



PATHOS

A human-centered design toolkit
for engaging frontline health care providers



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Introduction

This toolkit highlights how PATH's Living Labs initiative uses a 4D human-centered design approach to engage frontline immunization health care workers to understand factors that affect their motivation and engagement in providing health care services.

The tools in this methodology are geared toward co-creating solutions that are in the innovation sweet spot, which is the point at which the three innovation attributes (desirability, feasibility, and viability) overlap. The tools seek to accelerate innovation and foster rapid testing and evaluation.

A key aspect is to frame the problem—that is, to identify and understand the user, their needs, and their context—and then co-create solutions that respond to those needs. Although our learned experiences largely involved frontline immunization workers, this toolkit has also been applied with community members, caregivers, community health workers, and ministry of health decision-makers, as well as global development stakeholders, to address the system-wide complexities of a health challenge.



Human-centered design

What is human-centered design?

Human-centered design (HCD) is a creative problem-solving approach that involves developing a deep understanding of the people you are designing with/for. HCD helps us observe and empathize with the target user, learning directly from the users to co-create solutions.



The term 'user' is used to describe the people you are designing with/for. In this context, it refers to health care providers.

Human-centered design



What is our approach to HCD?

We help the health community **shift from prescribing solutions based on assumptions for people's needs to co-creating solutions that actually meet their needs.**

What is the intended impact?

Our process helps to **accelerate access to and utilization of health products and interventions** by rapidly co-creating, testing, and refining solutions with the users.

Tried and tested HCD guidelines

Human-centered design is an overall set of actions and attitudes. To effectively apply this approach, here is what you need to be doing, thinking, and feeling.

- Empathize** Take a genuine interest in the needs of people across all contexts and forms; be curious about their motivations and view the situation from their perspective
- Collaborate** Work together with partners who support the ecosystem both internally and externally
- Include** Co-design with the users and seek to engage them in every stage of the process
- Inquire** Keep asking questions until you have no other questions
- Trust** Believe that your collective expertise with the users can innovate and implement appropriate solutions
- Iterate** As time allows, continuously monitor your methods and approaches until you've addressed the challenge (don't fall in love with your solution, focus on the outcome)

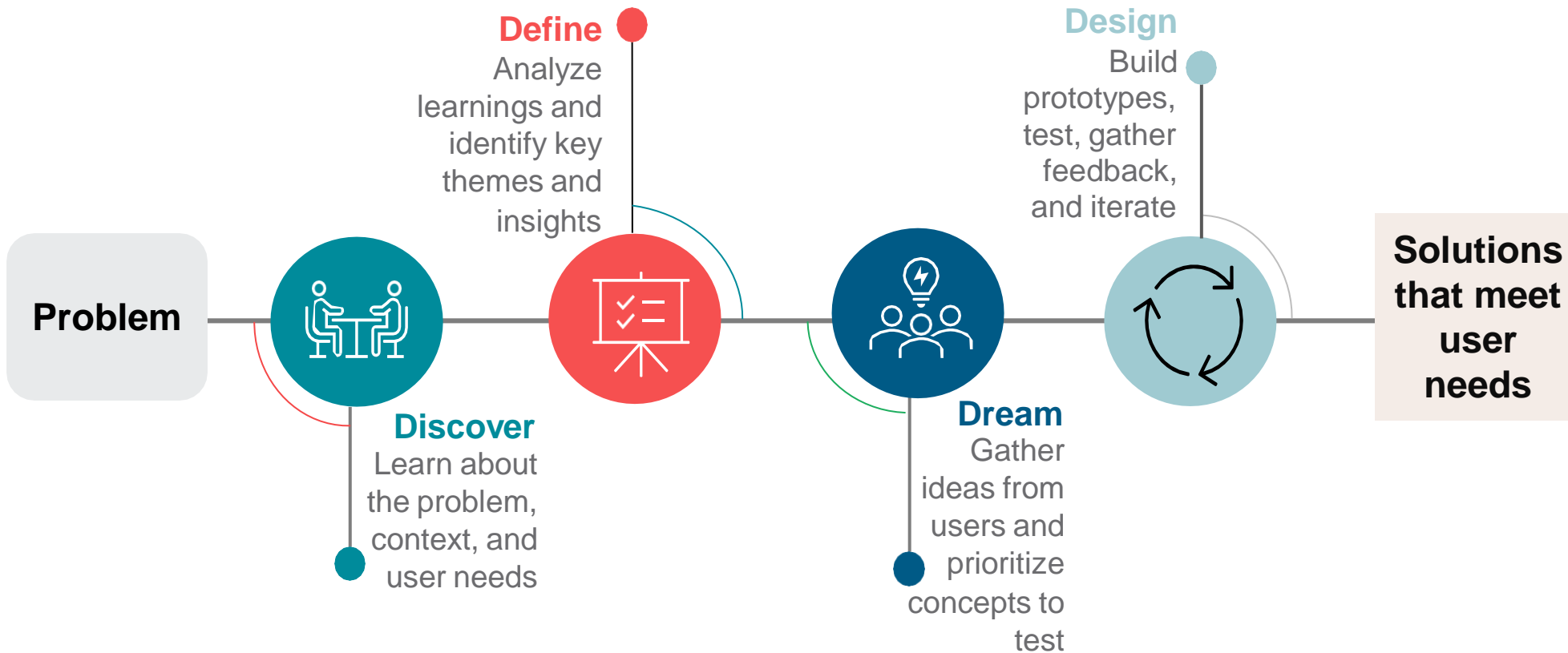
Our 4D approach to human-centered design



Our 4D approach to human-centered design

Living Labs uses an iterative four-phase approach: Discover, Define, Dream, and Design.

In this approach, we start by identifying and understanding a problem and iterating through a series of co-creation steps to design and test prototype solutions for the problem.



Discover



The Discover phase begins by immersing yourself into the community and environment of the users to create a deep understanding of the problem. In this phase, you build a **commitment to listening** to the users and **observing** their contexts to understand their needs.

In our context, we sought to understand challenges and opportunities regarding health care provider motivation and engagement when delivering immunization services.

How to prepare for the Discover phase



Bring a team together

- Form a team with diverse representation of skills to complement each other during the work.
- Bring the team together and understand each other's roles and strengths before diving into the work.



Discuss the goals

- Create an understanding of what the engagement is looking to achieve and align with the entire team.
- Be open for discussion and questions on details concerning the goals, how to achieve them, and timelines.



Map your stakeholders

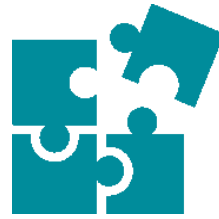
- Based on the project goals, create a list of stakeholders that you will need to engage to understand the problem and solution you need to create.
- The list of stakeholders is bound to grow with time.

How to prepare for the Discover phase



Compile your tools

- Identify tools required for engaging users during fieldwork, documenting their consent, and diagramming processes.
- Prepare your interview guide.



Divide tasks

- Ensure each team member is aware of the part they will play during the discovery phase.
- Encourage collaboration across the team, including team members with different tasks.



Identify and contact users

- Schedule one-on-one appointments with users you would like to interview.
- Coordinate times and locations that will be suitable for the users and your activity, ideally to better observe their context.

Activities during the Discover phase

- **Interviews:** During this activity, a set of prepared questions are used to guide the interview and observations. **Interview resources:**
 - a) **Interviewer:** For a more efficient interview, the team should designate one person to ask questions during the interview.
 - b) **Interview guide:** A set of questions guided by the user's daily life activities and the project goals. The guide ensures all topics of conversations are covered during the interview.
 - c) **Audio/video recorders:** As part of the documentation, the interview can be recorded (with consent). The audios can capture any information that may be missed during note taking.
 - d) **Consent forms:** To be signed by the users before engagement. They include interview, video, and photography consent forms.
- **Observations:** As you carry out interviews, make observations of the surroundings and take note or photograph things that stand out. This will be useful during documentation using tools that will be discussed later in this toolkit.
- **Brain dump:** As soon as you have completed the interviews and observations, document the raw data from the transcripts, questionnaires, and photographs. The documented raw data becomes a quick reference point.

These are the methods used to **gather and document feedback** from users



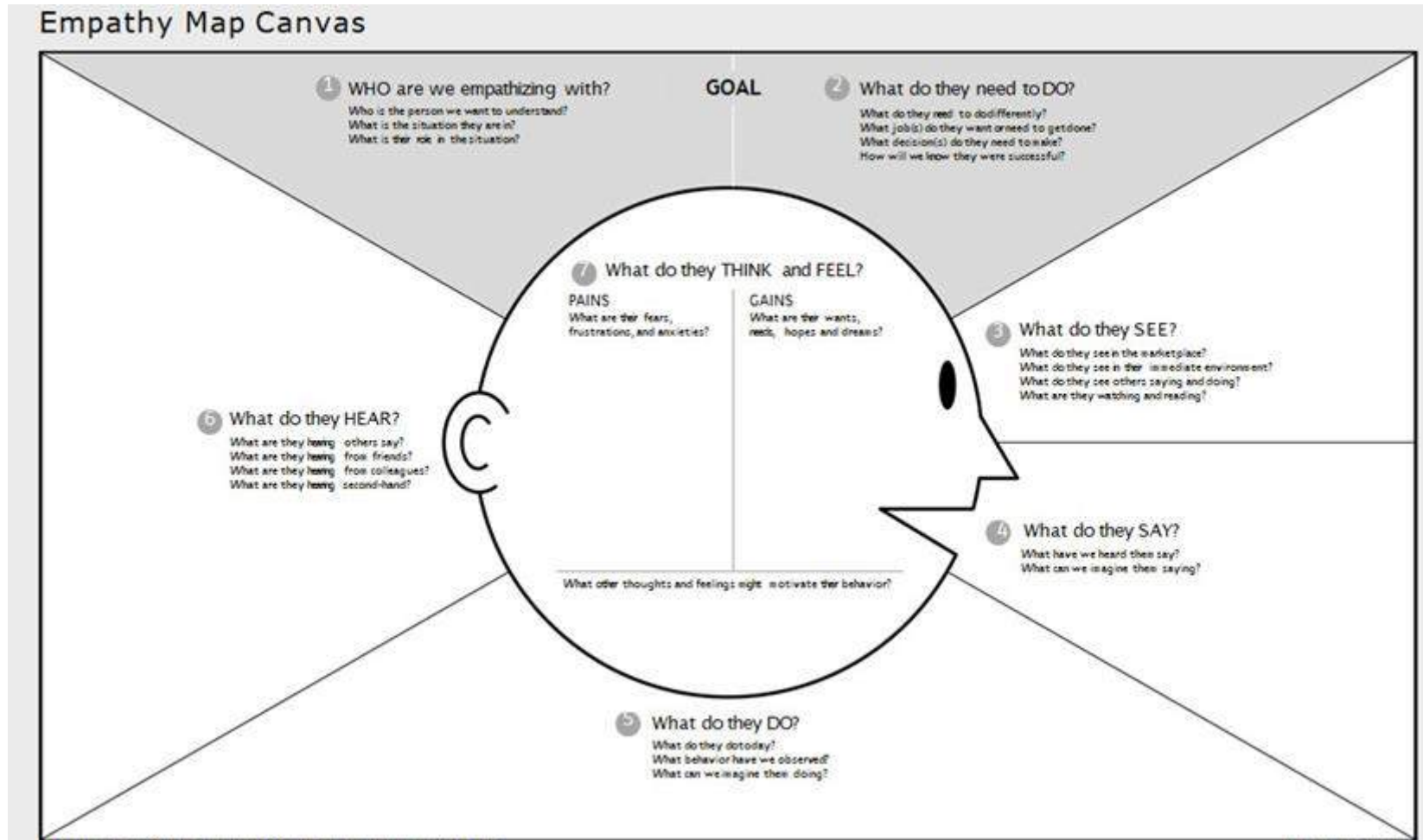
'Brain dump' is an activity done post user engagement and involves documenting the information gathered from the field exactly as was said by the users without alteration.

Discover phase tools



Empathy map

An empathy map is a tool used to gain a deeper understanding of the user. It explores the user's thoughts, feelings, actions, pains, and gains, among other things. An empathy map can be used to represent one user or a group of users.



