

Tech-A-Thon Playbook



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Developed by SONSIEL for NurseHack4Health™

To learn more, contact us at support@nursehack4health.org







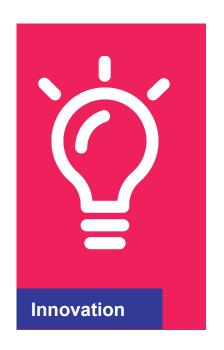




What is a Tech-A-Thon?



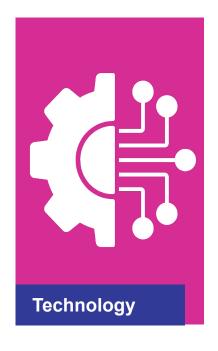
The purpose of a Tech-A-Thon is to foster a culture of collaboration and innovation in healthcare by bringing together diverse stakeholders to design and develop new and innovative solutions supported by technology.



Through a collaborative and inclusive approach, we aim to generate new ideas and solutions that address systemic healthcare challenges while inspiring and empowering participants to be mindful, think creatively, and take ownership of the innovation process.



Powered by purpose: at the heart of innovation and codesign is a vision of the future shaped by many voices.



Leveraging technology, digital tools, artificial intelligence (AI), and cloud-based platforms to accelerate the innovation process, enable real-time collaboration, enhance prototyping, and provide data-driven insights.





Purpose-Driven Mission

Leaders today need to THINK BIG and be equipped with the tools to solve systemic issues, support holistic wellbeing, create spaces for innovative thinking, and take on the responsibility of developing a more resilient healthcare system.

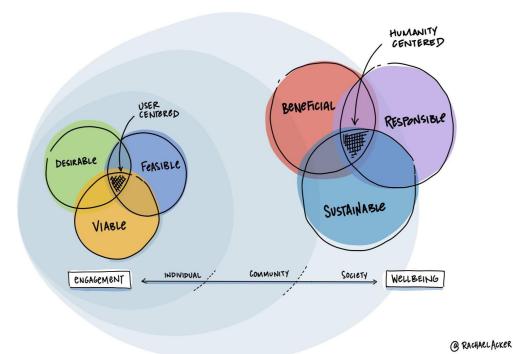
Design thinking became popular in the early 2010s, giving organizations who were developing products and new business models a competitive edge and a path to market leadership.

This **user-centered** approach catalyzed the massive growth of digital products and services that are desirable, feasible and viable. The user experience (UX) industry emerged in response, armed with this toolkit, to optimize experiences and maximize engagement while balancing the impact of unintended consequences.

The problems in healthcare today are more complex and systemic in nature, in part, thanks to the connectivity technology has enabled. To develop future-ready solutions, it's not enough to be user-centered and meet the needs of individuals. In addition, we need to consider the long-term effects of our solutions on communities and society at large, to be humanity-centered.

Solutions today need new tools in our problem-solving toolkit. Tools and governance that bring diverse perspectives together to solve hard problems, and activities that produce artifacts like stories to guide team on their innovation journey.

We need system-level tools to dig deep into social determinants of health (SDOH), tools that map and synthesize rather than deconstruct and silo, tools that nudge behaviors and change mindsets. We need tools that break barriers to change culture and grow at a sustainable pace. We need new ways to listen deeply and integrate diverse voices into solutions. We share some of these tools here in the playbook, to use on your journey.



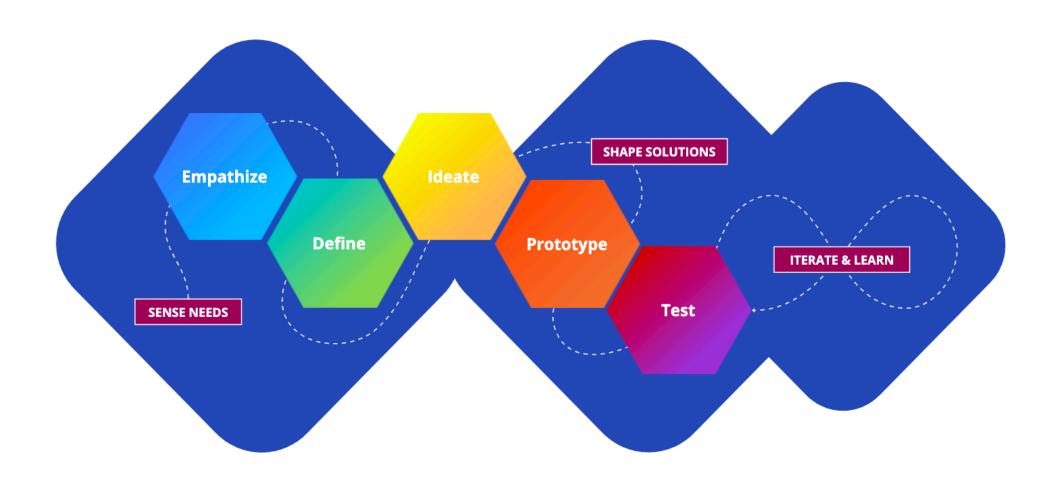






Design Thinking Framework

A human-centered approach to develop an innovation mindset, and through the process of doing, create artifacts of learning. These artifacts created from the exercises are human-centered research deliverables or outputs. These artifacts are evidence of using a design thinking process to tell your story and arrive at your solution.









