you should invite to develop JTBD insights.

2. **Write down initial JTBD insights**

   Go through your research data and write down initial JTBD insights based on your research findings or patterns you find within your data. If you work in teams, split up into subgroups of 2–3 participants and write initial JTBD sentences. In this first step, it is important to create many potential jobs; in the following step, you’ll merge them and prioritize them to create a limited number of jobs.

3. **Cluster, merge, and prioritize**

   Hang up your jobs on a wall and cluster similar ones next to each other. You can merge similar jobs or rephrase them to make clear that they are different. Then try to prioritize them, for example, from a customer’s perspective: which of these have the biggest impact on the customer?

4. **Link JTBD insights to data**

   JTBD insights should always be based on research data. Link your JTBD insights to your research data (e.g., by using an indexing system). When you present them it helps if you add some of your research data to back them. If possible, prefer

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first-level constructs as evidences for your JTBD insights, such as photos, videos, or quotes from real people.

5 Find gaps and iterate
Are you missing some data for your JTBD insights? Use these gaps as research questions and iterate your research to fill the gaps with data. Also, consider inviting real customers or employees to review your insights and to give feedback on them.

6 Follow-up
Document your progress with photos and write a summary of your JTBD insights. Support each JTBD insight with at least 2–3 pieces of evidence from your research data. If you have more, use an indexing system to link your insights to all the underlying data.

Method notes

→ JTBD can be formulated for an entire physical/digital product or service as well as for certain steps within a journey map, if you ask yourself what a customer or user wants to get done. As such, JTBD can be either the main aim behind a journey map or an additional lane in a journey map, focusing on the JTBD for each step.

→ Mapping JTBD for each step in a journey map can reveal steps that do not have a JTBD, which means customers have to do activities only for the service provider and not because they want to get something done. Eliminating such steps in a journey might lead to an improved experience when a provider focuses on the essentials.
User stories are used in software development to define requirements from a user or customer perspective, in contrast to often rather product-based requirement documents. User stories can be used in various stages of a design process:

— During research to request non-complex features that could be implemented in a short time without prior prototyping (“quick wins” or “low-hanging fruit”), or to report critical bugs that hinder users from utilizing or signing up for the software.

— During ideation and idea selection to speak the same language as the IT team during co-creative workshops and to break down ideas into actionable features.

Expected output

User stories

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User stories are used in many agile software development frameworks, such as Extreme Programming, Scrum, and Kanban. Mind that different approaches often use specific templates for how to phrase user stories. See, for example, Schwaber, K., & Beedle, M. (2002). Agile Software Development with Scrum (Vol. 1). Prentice Hall.
During prototyping to quickly agree on which stories need to be part of the first prototype or the MVP, to be able to test selected stories, and to agree in which sequence the following stories should be implemented.

During implementation to allow seamless integration with an agile development process that is based on user stories, and to be able to quickly adapt and iterate when technical difficulties occur during implementation.

The software requirements can be broken down into a set of user stories.

As an easy example, a user story related to location-based services on your smartphone could be formulated like this: “As a regular customer, I want to get notifications from restaurants I prefer that are nearby, so that I don’t have to search.”

User stories should be formulated without IT-specific language. Write these as seen from the user’s perspective, using simple, concise words, so that everyone can understand them. In service design, user stories are used to connect design research with actionable input for IT development. Often, when a research team identifies potential “quick wins” for existing software, formulating these insights as user stories is all that is needed for an IT team to develop a “hotfix.”

At a later stage, these user stories can also be used during prototyping and particularly during implementation to turn low-fidelity prototypes into working software.

Just as journey maps have different zoom levels, software requirements also have different scales. A set of user stories can be combined into what is called an “epic” – a longer, rather sketchy story without a lot of details. Epics describe the big picture of what a piece of software can do. Epics are then typically broken down into several user stories over time based on prototyping, user feedback, and research data.

Reformulating the same example regarding a requirement for a location-based service on your smartphone as a job story could look something like this: “When I stroll through a new city around lunch time, I want to be notified when I’m near a restaurant that matches my preferences so I can go there directly instead of searching for it.”

This example illustrates the main difference between a user story and a job story. The job story focuses more on the context of a specific use case and does not include a role or persona like a user story. It makes sense to clarify with your IT team if they use a specific framework for user stories, job stories, epics, and so on.

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OFTEN, USER STORIES ARE FORMULATED LIKE THIS:

As a ................................................................. (type of user/persona/role),
I want ................................................................. (action),
so that ................................................................. (outcome).

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02 A hotfix is a fast solution for an urgent problem in a software product. Usually, a hotfix is deployed to fix a critical software bug.
Step-by-step guide

1. Prepare and print out data
   User stories can be created at any moment in a service design process. They are also useful to find gaps in your research data and to formulate further research questions, hypotheses, or assumptions. Use your research wall or prepare your research data by printing out key pictures, writing out great quotes, visualizing audio recordings or videos as quotes or screenshots, and putting out your collected artifacts. Prepare the room with materials, such as paper, sticky notes, pens, and of course your research data, as well as existing personas, journey maps, or system maps. Also, think about who you should invite to write user stories, particularly from your IT department.