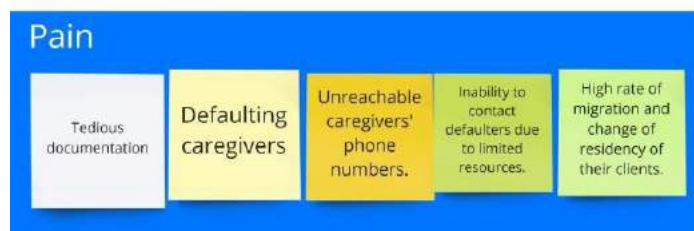
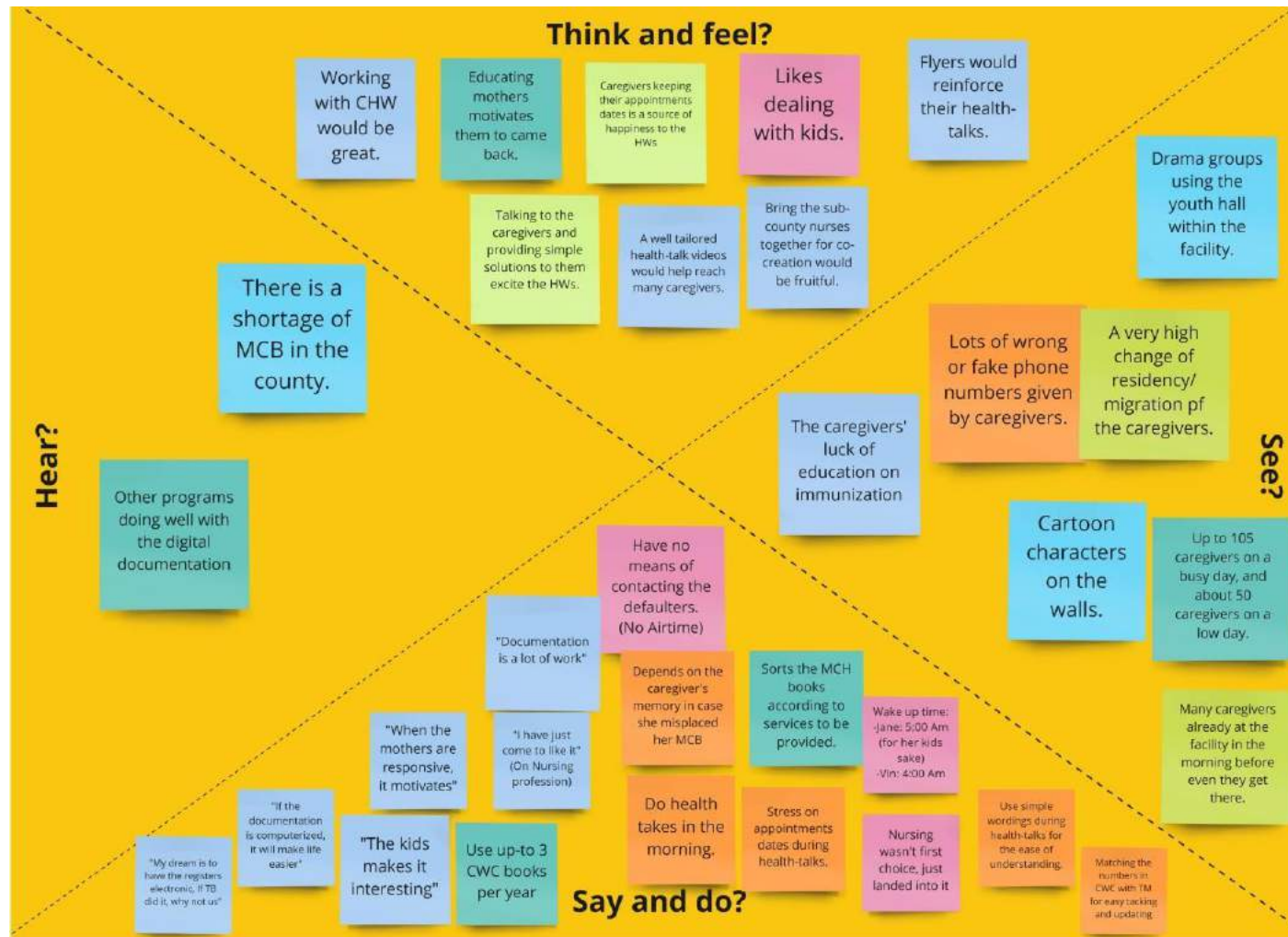
Empathy map designed by Dave Gray, xplane.com



Discover phase tools

Empathy map example

This empathy map developed by Living Labs after an interview with a nurse highlights some of the actions she does during her work, what she sees every day at the ward, her pain points and gains, and what she hears and thinks about the current practices.





Discover phase tools

Journey map

This tool is used to document the journey of frontline immunization health care workers as they provide immunization services. It captures key activities, ranging from those conducted in their homes to activities at various points of service delivery. The tool also maps pain points at each stage, factors that influence/trigger their actions, and their thoughts and feelings as they go through the various steps.

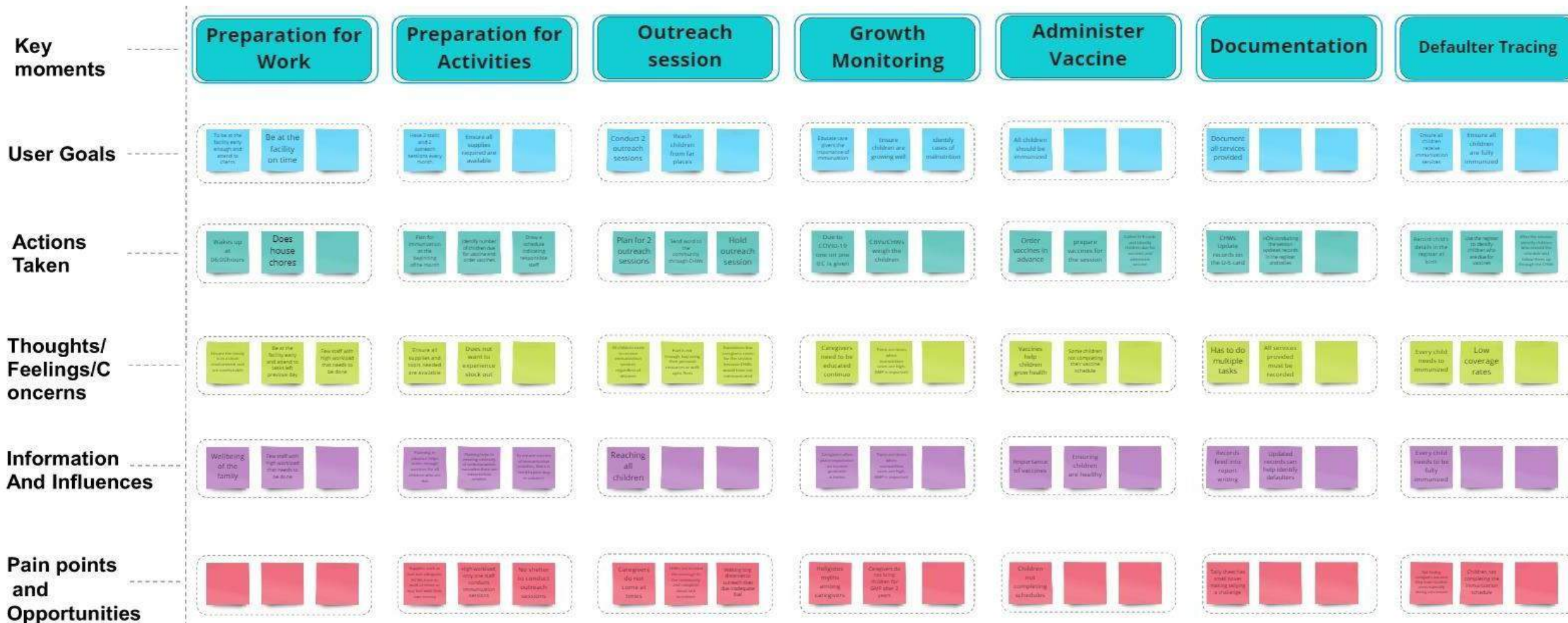
Key moments	Admission				
User goals	Quick service				
Actions taken					
Thoughts/feelings					
Source of information/influence					
Pain points and opportunities					

Discover phase tools

Journey map example



Below is an example of a journey map filled out by Living Labs after a health facility interview highlighting key moments in maternal and child health.





Discover phase tools

PATHOS

This tool, developed at Living Labs, is used for recording observations during or after engagement with users. PATHOS is an acronym for People, Activities, Transaction, Hear, Objects, Setting. It complements the interviews done by capturing details of the setting to understand the user's challenges. The use of this tool might be affected by remote work, since one is not able to make direct observations.








People	Activities	Transaction	Hear	Objects	Setting
Who is the primary user of focus? What other people are present in the surroundings that are part of the context (e.g., patient, caregiver, community health worker, facility-in-charge).	Highlight the tasks the people around are doing (e.g., filling out referral books, providing education).	Highlight any exchange of conversation or items, stating the people involved. What are the messages the user is providing to others?	Highlight the sounds in the settings (e.g., radio playing music, patients chatting). What are the messages the user is receiving?	Highlight items in the surrounding that the user is interacting with (e.g., cold box at nursing station).	Highlight the location where the user is completing their activities (e.g., an outreach, busy clinic, outpost).



Discover phase tools

PATHOS example

Below is an example of a PATHOS tool filled out by Living Labs after one of the health facility interviews. One of the other methods to document information in PATHOS is by using the photos, audio recordings, and videos taken during the visits.

People	Activities	Transaction	Hear	Objects	Setting
<ul style="list-style-type: none"> • Nurses • Caregivers • Children 	<ul style="list-style-type: none"> • Caregivers and their children waiting for services by the waiting-bay • Nurses moving between the offices • Administration of vaccines. • Documentation 	<ul style="list-style-type: none"> • A nurses from the maternity inquires with the immunization nurse of the availability of BCG vaccine • The Immunization nurses having conversations and offering advice to the caregivers • The nurse always calls defaulter via mobile phone finding out their whereabouts 	<ul style="list-style-type: none"> • A child being sick as the major reason for missing appointments • Few cases of defaulting due to forgetfulness of the caregivers • Crying kids • Gratifying words from the caregivers 	  	  



Case study: Discover phase

Strengthening immunization health care worker motivation

Turkana County, Kenya

Gathering and documenting information

To engage frontline health care providers in Turkana County, PATH identified different health facility levels (primary, secondary, and tertiary) within the county. These facilities represented the Kenya Essential Package of Health (KEPH) levels of health care. PATH'S Living Labs interviewed two to three health care providers working at the maternal and child health clinics in each facility to understand challenges and opportunities linked to their motivation in delivering health services. Living Labs also made observations during the facility visits to enrich the data collected during the interviews. After the interviews, Living Labs documented the raw data using the brain dump method. **The team then filled the Discover phase tools with raw insights from the interviews in preparation for analysis.**



*An interview at Lopiding Subcounty Hospital
Photo: PATH/Living Labs*

9 Health facilities 18 Health care provider interviews

- One-on-one interviews
- One interviewer and one note taker (PATH team)
- Male and female providers
- Age range of 26–60 years

Observations made:

- Only one nurse at remote facilities
- A seasonal events calendar is on the wall and includes migration of communities



Discover phase tips from PATH's user engagement

- Avoid long interviews to keep interviewer fully engaged in the session. Structure your questions to avoid repetition of responses.
- An interview can be done one-on-one with an interviewer and interviewee but having one person interview while another person is taking notes is helpful. More than one interviewer will overwhelm the interviewee and make it more formal.
- If possible, find an interview location with minimal distractions during the interview. The users should be comfortable to speak freely; that involves eliminating sources of bias or distractions.
- Prepare five or six conversation-starter questions about subjects that you most want to learn about, then keep them in your mind; no questionnaires during the conversation.
- Sometimes interviewees would not be available, have a plan B on who else may provide similar information or feedback.
- Ensure flexibility in using tools. Some tools will not be used based on context. If doing remote work, your activities may have to change, as observations may not be possible. You may depend only on observations done by users.
- Be open to listening. During this phase you may encounter users who will share a lot of information and sometimes it will be outside of your goals. It's useful to know when to draw your users back to your interview guide and when to just let them speak their mind as, within that, you might uncover the challenges.

Reference

PATH'S Being Human Centered Toolkit by Tom DeBlasis



Discover phase tips from PATH's user engagement, cont.

- Treat discovery visits as learning visits, and resist making them an opportunity for mentoring or performance monitoring by accompanying health officials, if any.
- Be intentional about deferring solutions to a later time in the sprint process so that the visit is focused on getting deeper into the context of the user.
- If there is a language barrier, find a team member who can speak the interviewee's language and interact with them in a language that they are comfortable with.
- Remember that users are the ones who walk the daily routines in their context and are better placed to share perspectives on these experiences.
- Operate in a way that causes the users the least inconvenience (e.g., if they are attending to clients when you arrive, let them finish, and use the time to observe).
- You'll need more feedback from the users in subsequent engagements, so ensure your interactions honor their values and find ways of communicating the same.



Discover phase

Beware of bias

In a human-centered design process, we delay naming a problem until we have done multiple rounds of questions and have gained an understanding with users.

In confronting our biases, we need to keep reminding ourselves of what is hidden in plain sight around us, and how our own experiences and background influence this interpretation.

References

Lewicka M. Confirmation bias: Cognitive error or adaptive strategy of action control? In: Kofta M, Weary G, Sedek G, eds. *Personal Control in Action: Cognitive and Motivational Mechanisms*. New York: Springer; 1998. pp 233-258. DOI: 10.1007/978-1-4757-2901-6_9.

Blanco F. Cognitive bias. In: Vonk J, Shackelford T, eds. *Encyclopedia of Animal Cognition and Behavior*. New York: Springer; 2017. DOI: 10.1007/978-3-319-47829-6_1244-1.

Was CA. Cognitive bias: The trouble with analytic and heuristic reasoning. *PsycCRITIQUES*. 2008;53(15). DOI: 10.1037/a0010653.

Common biases

- Confirmation bias is the act of seeking, or interpreting evidence or findings, in a way that aligns with my existing beliefs or expectations.
- Interviewer bias is when the interviewer subconsciously reacts in a way that, in turn, influences the participant into giving a response that is skewed toward the interviewer's reactions.
- Question order effect is about how the order in which questions are asked during an interview can affect the results.
- Response bias is when someone tries to give the answers they think are "correct."
- Anchor bias is being stuck on the first piece of information you hear.
- Implicit bias is an unconscious association, belief, or attitude toward any social group. Due to implicit biases, people may often attribute certain qualities or characteristics to all members of a particular group, a phenomenon known as stereotyping. It is important to remember that implicit biases operate almost entirely on an unconscious level.



Discover phase

Strategies to combat bias

- Take good notes and compare with the understanding of your colleagues in the room
- Balance observation tools with interviews
- Challenge yourself; challenge your team: “What do we *know*?”
- Reserve judgement; stay in the discover space
- Have a diverse team



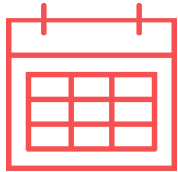
It is very common for biases to develop during user engagement. With this awareness the team should incorporate ways of reducing the influences from these biases.

Define



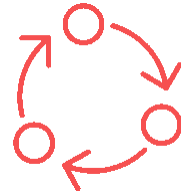
In the Define phase, data collected during the Discover phase is analyzed to identify key **themes** and **insights**.

How to prepare for the Define phase



Set a date to start analysis

- After your user engagement, set a date when the team gets up close with the data collected and shares individual learnings from the interviews (ideally as close to the Discovery phase as possible).



Identify tools to use

- Agree on the methods and tools you will use to analyze and gain a deep understanding of the collected data.



Agree on location

- Agree on whether the analysis will be done in person or remotely.
- Consider integrating both ways (in person and remotely) to accommodate every member of the team.

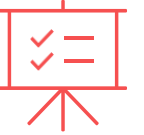
Activities during the Define phase

- **Sorting insights:** Spend time as a group going through the documented raw data and the brain dump. Individually, **write down** things that stand out and interest you from the raw data. Write each thing on a separate sticky note and stick them on one wall.
- **Developing themes:** In turns, **identify** information that falls under the same theme and group them. Allow everyone to **share** their perspective of the themes emerging from the raw data and identify things they want to know more about.
- **Identifying opportunities:** Identify images and **share stories** from user engagement that support the emerging themes.
- **Developing point of view (POV) statements**
- **Developing “How might we” (HMW) questions**

These are the steps toward *gaining a clearer understanding of the raw data collected* from users and seeing different angles of the collected data. It involves coding the raw data into themes that provide rich insights of the problem you are trying to understand.



