DATA VISUALIZATION, SYNTHESIS, AND ANALYSIS

MAPPING SYSTEMS

Visualizing the ecosystem around services and physical or digital products.

Duration	1–8 hours (depending on complexity and amount of data)
Physical requirements	Research data, personas, journey maps, system map templates (paper-based or digital), paper, pens, masking tape
Energy level	Middle
Researchers/Facilitators	Minimum 1 (a better approach is to have teams of 2–3 researchers)
Participants	2–12 with good knowledge of the research data or of the experience the journey map represents (optional)
Expected output	System maps

"System maps" is an umbrella term for different visualizations of systems: stakeholder maps, value network maps, and ecosystem maps.[01] 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.[02]

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.

02 The mapping of systems is particularly useful in the context of product service system innovation. See, for example, Morelli, N. (2006). "Developing New Product Service Systems (PSS): Methodologies and Operational Tools." *Journal of Cleaner Production*, 14(17), 1495-1501.

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.

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A   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.

B   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. ◄