2. Write initial user stories
   Go through your research data and write down initial user stories based on your research findings or patterns you find within your data. If you work in teams, split up into subgroups of 2–3 participants to write user stories. Check your data if you see divergences between what customers expected and what they really had to do. Write down user stories for both scenarios: how a piece of software is working today (mostly product-centered) and how users expected it should work (mostly user-centered). Comparing these two will give you insights on how to improve the software and potentially give you ideas for some quick wins.

3. Cluster user stories into epics
   Hang up your user stories on a wall and cluster similar ones next to each other. Check if clusters of user stories can be combined into epics. Alternatively, some user stories might be so big that they are epics and should be broken down into smaller user stories. You can merge similar user stories or rephrase them to make clear that they are different. Then try to prioritize them, for example, from a customer’s perspective: which of these could have the biggest impact on the customer?

4. Link user stories to data
   User stories should always be based on research data. Link them to your research data (e.g., by using an indexing system). When you present your user stories, it helps if you add some of your research data to back them up. If possible, prefer first-level constructs as evidences for your key insights, such as photos, videos, or quotes from real people.
CHAPTER 05
RESEARCH METHODS

5 Find gaps and iterate
Are you missing some data for some of your epics and/or user stories? Use these gaps as research questions and iterate your research to fill the gaps with data. Also consider inviting real customers or employees to review your insights and to give feedback on them.

6 Follow-up
Document your progress with photos and write a summary of your user stories in a format that both your team and the IT team can work with. Use an indexing system to link your insights to all the underlying data.

Method notes
→ Often, teams use a mixed format for user stories that fits their culture and process. If you agree with developers in advance on how you formulate them, and if possible, even include one or two of their team members in your research team, you’ll have a much smoother transition.

→ Although this chapter focuses on software development as the main field of application of user stories, they can also be used beyond the requirements of any physical or digital product or service.

As an alternative to user stories, you can also formulate job stories leveraging the JTBD framework, such as:

When I want to [situation/context], so I can [motivation], then [expected outcome].
Research reports can have many forms, from written reports to more visual collections of photos and videos. Depending on the project and the client or management, a research report can serve various purposes, such as providing actionable guidelines to improve a physical/digital product or service, a “shock” report to get internal buy-in for a service design project, proof of work that justifies the budget spent on research, a compendium of research data that can be reused in other projects, and more.

No matter how your report might look, here are a few points that a research report should include:

— **Research process:** Present your research process in an accessible way. Highlight what you’ve done to ensure decent data quality, such as triple triangulation (method, data, researcher), theoretical saturation, or peer review.

— **Key insights/main findings:** Start with your key insights as a kind of executive report. What are the most crucial points you want to bring across? Build your key insights on all types of data and support your insights by cross-referencing the different types of datasets you have. Does your

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<table>
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<th>Duration</th>
<th>1–14 days (depending on complexity and amount of data)</th>
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<tbody>
<tr>
<td>Physical requirements</td>
<td>Research data, personas, journey maps, system maps, computer</td>
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<td>Researchers/Facilitators</td>
<td>Minimum 1 (a better approach is to have teams of 2–3 researchers)</td>
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<tr>
<td>Participants</td>
<td>n/a</td>
</tr>
<tr>
<td>Expected output</td>
<td>Research report</td>
</tr>
</tbody>
</table>
qualitative data match the quantitative data? If so, what does it mean? What type of information, from the prep research and secondary research, can you incorporate here? Was it confirmed by the fieldwork or not?

— **Raw data:** Including raw data (first-level constructs) increases the credibility of your research. Add quotes, photos, audio and video recordings, artifacts, as well as statistics and metrics to your report to support your insights. If possible, include information on method, data, and researcher triangulation, and cross-reference between different datasets and highlight theoretical saturation or how representative your findings are.\(^1\)

— **Visualizations:** If possible, include visualizations like personas, journey maps, or system maps to visually summarize your research findings in a way that is appealing and easy to understand.

### Step-by-step guide

1. **Prepare**
   Have your research process, your research data, as well as different visualizations (personas, journey maps, system maps) and insights (key insights, JTBD, user stories) at hand. Think who you could invite to peer-review your report.

2. **Write research report**
   A research report should start with your research process. Who was involved? Which methods did you use to collect data, when, and where? When did you start to synthesize and analyze the data? How many iterations did you do? Add a summary of your key findings and key visualizations, add raw data as evidence, and use indices to show that there's much more data that these are based on.

3. **Peer-review and iterate**
   Invite other researchers to peer-review your report. Use their feedback to iteratively improve your report from various perspectives. Think about the target audience of your report and invite people from that audience or like-minded people to review it.

### Method notes

> Keep your indices so that you are able to show which raw data is behind your key insights and other research outcomes, like personas, journey maps, system maps, etc.

> Share your research outcomes with participants of your research and incorporate their feedback in your deliverables. In addition to gaining further insights, if you can show that participants feel well represented by your research outcomes you'll increase the credibility of your work.

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\(^1\) See also #TiSDD 5.1, *The process of service design research*, for more information on the importance of triangulation in research and the concept of theoretical saturation.