An insight is a statement summarizing all data grouped under a certain theme. It helps articulate the findings in a clear yet concise form to make the theme more understandable.



Define phase tools

Sorting insights

The vast amount of data produced in the Discover phase provides teams with significant opportunities to improve end users' experience. For end users to benefit fully, we need new ways of processing the raw data in its many forms to make sense and increase understanding of the context. Below are some steps toward accomplishing that.



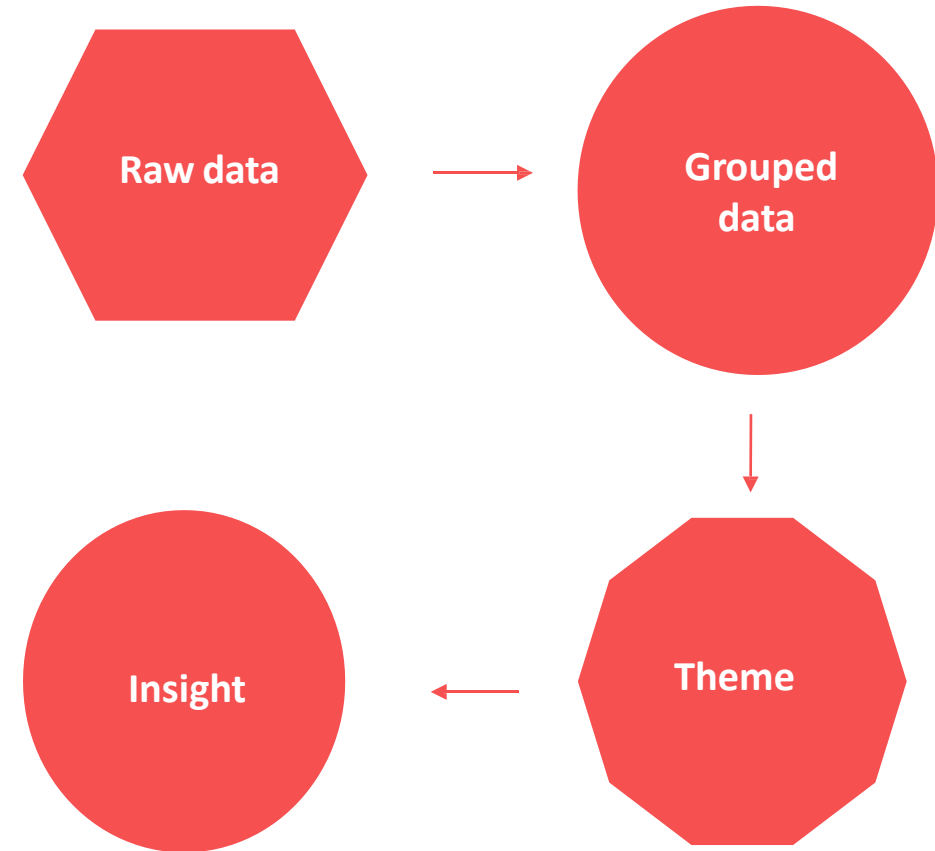
1. Group data



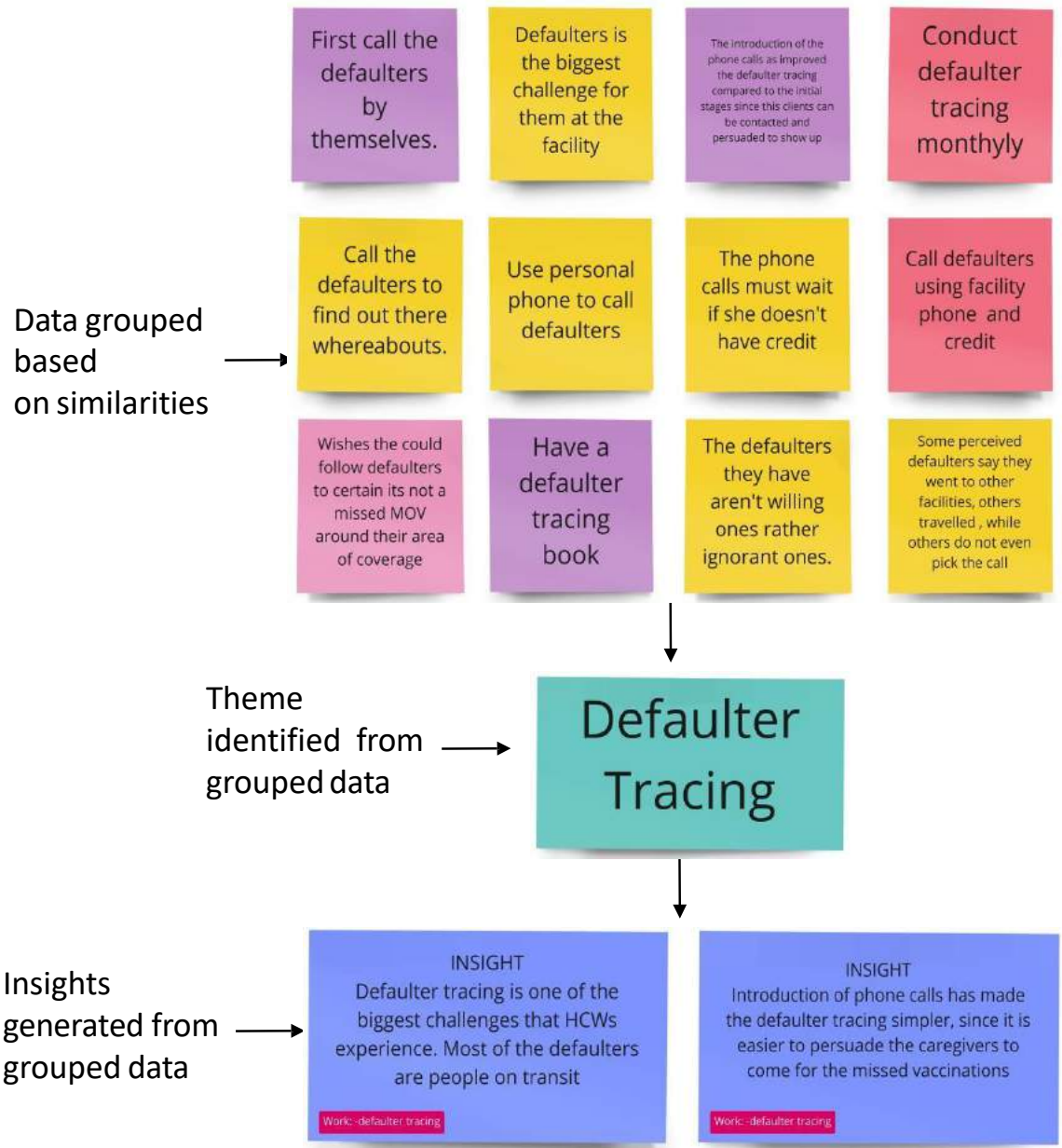
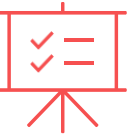
2. Identify themes



3. Identify insights



The insight sorting process



An example of the insight sorting process

Define phase tools

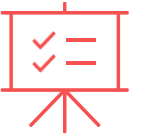
Insight sorting example

As you analyze and synthesize the raw data, part of the process is narrowing down the collected data. This involves grouping similar data and giving the grouped data titles called themes. The team then discusses the identified themes, adding more information that supports the themes from the collected data. From this, you can create a statement that summarizes a particular theme into an insight.

Questions to ask yourself



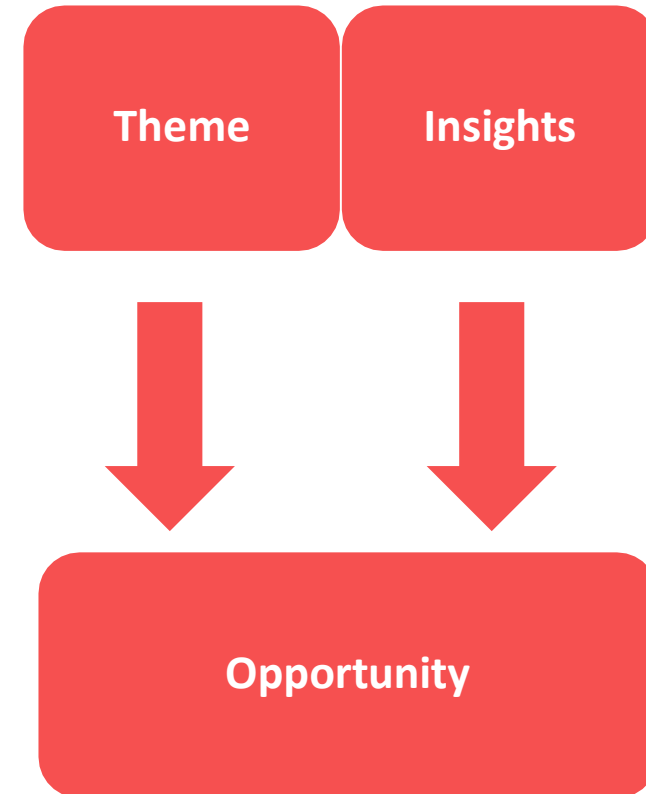
- Are there any relationships between different themes?
- Where is the concentration of issues happening?
- What knowledge do I have of the environment and context to correlate these findings with?



Define phase tools

Opportunities

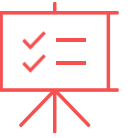
From the themes and insights identified in the previous stage, more specific subthemes are created. These are called opportunities. They are the topics emerging from the overall themes and insights which the team identifies as a possible gateway to the problem-solving process.



The process of formulating/identifying an opportunity

Define phase tools

Opportunity identifying example



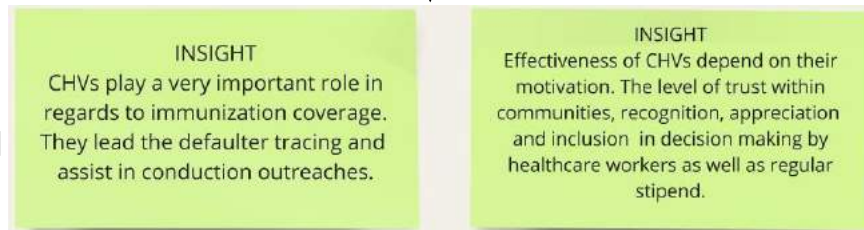
1. Data grouped based on similarities



2. Theme identified from grouped data

Preparedness, Visibility & Readiness of CHVs

3. Insights generated from grouped data

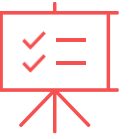


Opportunity



Increasing impact of CHVs

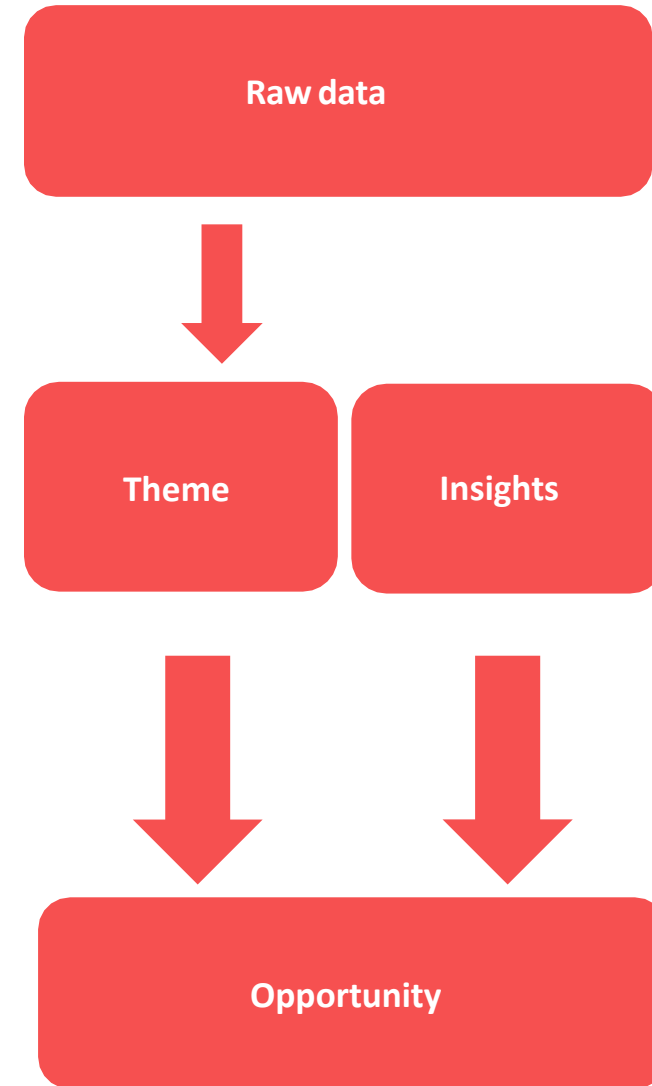
4. A subtheme (opportunity) derived from the theme and insights to capture a unique gateway for problem-solving



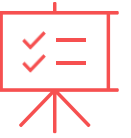
Define phase tools

Opportunity trees

This is a directional layout composed of the opportunity, a theme, and insights. An opportunity tree provides a snapshot of the process the team goes through to make sense of raw data. It starts with grouped/related data and ends with insights. It's a source of information for the team to use in the ideation process with highlighted data and insights that give rise to the next stage: point-of-view statement.



The structure of an opportunity tree



Define phase tools

Opportunity tree example

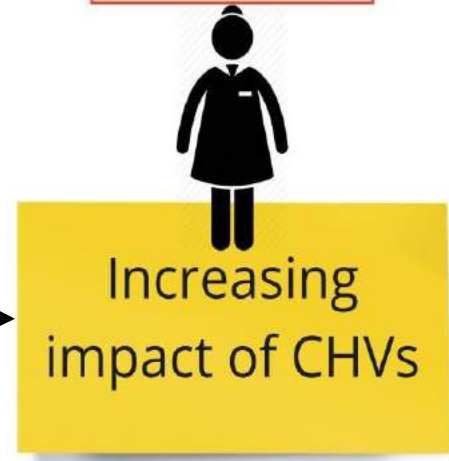
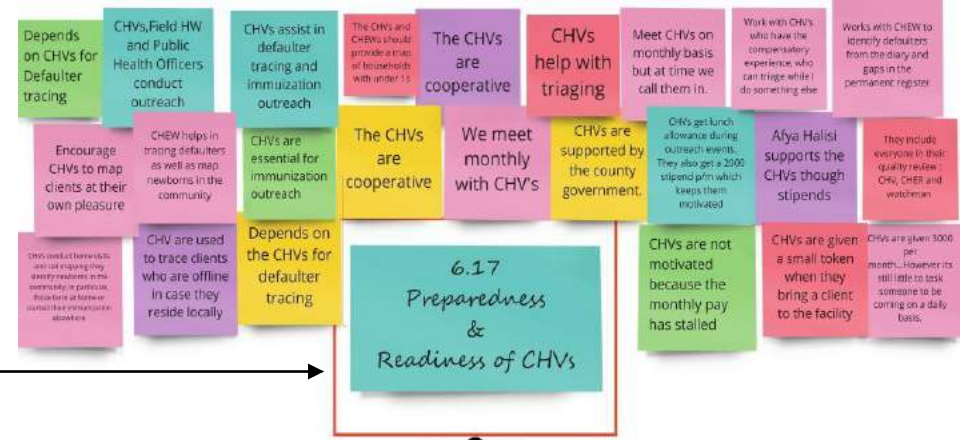
This is an example of an opportunity tree created from the engagement with frontline health care workers in immunization.

Raw data from interviews

Theme created from raw data

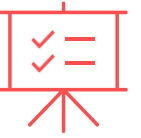
Opportunity

Insights



INSIGHTS



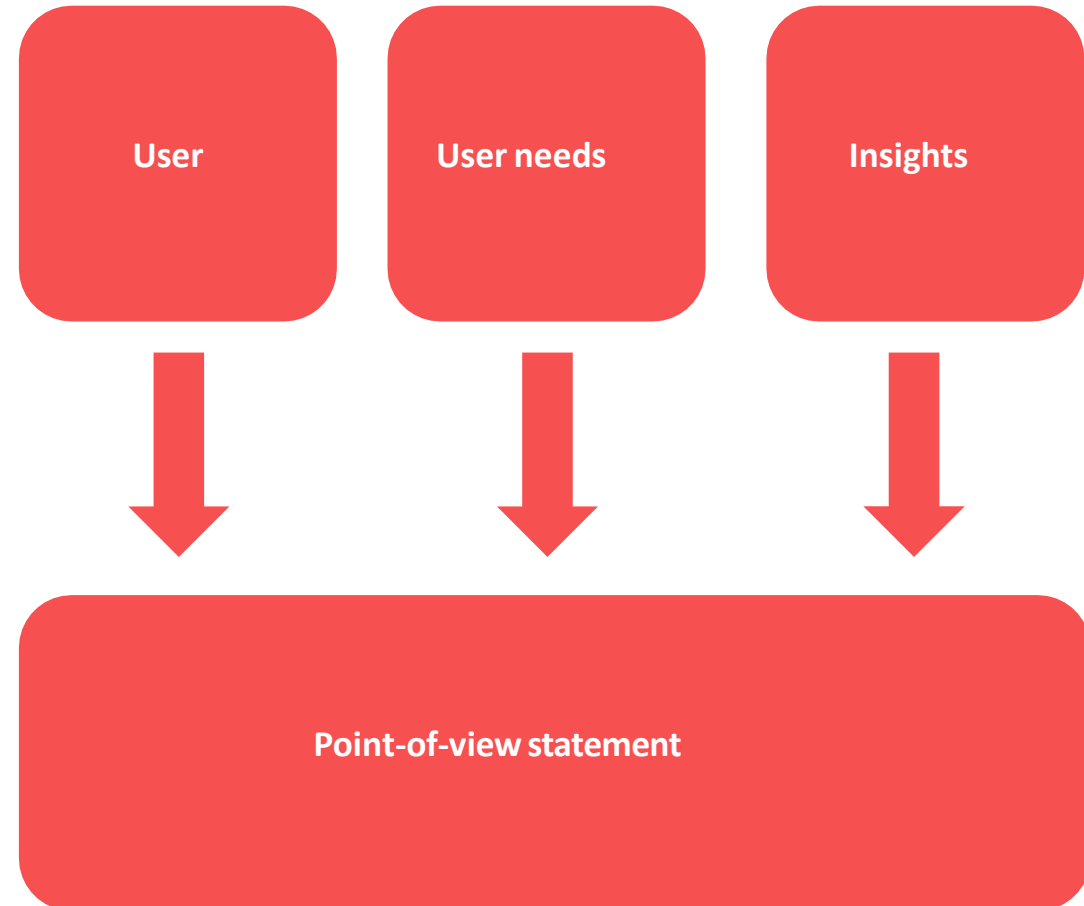


Define phase tools

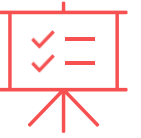
A point-of-view statement

A point of view (POV) is a guiding statement that enables you to ideate with a focus on specific users, their needs, and the insights that you uncovered. A POV defines the **right** challenge to address. It frames the problem into a statement and provides a narrow focus.

A good POV statement highlights the users you are designing for, their needs, and the insights gathered.



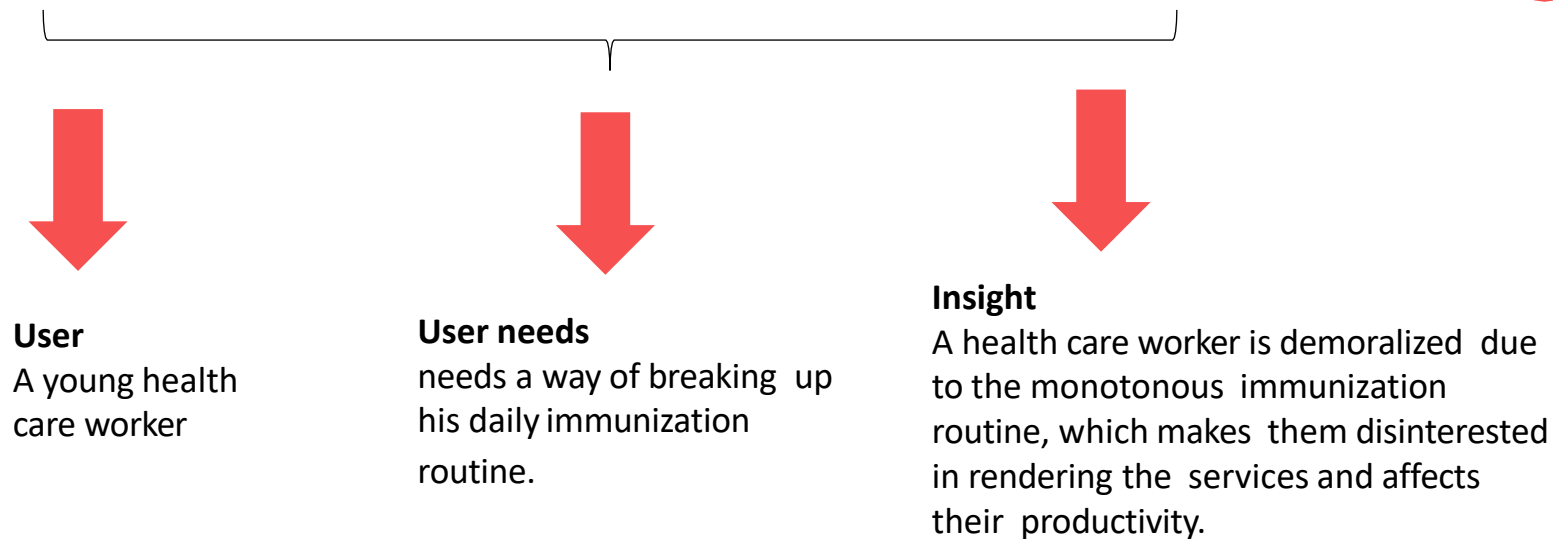
The structural formation of a point-of-view statement



Define phase tools

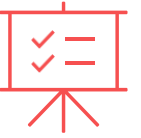
Point-of-view statement example

“A young, bored, and demoralized health care worker needs a way of breaking up his daily monotonous immunization routine, which makes him disinterested in rendering the services, thus affecting his productivity. If only he could know what to do to increase his interest and motivation, he would change how he does his work.”



Concluding the POV statement with a call to action or statement that encompasses the users' needs helps to set the tone for the next phase where you co-create with the users in suggesting ideas to solve the problem. With that, ensure your POV statement does not suggest or imply a solution to give room for the users to be creative.

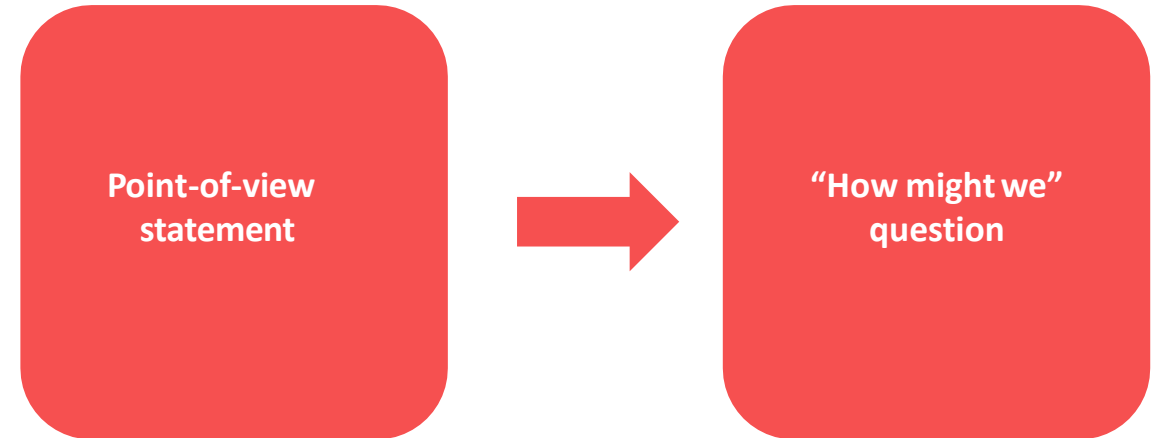
For example, in the POV statement above, we have, "if only he could know what to do to increase his interest and motivation, he would change how he does his work."

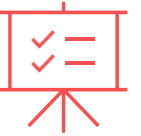


Define phase tools

“How might we” questions

“How might we” (HMW) questions are short questions that launch brainstorming. HMWs fall out of your point-of-view statement. They highlight the insight and needs uncovered posed as a question to encourage generation of ideas to address the need/problem.





Define phase tools

“How might we” (HMW) question example

From our previous point-of-view statement, we derived a “How might we” question.

Point-of-view statement

“A young, bored and demoralized **health care worker** needs a way of breaking up his daily **monotonous immunization routine**, which makes him disinterested in rendering the services, thus affecting his productivity. If only he could know what to do to increase his interest and motivation, he would change how he does his work.”



“How might we” question

“*HMW make the **monotonous immunization routine** as exciting as hot air ballooning over the Mara for the health care workers?*”



Ensure your HMW question is not too general (broad) so as to gather answers (ideas) that are focused to the challenge you're trying to solve



Case study: PATH's Define phase



Strengthening immunization health care worker motivation

Analysis of collected data

After health care worker (HCW) interviews in different facilities, the PATH team reviewed the collected data and identified key themes and subthemes. Some themes that came up from analyzing the raw data are:

- **Appreciation and recognition**
- **Interpersonal relationships**
- **Health breaks**
- **Career advancement**

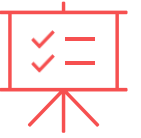
The team then developed insight statements that summarized the challenges identified within the emerging themes. An example of an insight formulated from the “appreciation and recognition” theme is: ***The HCWs derive lots of joy when their clients appreciate their services and the community as a whole feel satisfied. This ranges from simple greetings and recognition in the public, clients coming back to praise them, to being offered lifts and gifts of every kind.***



*The Living Labs team analyzing and synthesizing collected data
Photo: PATH/Faith Mbai*

The team leveraged in-person and remote activities to collaborate and analyze data during this phase.

They utilized a virtual whiteboard and walls to group the raw data collected from interviews into themes using sticky notes.



Define phase tips from PATH's user engagement

- Do the analysis as soon as you have completed the field work/user engagement. This enables you to use the fresh perspective of your engagements.
- Be comfortable with the unknown in the raw data as you plan to define it. Information will get clearer by the end of the phase.
- Allow space for individual and group input during the activities to bring in all the perspectives from your field engagements; this counteracts some biases.
- Use your own expertise, experience, and perspective to filter through the large amounts of data. This will direct you to the pieces of insights that interest you most.
- You might get lost in the data you've collected. Be willing to take a step back and draw in again for a new perspective.

Dream



Gather ideas and input from users from the insights generated in the Define phase.

Brainstorm and improve on the description of the insights or challenges identified.

The insights you generate might fully resonate with the users and or you may need to iterate and improve the description of the challenge.

For the Living Labs team, this phase involved engaging stakeholders to **iterate, enhance, and validate** the findings the team had defined from the interviews' raw data.

The team further engaged the stakeholders in findings solutions/ideas (**dreaming**) for the challenges presented.

How to prepare for the Dream phase



Identify stakeholders

- Compile a list of stakeholders to engage during this phase.



Brainstorm material

- Identify whether your session will meet in person or virtually.
- Have all the tools and materials that will be used for gathering feedback and ideas during the discussions (e.g., sticky notes, notebooks, pens, and flip charts) and discuss ways of getting feedback during virtual meetings.

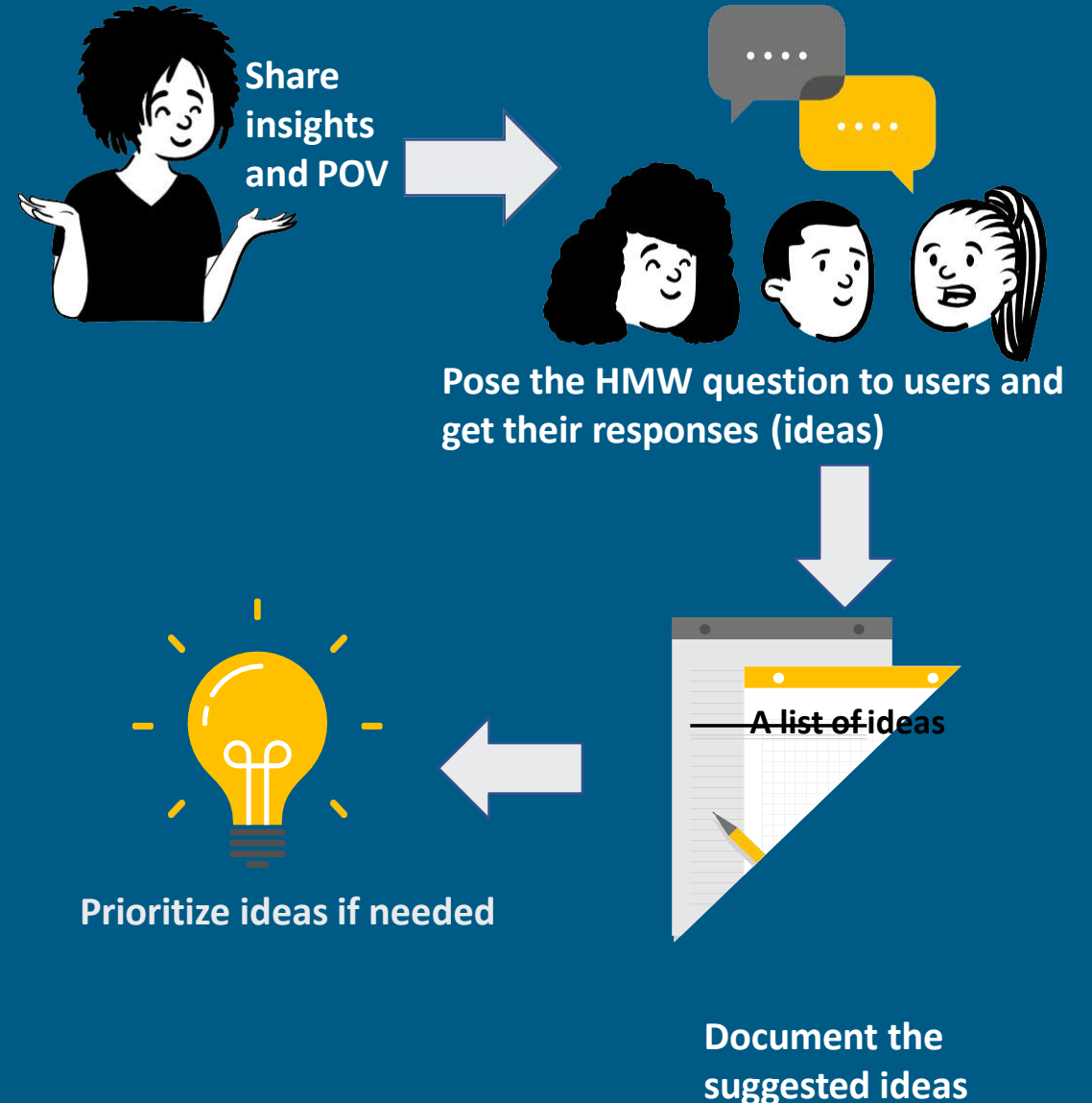


Send invitations and agenda

- For a successful and fruitful brainstorming session, send out invitations to stakeholders in advance preparing them for the activity.
- Prepare an agenda of activities for your session which could be sent to the invited stakeholders prior to the engagement.

Activities during the Dream phase

- **Brainstorming session:** Stakeholders contribute ideas/solutions for the design challenge presented from the Define phase.
- **Brief the stakeholders:** Talk about the point-of-view (POV) statement incorporating the insights you gathered from the Define phase to build rapport.
- **Discussion:** Give the participants an opportunity to have a brief discussion to help clarify the background of the design challenge and document any new findings gathered during the discussion to refine your insights.
- **Share POV and HMW:** Introduce the design challenge by sharing the point-of-view statement and posing the “How might we” (HMW) question. *(The HMW can be altered depending on the outcome of the initial discussion.)*
- **Document:** Record ideas shared in response to the HMW.
- **Prioritization:** Stakeholders prioritize ideas from the pool of ideas shared. The prioritized ideas go to the next phase.





Dream phase tools

Crazy eights(8s)

Idea 1

Idea 2

Idea 3

Idea 4

Idea 5

Idea 6

Idea 7

Idea 8

This tool is given to the users after discussing the description of the challenge and posing the “How might we” question.

The crazy eights activity entails the users writing 8 ideas/solutions to the challenge described.

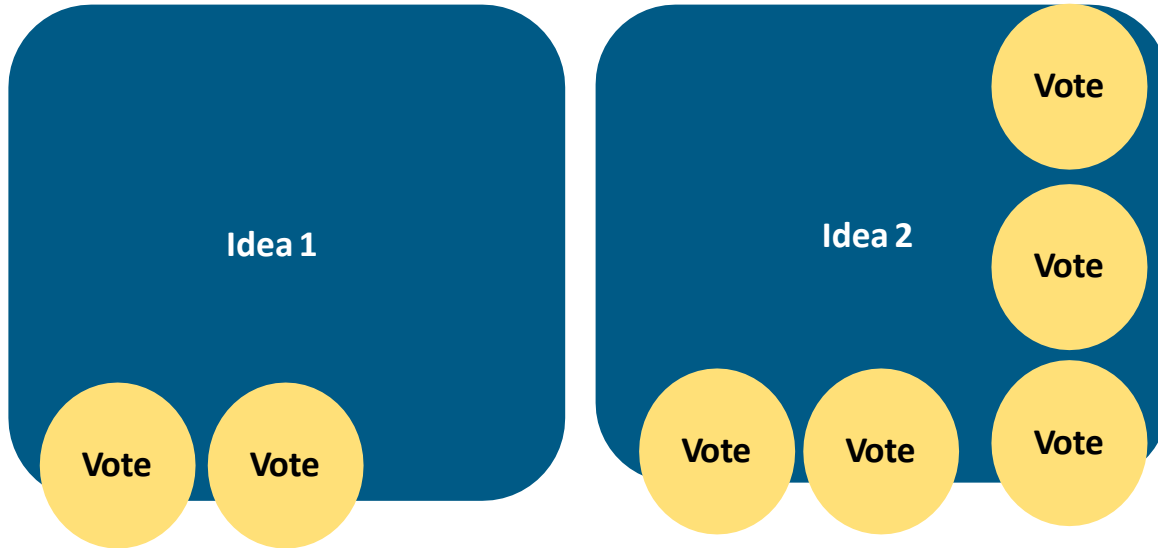
For each challenge, each user writes 8 solutions in 8 minutes. This results in a list of ideas that will be prioritized by the group of users.



This can be done by giving each user one piece of paper to divide into eight pieces or using a sticky note for each idea.

Dream phase tools

Dotmocracy



This is a tool used in voting for ideas for prioritization.

Stakeholders get to vote for ideas by sticking or drawing dots on the idea they wish to select. All ideas are displayed for each stakeholder to choose. A stakeholder can have one or more opportunities to vote depending on prioritization needs.



Feel free to use any visual sign of voting apart from a dot vote



Case study: PATH's Dream phase

The Dream phase is characterized by brainstorming sessions by the users. The aim of Living Labs' 4D process, and particularly the Dream phase, is to amplify the voice of every user. However, health workers sometimes operate in settings that are hierarchical, and they may have limited opportunities to share ideas.

In the early days of the Living Labs in Zambia, the 4D sprint model did not include an orientation to human-centered design (HCD) for the frontline immunization health care workers. It became apparent that the co-creation processes were inefficient due to a sense of timidity among participants, probably stemming from unfamiliarity with the methodology. In response to this challenge, it was decided that prior to co-creation activities, all participating health workers and officials would be fully oriented on HCD and PATH's 4D approach. The values of open innovation and deferring judgement were emphasized during orientation, and the need to create a safe space for ideas to be shared was communicated to all participants.

The inclusion of HCD and 4D orientation for frontline immunization health care workers in the Living Labs sprint models improved the efficiency of sprints and the quality of ideas, concepts and other outputs generated. Health workers have since co-created hundreds of creative solutions, some of which are currently in use in some health facilities in Zambia.



Frontline immunization health care workers from Kafue District discuss ideas during a brainstorming session Photo: PATH/Living Labs

"As a result of the workshop, I feel confident about offering MCH services and problem solving."

--Nurse, Lusaka





Dream phase tips from PATH's user engagement

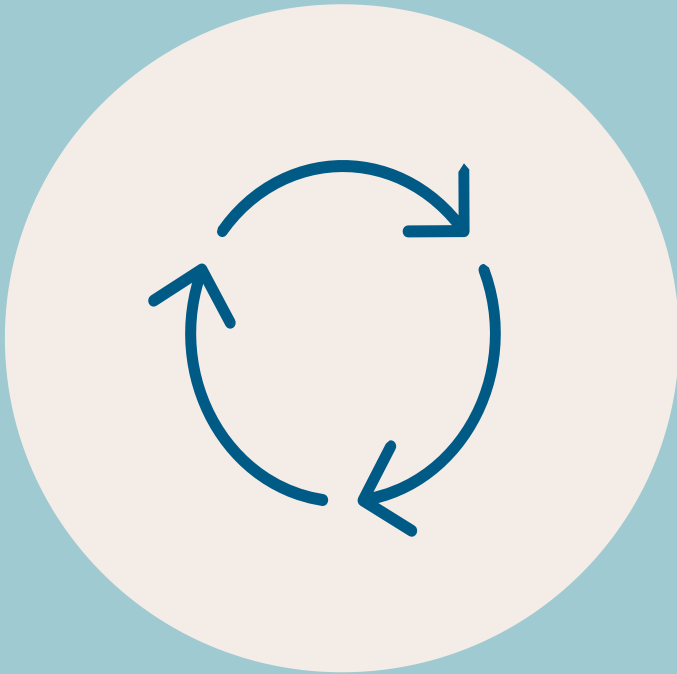
- Encourage all ideas during the brainstorming sessions. Remind the stakeholders that they understand their challenges better than anyone else.
- Invite users relevant to your engagement. For continuity, invite users you engaged during the Discover phase, with the addition of new stakeholders, when possible, to gain more perspective and ideas of the challenge described during the Define phase.
- To sustain good participation throughout the session, avoid long sessions and presentations.
- Ensure the users get a comfortable and free space to share their ideas. Where possible use group discussions to get views from stakeholders in different cadres. Users are more open with their peers in the same group.
- Use ice-breaker activities to create an open atmosphere for discussion.
- For remote meetings, prioritize all the tips in this section, since you are not able to tell people's reactions and feelings. It's better to hold their attention from start till finish because it would be more difficult to get the attention back once it's lost.



Dream phase tips from PATH's user engagement

- Sometimes health care providers will not know what they would like to change or what could solve the challenges they have. Be prepared for the "I don't know" spaces, and plan for activities and questions to guide those periods. In truth, most of them actually know; they just need guidance and a comfortable space to co- create.
- Give an opportunity for users to present their ideas; this encourages ownership and is a source of additional feedback as they present the ideas in their own words and understanding.
- Question your assumptions on what the solution should be or what the process of arriving at a solution should look like. Ask yourself, "if the individual going through the problem is having a hard time coming up with a solution, how sure am I that the solution I might prescribe is anything close to what is appropriate?"
- Sometimes HCWs will share ideas they are very excited to try out from the time it's mentioned; encourage this while managing expectations of who will be involved and to what extent.

Design



Build *prototypes, test, gather feedback, and iterate.*

During this phase, the Living Labs design and innovation specialists engage users in co-creation and prioritization of the solutions and ideas generated. The prototypes in this project are solutions that the users would prioritize to promote motivation of frontline immunization health care workers.

How to prepare for the Design phase



Compile the ideas generated during the Dream phase

- Put together all ideas generated from the “How might we” questions shared with the designers during brainstorming.



Ensure all the relevant and crucial stakeholders are invited

- For continuity, send invitations to stakeholders who have been involved in the previous phases. Feel free to add new stakeholders for additional perspectives.

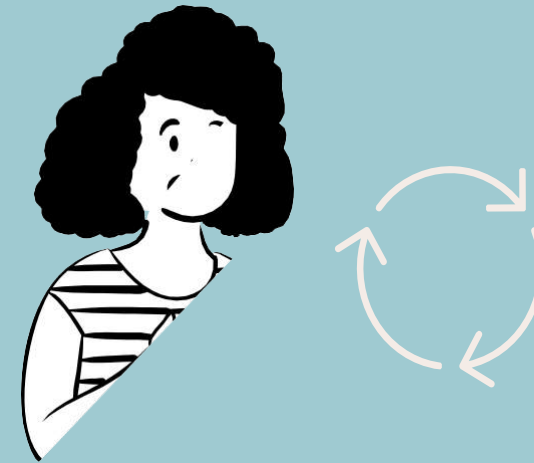


Manage your expectations

- Sometimes the engagement will not go as planned; users may not have ideas or solutions at the start. Be prepared and open to silence, and change strategies during the sessions to solicit feedback.

Activities during the Design phase

- **Discussion:** Further discuss ideas generated in the Dream phase to gather more information and flesh out different aspects of the ideas. This will be useful in developing concepts of the solutions.
- **Document the feedback.**
- **Refine the concepts:** Use the feedback obtained from the users to develop detailed concepts.
- **Develop prototypes:** Use information documented in the detailed concepts.
- **Evaluate prototypes:** Engage users and gather more feedback for iterations of the prototypes.
- **Iterate:** Continue evaluating and iterating with the user feedback.



Discuss in detail with the users the ideas generated in the Dream phase.

Document the feedback and add new information about the ideas to form concepts. Gather more feedback on the concepts to form detailed concepts.



Depending on your goals, level of engagement, and nature of project work, the Design phase activities could all happen in one session or the activities can be divided into different sessions.



Design phase tools

Draft concept sheet

This tool guides in fleshing out raw ideas into a format that can be shared, so that feedback can be gathered in the initial stages. It also indicates what materials might be required for making a prototype.

From user feedback, you get to tick against these parameters (desirability, feasibility, viability) or any others based on your needs and priorities. This way, concepts that don't fulfil a certain criteria can be explored further or eliminated.

Concept name:		
Description	Features	Prototyping supplies
<i>A short narration of what the concept/idea is; can include a sketch or illustration</i>	<i>A list of unique characteristics of the concept/idea</i>	<i>What is required to create a representation of the concept/idea</i>
	Inspiration	
	<i>Something that influenced creation of the idea</i>	
Desirability	Feasibility	Viability

An example of a draft concept sheet template that describes a concept



Concept Name: **Chanjo Ticket**



Chanjo Ticket entails assigning numbers to clients when they arrive. The clients are served based on their numbers and they call the next number after they're served.

HCWs value the relationship they have with their clients since this promotes quality care. However, it is difficult to maintain such a relationship when the clients are always complaining due to long queues brought about by high influx of clients and HCWs shortage.

Chanjo Ticket ensures order is followed as it's issued when a client arrives. The numbers ensures quick service and queue management which manages clients' expectations while waiting in line. HCWs will be able to focus on providing quality services.

FEATURES

- Client numbers
- Client's calling the next number after service
- Issuing client numbers immediately they arrive
- Where possible, a screen projecting the next number
- Where possible, audio calling the next number

INSPIRATION

Bank hall system



PROTOTYPING SUPPLIES

-Storyboard

Crazy (innovative) Feasible (see if we can actually do it) Viable (see if we can't go broke) Desireable (people want it)



Design phase tools

Draft concept sheet example

This example of a draft concept sheet was filled out using information from a concept developed in the Define phase.



Design phase tools

Detailed concept sheet

This tool is a guide in documenting the final details of the concept after several tests and iterations have been made on the idea. This is the final documentation that goes hand in hand with the final report and the high fidelity (Hi-Fi) prototype. The template can be redesigned into an attractive format for displays and exhibitions.

Concept name.....		POV.....	
Illustration	Features	Impact areas	Estimated costs
<i>Graphic capturing what the idea entails</i>	<i>A list of unique characteristics of the concept/idea</i>	<i>Expected subject/sector of influence from implementation of the idea</i>	<i>A list of expected costs of implementing the idea</i>
	Gaps	Measurements	
	<i>Challenges foreseen with implementation and ideas to mitigate them</i>	<i>Indicators to track progress and impact of concept</i>	
Description	Demographics		Literature review
<i>A narration of what the idea/concept is about</i>	<i>Number of stakeholders involved in the creation of the concept</i>		<i>Existing studies that are related to the concept</i>

Chanjo Ticket

A Cost-Effective and Low-Maintenance Queue Management System

Point of View

Health care workers in the MCH department need to efficiently and fairly manage the long queues for the reason that some clients become impatient and disregard others who came before them. Such clients tend to jump the queue and confrontations arise. It would be a game changer if clients had a system that guards against this and lets them work in peace.



Impact Areas

- Customer experience- reduced complains and confrontations
- Streamlining operations
- Improved productivity
- Improved work experience

Potential Barriers

- Financial constrains
- Low literacy levels of some clients.

Design Challenge

HMW create an effective queue management system as straightforward as ABC?

“Sometimes you get colleague and friends who want to be attended first, especially the learned group they give us a hard time. Even the Med sup was once chased away.”
HCW Kilifi county.

User Data

- Kilifi County
- 7 Facilities
- 14 Participants
- 10 Female 4 Male

Concept evaluation



Design phase tools

Detailed concept sheet

This is an example of a detailed concept sheet (a development of the Chanjo Ticket draft concept) filled out using information from a concept iteration and analysis with users.

Description

Chanjo Ticket entails assigning numbers to clients when they arrive. The clients are served based on their numbers and they call the next number after they're served. Chanjo Ticket ensures order is followed as it's issued when a client arrives. The numbers ensure quick service and queue management which manages clients' expectations while waiting in line. HCWs will be able to focus on providing quality services.

Link To Motivation

The system will ensure that all the clients follow the rules of queuing, Chanjo ticket will increase the likelihood that the clients are calmer and the HCWs concentrate on service delivery. The HCWs will not have to undergo emotional and physical strains due to clients' complaints of line jumping. Streamlining of operations in the MCH will minimize job fatigue and improve on service delivery.

Features

- Issuing client numbers immediately they arrive
- Reusable tickets; collected at the service point.
- Low maintenance and running cost
- Where possible, a screen projecting the next number
- Where possible, audio calling the next number

Evidence From Literature

The findings of this study revealed that application of a queue management system resulted in the decreased perceived waiting time and also the actual waiting time. The presented findings confirm that application of a queue management system could significantly increase the level of satisfaction in the intervention group. Queue management system is especially valuable in developing countries, because the application of the queue management system is not a routine intervention in developing countries (in contrast to developed countries) while it is affordable and suitable for their crowded E.Ds. (Ali B, Shabahang, 2021)

This concept was developed by Kilifi County Providers and the Living Labs Team





Design phase tools

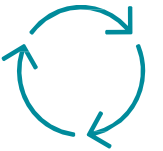
Storyboarding

Storyboarding is a prototyping tool mostly used in when designing services. It helps us illustrate key moments of how the idea would work in the real world in a comic strip way. It helps in visualizing the user's perspective. It is also used in initiating conversation to solicit feedback for further improvement of the concept.

<p>TITLE: _____</p> <p>What is happening:</p> <p>_____</p> <p>_____</p> <p>_____</p> <p>_____</p>	<p>TITLE: _____</p> <p>What is happening:</p> <p>_____</p> <p>_____</p> <p>_____</p> <p>_____</p>
<p>TITLE: _____</p> <p>What is happening:</p> <p>_____</p> <p>_____</p> <p>_____</p> <p>_____</p>	<p>TITLE: _____</p> <p>What is happening:</p> <p>_____</p> <p>_____</p> <p>_____</p> <p>_____</p>

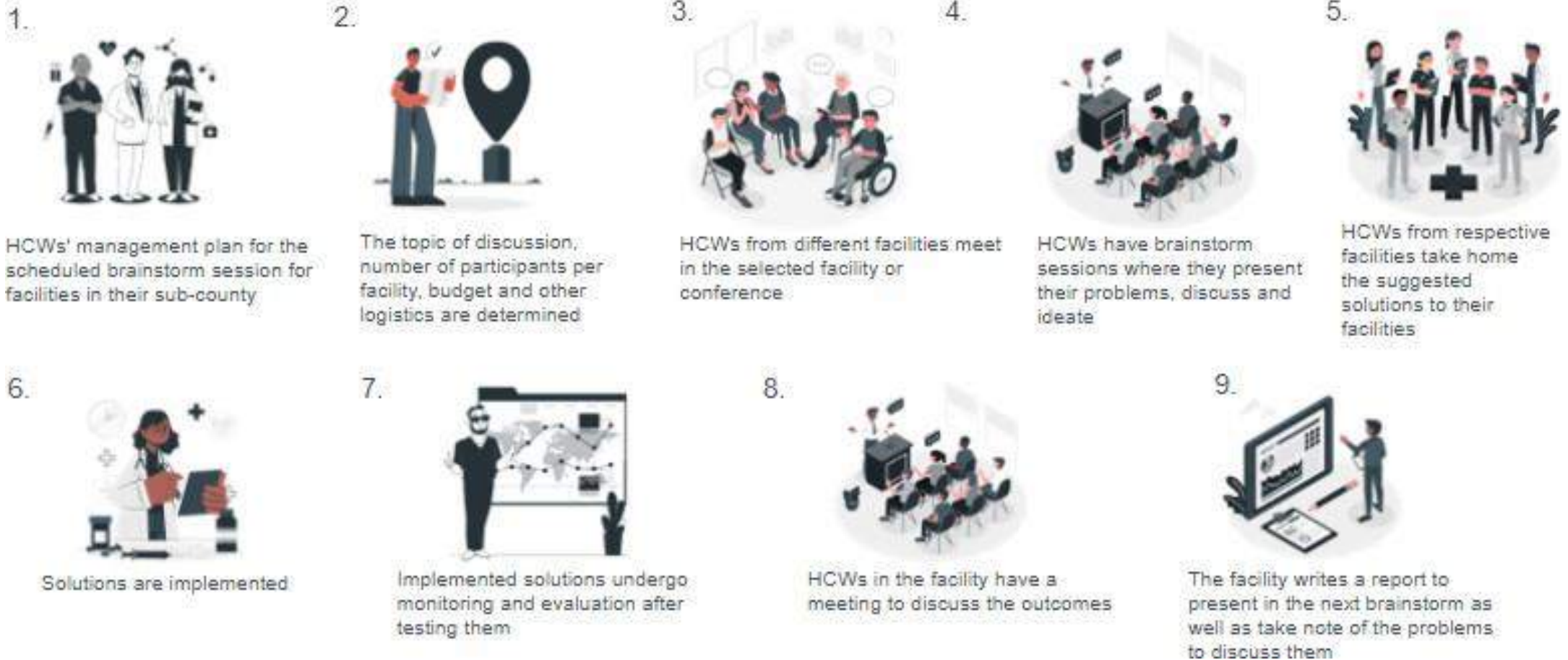
Design phase tools

Storyboarding



Below is an example of a story board explaining how a concept works and its expected outcome

HCWs brainstorm





Design phase tools

Pugh method

This tool is used in collecting feedback on generated concepts. The Pugh method helps us evaluate the three innovation attributes: desirability, feasibility, and viability. The best solution is one that falls within the innovation sweet spot—that is, the point at which the three innovation attributes coalesce. To get the score per attribute, we give weights to the ratings (Strongly Agree=3, Strongly Disagree=-3) which we then multiply by the total respondents. The total score will be the sum of all the scores per rating. The three main steps of the Pugh method involve concept rating, quantitative survey analysis, and data visualization.

Reference

Lugo JE. Pugh Method: How to decide between different designs? [blog post]. *University of Notre Dame, José E. Lugo Design + Engineering*. September 24, 2012. <https://sites.nd.edu/jlugo/2012/09/24/pugh-method-how-to-decide-between-different-designs/>

Desirability

Level	Weight	Respondents	Points
Strongly Agree	3	6	18
Agree	2	6	12
Neutral	0	0	0
Disagree	-2	0	0
Strongly Disagree	-3	0	0
Don't Know	0	0	0
		Total	30
		%	83.33333

Viability

Level	Weight	Respondents	Points
Extremely Easy	3	1	3
Easy	2	4	8
Somewhat Easy	1	2	2
Neutral	0	1	0
Somewhat Difficult	-1	3	-3
Difficult	-2	1	-2
Extremely Difficult	-3	0	0
Don't Know	0	0	0
		Total	8
		% Viability	22.22222

Feasibility

Level	Weight	Respondents	Points
Extremely Easy	3	2	6
Easy	2	3	6
Somewhat Easy	1	3	3
Neutral	0	1	0
Somewhat Difficult	-1	3	-3
Difficult	-2	0	0
Extremely Difficult	-3	0	0
Don't Know	0	0	0
		Total	12
		% Feasibility	33.33333

Design phase tools: Pugh method



Since the three innovation attributes are of equal importance, thus bearing equal weights (level of importance), the average score of a concept is directly calculated from the attributes' scores. From this, you can sort out the best performing concepts, identify what attribute to work on to make the concept better depending on its attribute score, and prioritize concepts.

Below is an example of a how several concepts scored in desirability, feasibility, and viability using the Pugh method.

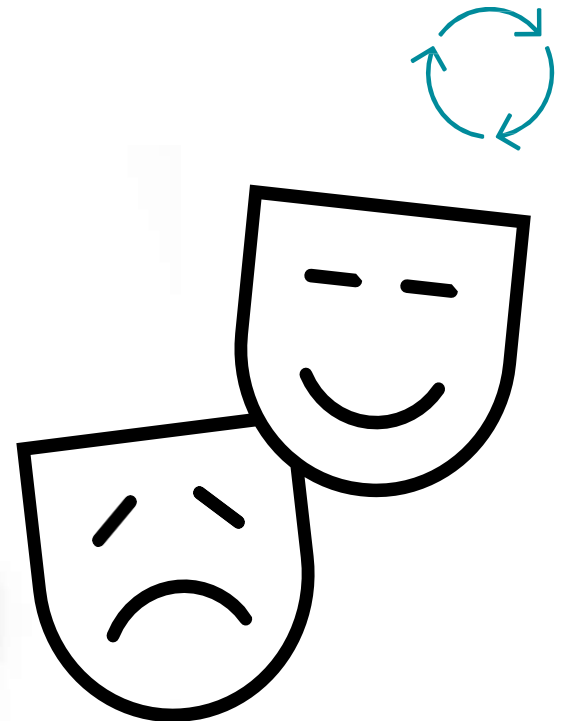
Concept ratings

Concepts	Desirability	Feasibility	Viability	Average rating
HMW brainstorm	66.67	52.38	42.86	53.97
Internet	59.72	47.22	36.11	47.68333333
Inter-facility visits	83.33	33.33	22.22	46.29333333
Meaningful work	59.52	38.1	28.57	42.06333333
Music	54.17	30.56	36.11	40.28
Immunization points	69.05	23.81	9.52	34.12666667
Nurse of the month	63.89	19.44	11.11	31.48
Off-site clinic	45.83	22.22	16.67	28.24
Social potlucks	42.86	19.05	19.05	26.98666667
Nurse on social	52.38	4.77	0	19.05
Hobby to work	26.39	2.78	0	9.723333333

Design phase tools

Role playing

Role playing is a prototyping tool mostly used in designing services. It helps us illustrate key moments of how the idea would work in the real world in a theatrical way, involving enacting the subject scene in the user's journey. It helps in visualizing the user's perspective. It is a great tool especially if the intended user is involved in the roleplaying.





Design phase tools

Role playing

This is an example of a role- playing scene with health care workers in a mockup immunization room.



Photo: PATH/Living Labs

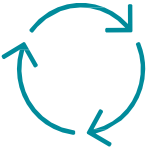


Design phase tools

Low-fidelity modeling

Low-fidelity modeling is a prototyping tool used mostly in product design. It helps us illustrate how the idea would work in the real world in a simple way. Simple materials are used. It helps in visualizing the user's perspective. It is also used in initiating conversation to solicit feedback for further improvement of the concept; iterations of the low-fidelity prototype move the solution toward a high-fidelity working product.





Design phase tools

Low-fidelity modeling

This is an example of a low-fidelity model for a concept that describes a product that will be used in an immunization room.



Photo: PATH/Living Labs



Case study: PATH's Design phase

PATH'S Living Labs promotes the development of low- to no-cost solutions that leverage resources available to users within their own context or environment. The idea behind this is to encourage health workers to reduce their reliance on external actors in addressing the challenges they face in their work. A good example of the low-cost prototypes developed is the "Quality Register."

Immunization registers typically do not have features that can help health workers access records quickly. The registers' lack of accessibility features makes the documentation processes tedious. The Quality Register concept employs simple, low-cost bookmarks/tags made from sticky notes that can be added to standard immunization registers to reduce the amount of time frontline immunization health workers spend in looking up client records. The use of sticky notes was preferred because they are easily accessible to health workers, with some reporting that they keep sticky notes from workshops that they attend to use in their registers.

The Quality Register concept was co-created and initially tested with health workers in Siavonga District and was later tested across other districts in Zambia. The concept has since been adopted by five health facilities across two districts, with health workers reporting noticeable improvements in data management processes.



During a role-playing exercise at a Living Labs Open Day, a participant using a Quality Register located a record in ~1 minute; the EPI country manager, pictured above and using a standard register, could not locate a record even with three times as much time.

Photo: PATH/Living Labs

[Click here to watch a video of a nurse showcasing the Quality Register and how it is used in their facility.](#)



Design phase tips from PATH's user engagement

Similar to Dream phase tips

- Encourage all ideas during the brainstorming sessions.
- Invite users relevant to your engagement. For continuity, invite users you engaged during the Discover phase, with the addition of new stakeholders, when possible, to gain more perspective and ideas of the challenge described during the Define phase.
- Ensure the users get a comfortable and free space to share their ideas. Where possible, use group discussions to get views from stakeholders in different cadres. Users are more open with their peers in the same group.
- To sustain good participation throughout the session, avoid long sessions and presentations.
- Plan ahead and invest ample time in iterations, getting feedback on improving the concepts from users, and making a prototype and allowing users to interact with it.
- Use ice-breaker activities to create an open atmosphere for discussion.
- For remote meetings, prioritize all the tips in this section, since you are not able to tell people's reactions and feelings. It's better to hold their attention from start till finish because it would be more difficult to get the attention back once it's lost.

Unique learnings from Living Labs' HCD engagement with frontline health care providers



Unique learnings from Living Labs' HCD engagement with frontline health care providers

- **Different cadres of providers in the health care system have unique lessons to share and learn amongst each other.** They are open to learning from one another and utilize any opportunity to share lessons on improvement of maternal and child care when brought together.



*A health care worker presenting a solution during an exhibition
Photo: PATH/Living Labs*



*A nurse sharing ideas with another health care worker during an exhibition
Photo: PATH/Living Labs*

Unique learnings from Living Labs' HCD engagement with frontline health care providers

- **Various counties/districts have found innovative ways to address their challenges.** There is great opportunity for cross-learning and a lot of creative solutions to build on and share across geographies.



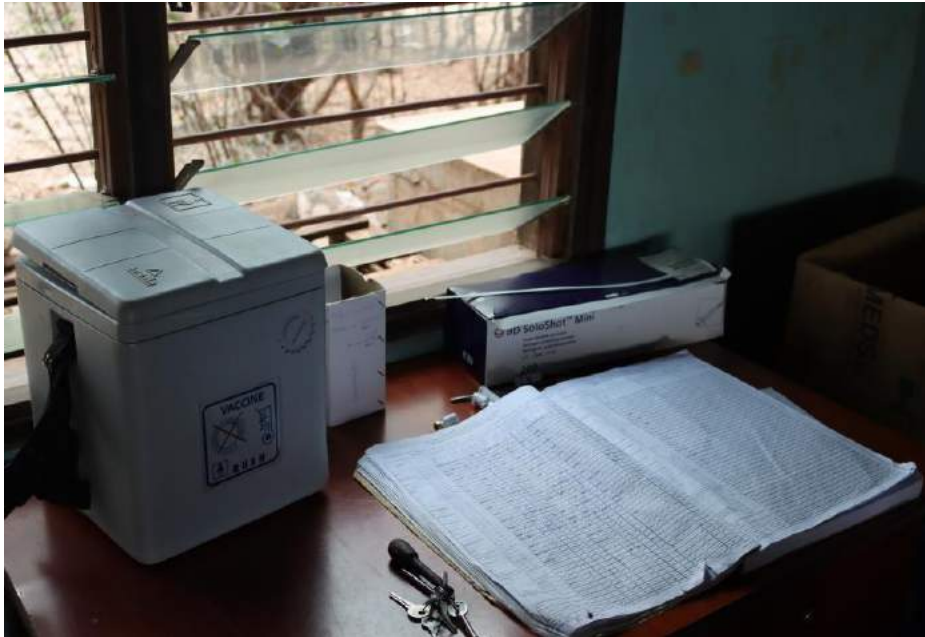
Health care workers from different health facilities at a co-creation session. Photo: PATH/Living Labs



Health care workers during a co-creation session. Photo: PATH/Living Labs

Unique learnings from Living Labs' HCD engagement with frontline health care providers

- **Each county/district health system is unique in how it runs**, and the demographic and geographic features vary from one county/ district to another. Therefore, it is important to understand the uniqueness of these systems before ascribing solutions.



A table set up in a maternal and child health clinic
Photo: PATH/Living Labs



Maternal and child health clinic (baby weighing point) in Turkana County
Photo: PATH/Living Labs

Unique learnings from Living Labs' HCD engagement with frontline health care providers

- **Health care providers are some of the biggest advocates for developments in health care, and they have great desire to be advocates of their own work.** The health workers know what could be done and how; what they often desire and need is to be empowered. It is important to identify influential individuals through the interactions with health care workers and harness their passion and influence to advance the HCD work (e.g., setting up and managing a community of expert users that may be employed as a source of quick, reliable feedback on various topics).



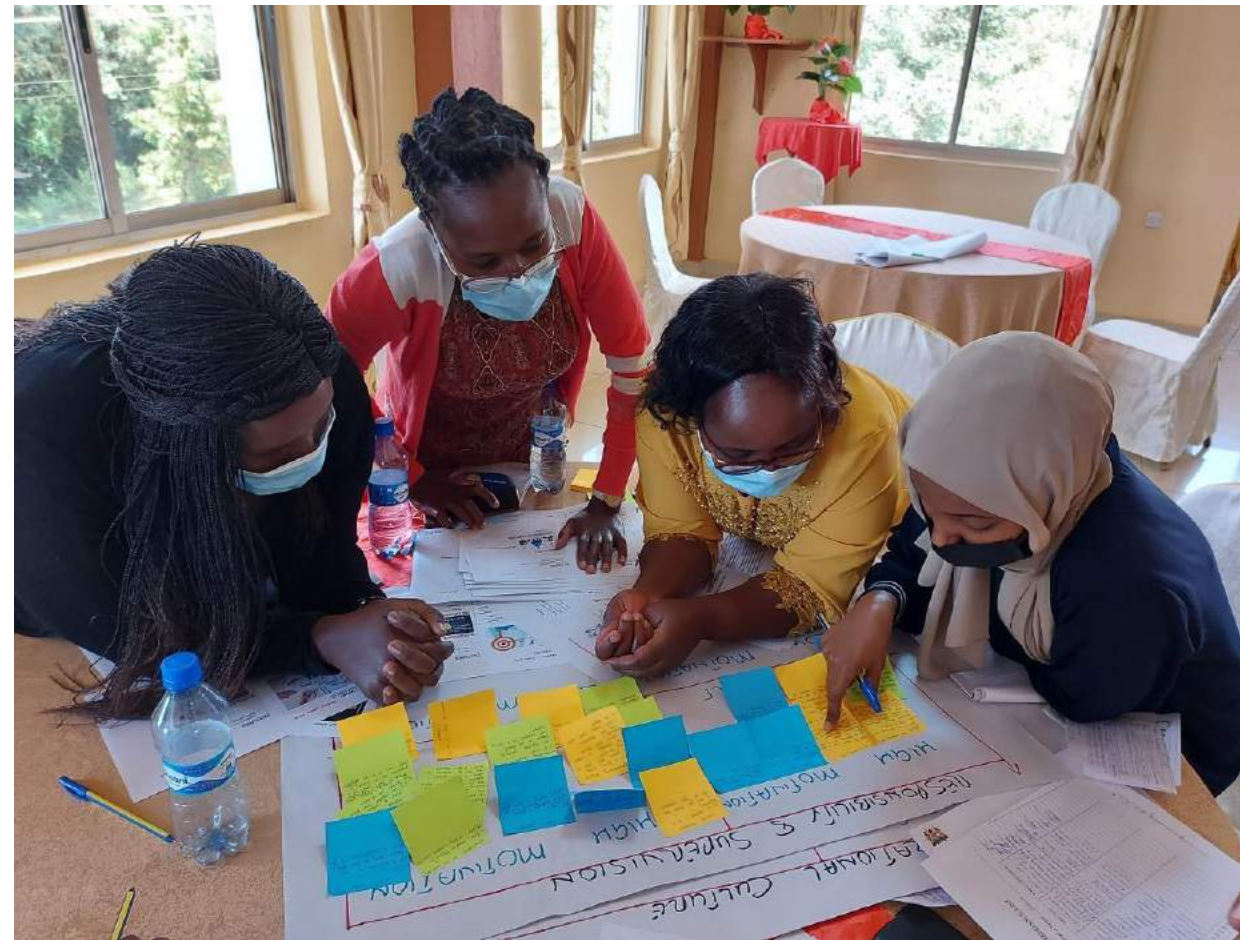
*A nurse presenting a solution they co-created during a workshop
Photo: PATH/Living Labs*

Unique learnings from Living Labs' HCD engagement with frontline health care providers

- HCD is agile; while its fluidity ensures that it rightly remains responsive to the context and specific needs of the user, it also requires constant adaptation of approaches and tools, making standardization difficult. It is important to document such changes because they form an important part of the HCD story and highlight how every HCD implementation is, arguably, unique.



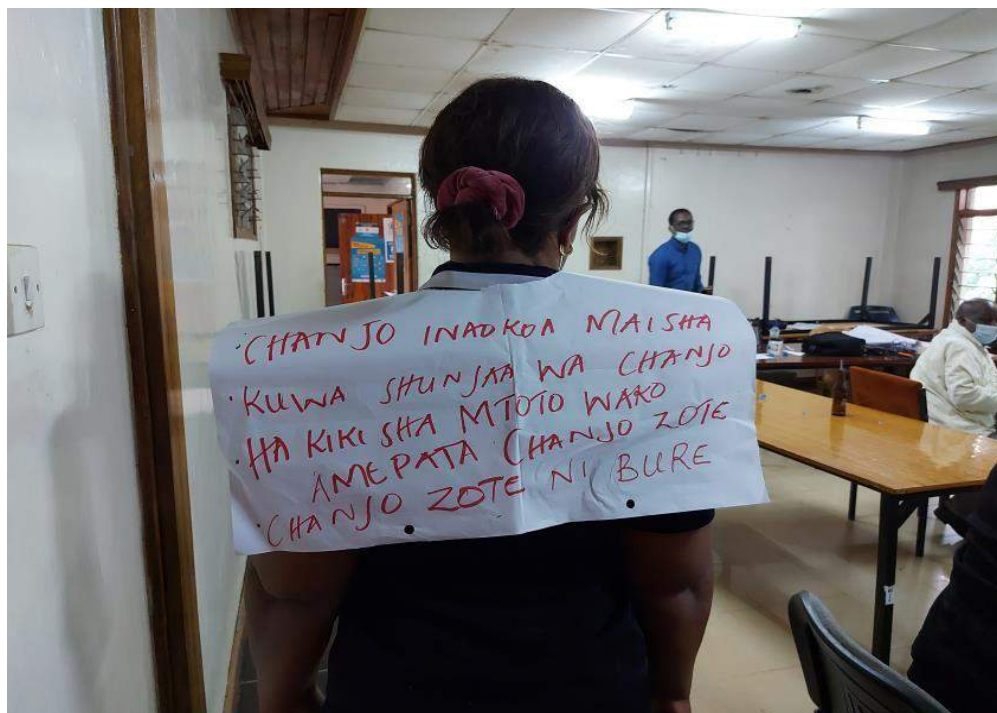
Health care workers at a co-creation session. Photo: PATH/Living Labs



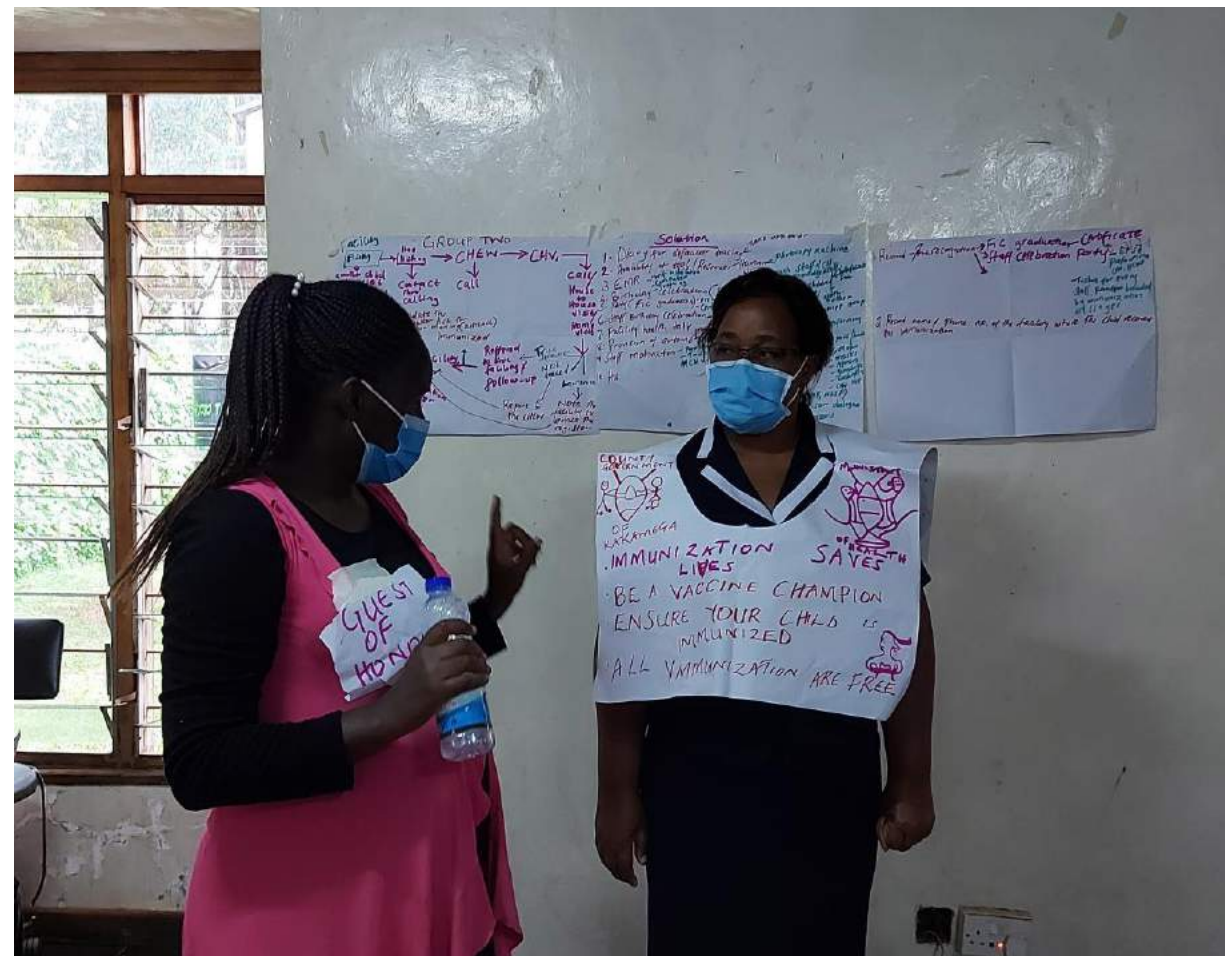
A brainstorming session with health care workers. Photo: PATH/Living Labs

Unique learnings from Living Labs' HCD engagement with frontline health care providers

- In seeking to address factors affecting health worker motivation, it is important to consider both intrinsic and extrinsic influences and how they interact. A clear understanding of these 'triggers' helps designers to create holistic solutions or, at the least, brings attention to systemic challenges that may require external intervention.



A prototype created by health care workers during a co-creation session. Photo: PATH/Living Labs



Health care workers showing a prototype they made during a co-creation session. Photo: PATH/Living Labs

Unique learnings from Living Labs' HCD engagement with frontline health care providers

- For successful collaboration with the Ministry of Health and/or local health authorities, the relevant stakeholders need to be informed and involved in all steps. The involvement of stakeholders fosters ownership of the HCD process and outcomes and ensures that solutions are contextual and, if necessary, in alignment with the policies and strategies of authorities for easier uptake. Some of this feedback is used for reporting county/district developments so the process is very useful for the counties. Involvement all the way from planning to execution of activities is key to foster collaboration.

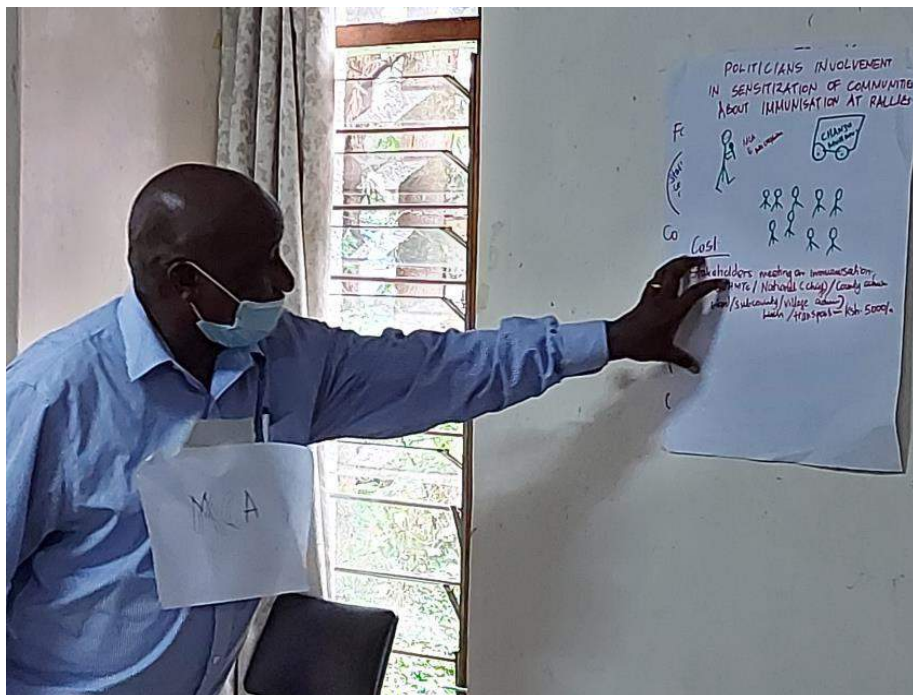


Health care workers documenting in photos a solution they co-created

Photo: PATH/Living Labs

Unique learnings from Living Labs' HCD engagement with frontline health care providers

- **Open innovation requires its facilitators to be intentional about including engaging, interactive activities in workshops, such as games and role playing, to bring the content to life. The games and role playing help to make users comfortable and promote the idea of learning by doing.**



*A solution role-playing session with health care workers
Photo: PATH/Living Labs*



*Health care workers engaging in an ice-breaker before a co-creation session
Photo: PATH/Living Labs*

Unique learnings from Living Labs' HCD engagement with frontline health care providers

- **Learning about and awareness of the HCD process is important for continuity of engagement.** There is a need for all stakeholders in a health system to learn about the HCD process. Providers were more willing to engage once they fully understood the goals and details of each phase of the HCD methodology. The orientation prepared them to get involved, and an understanding of the goals encouraged sharing of feedback. Through the HCD orientation, providers were able to share advice on the best methods of engaging with them. These cross-learning sessions enabled formulation of unique strategies for engaging HCWs in different contexts.
- **You will have assumptions and they will be dispelled.** Many of our assumptions before commencing a project are not true. It is important to recognize and note down our assumptions before user engagement. Always prepare to encounter an unknown; you can never over prepare.



*A nutritionist helping an MCH nurse document client information
Photo: PATH/Living Labs*

Unique learnings from Living Labs' HCD engagement with frontline health care providers

- **Including HCWs in problem sharing is a link to motivation.** Over the engagement period, health care providers expressed how encouraging it was for them to get an opportunity to share their challenges and suggest ideas to solve the same. They said that such opportunities are rare, and that getting a chance to speak about what they go through with their fellow health care providers is in itself a source of motivation.

“Finally, there is a project that focuses on the needs of the HCWs.”—
MCH nurse, Turkana County

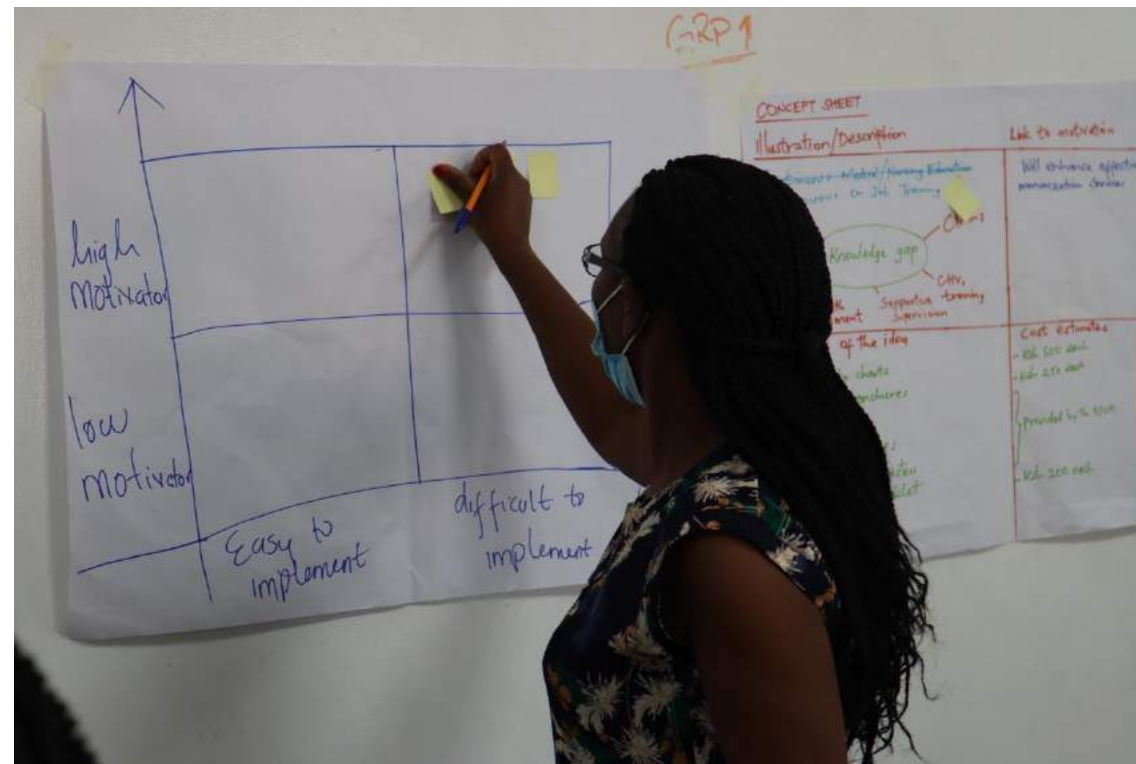
Most HCWs felt that the Living Labs engagement was the first time someone showed concern about their wellbeing.



A health care worker sharing about their experience engaging with Living Labs
Photo: PATH/Living Labs

Unique learnings from Living Labs' HCD engagement with frontline health care providers

- **Stakeholders need a simple perspective of problems and their solutions.** Although most decision-makers are well versed with some of the problems the HCWs face, they are met with several challenges when it comes to understanding the nature of those issues and ways of addressing them.
- **Establishing relationships with a network of providers nurtures engagement.** A few enthusiastic HCWs can give much richer insights than a large group of HCWs. Continuity can be fruitful, and maintaining contact with the same users over time can be productive. However, it is important to periodically add new providers to invite new perspectives, if any.



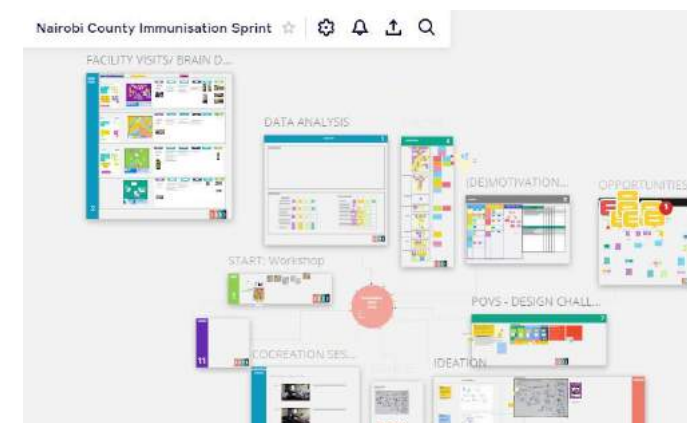
*A health care worker classifying their idea onto a decision matrix
Photo: PATH/Living Labs*

Unique learnings from Living Labs' HCD engagement with frontline health care providers

- **The team leveraged existing platforms of communication to adapt to virtual forms of engagement.** At the onset of the COVID-19 pandemic, in-person engagements came to a stop. The team was at the height of its sprint cycles, which meant there was a need to find alternative ways of getting feedback from providers to maintain momentum. Collaboration within the team was also affected as all activities needed to be carried out virtually. During this time, HCWs actively sought guidance from the team through WhatsApp, which quickly became Living Labs' main channel for HCW correspondence. HCWs would respond to questions on the messaging platform, and activities progressed with minimal interruption. Soon afterward, and as the need for additional feedback increased, the team sent surveys to HCWs on these messaging platforms, which saw an increase in rate and quantity of feedback from the HCWs. Surveys are now one of the quickest way of soliciting feedback from providers on new concepts and have been a useful complement to in-person co-creation sessions.



The Living Labs team (Kenya and Zambia) during a collaboration call



A virtual collaboration whiteboard utilized by the Living Labs team



Tips for conducting virtual user engagement

- When setting the meeting time, be considerate of the users' working hours (for maximum attendance). For example, in the case of health care providers, early morning and evenings have been working well.
- Consider hosting virtual meetings on platforms your users are accustomed to (get their feedback on this) or one that is very user friendly for maximum attendance and timely starts. Some platforms have processes that may be a hindrance for users to log in, which reduces their interest in joining meetings.
- Send pre-reads and meeting agendas and give an opportunity for attendees to RSVP prior to the meeting. Use the most convenient mode of communication for the users to send this information.
- During and after virtual meetings, leverage virtual forms of gathering feedback to ensure participation and continuity of the conversation. This might involve sending surveys to gather feedback or sending short messages (texting) to solicit required responses.
- For maximum output and participation, it's better to set short interactive meetings than long ones. Ensure your agenda involves active feedback sessions as you might lose users' attention and miss the meeting's goal.
- Have a repository of platforms that are suitable for different forms of virtual communication like calls, emails, file sharing, and documentation (e.g., for urgent communication to users consider popular messaging platforms).



Tips for conducting virtual user engagement

- Give an opportunity for users to contribute to the agenda of the virtual meeting, and facilitate sessions to ensure attendance, participation, and ownership of the process.
- Even though virtual meetings may not require a person to move from point A to point B to attend, consider appreciating and recognizing their dedication to attend through the available formats.
- Be respectful of set meeting times. Even when the engagement seems to be gaining momentum and energy, conclude at the set time. This is especially key for one-on-one phone call interviews, which sometimes may be easy to extend time on.
- Send reminders of the engagements to your users, especially if the engagement is not part of a frequent cadence. Health care providers have busy schedules and will forget to plan for and join a meeting if there are no reminders.
- Where possible, when engaging different types of users, avoid hosting them in a common virtual engagement. Focused engagements allow for maximum output within a short duration of time.
- Virtual engagements are still new to most people; therefore, be patient and considerate with onboarding users. Prior to the meeting, send users guidance and steps on joining, when possible.
- Virtual engagements may be challenging for certain phases of the HCD process, especially if they require hands-on activity. Be sure to balance between virtual and in-person meetings for fruitful engagements where possible.



To learn more, visit path.org/livinglabs or contact us at livinglabs@path.org.