Learning Objectives

DESIGN THINKING

Empathizing with patients and healthcare providers within the context of an ecosystem.

Persona Development & Ecosystem Mapping

GEN AI

Think of how CoPilot can become a thought prompter and co-designer to build creative thinking skills, anticipate possibilities, validate potential solutions, and identify unintended consequences.

*Tip: All activities in this playbook can be scanned and enlarged to collaborate with your teams.

FUTURES THINKING

Spur the imagination by exploring "How Might We..." scenarios..

Future Scenarios, How Might We...

Guiding Principles

- **1.** Collaborate to develop shared language. Create from diverse perspectives, an inclusive vision, the North Star.
- **2.** All ideas are seeds toward a good solution. It doesn't matter where ideas come from or how crazy they may seem.
- **3.** Scan the future. Old models don't always work. Change emerges from collective needs. Look at adjacent industries for metaphors and inspiration.
- **4.** Everything you see, touch, feel, and experience is designed. Design the future you want to live in.
- **5.** Make space for critical thinking. Consider unintended consequences early. Fail forward fast.







Meaningful Questions = Holistic Solutions

WHAT

- What is the problem?
- What would we like to know?
- What are the assumptions should we challenge?

WHO

- Who is involved?
- Who is affected by the situation?
- Who decides?

WHY

- Why is the problem important?
- Why does it occur?
- Why was it not yet solved?

WHERE

- Where does the problem occur?
- · Where was it resolved?
- Where did similar situations exist?

WHEN

- When did the problem begin?
- When do people want to see results?
- When can the intervention start?

HOW

- How could this problem be an opportunity?
- How could it be solved?
- How has it been tried to be resolved before?
- How can technology be leveraged to enable the solution(s)?





Empathy

1 - Understand Diverse Perspectives

Gain insights into others' experiences, needs, and pain points through direct observation, interviews, and other research methods. This will help you design solutions that are tailored to specific needs of a target audience. Here we define target audience as the population who will be impacted by the solution.

2 - Identify Unmet Needs

By listening and observing, help identify unmet needs that may not have been previously considered. Learn how to dig deeper to get to patterns of behavior and learn how to reframe observations from a holistic perspective. The process in this section will help you challenge assumptions about the target audience and build evidence for defining the unmet needs.

3 - Build Trust

Immersive empathy activities help you build trust with colleagues, patients, and families, which in turn build resilient teams. By demonstrating that you understand and care about their perspective, you will be able to establish a stronger relationship with your staff, leading to staff retention.

4 - Trauma-informed Lens

Applying a trauma-informed lens to empathy research prioritizes safety, respect, and empowerment for those impacted by trauma. This approach aims to create a safe and supportive environment for participants, respect their autonomy and choices, and minimize triggers or re-traumatization. By prioritizing sensitivity to the needs of participants, this approach can build trust, establish rapport, and create a more impactful experience.

Tip!

Be self-aware, authentic, and honest. It's ok to show vulnerability.







Empathy

Diverge

Empathy Map

Divergent Thinking

- The process of exploring a wide range of perspectives and experiences related to the challenge topic.
- Requires the ability to be open to including diverse perspectives into your thinking.
- Check assumptions about what you think you know about the problems at the door and make space for alternative perspectives.

Converge



Convergent Thinking

- Focuses the problem on a specific area of need to address in the later phases.
- Requires the ability to synthesize and organize the information gathered through the empathy experience research process without bias.
- Involves identifying patterns, themes, and insights that emerge from the research to develop a deeper understanding of needs and challenges.

Understanding the **Problem with Technology**

- Digital Listening & Data Analytics: Use Al-powered sentiment analysis, and patient feedback platforms to gather insights on healthcare challenges.
- Virtual Reality (VR) &
 Augmented Reality
 (AR): Enhance
 empathy through VR
 simulations that help
 healthcare professionals
 experience challenges
 from a patient's
 perspective.
- Wearables & IoT
 (Internet of Things):
 Leverage real-time
 patient data from
 wearable devices to
 gain insights into health
 patterns and unmet
 needs.







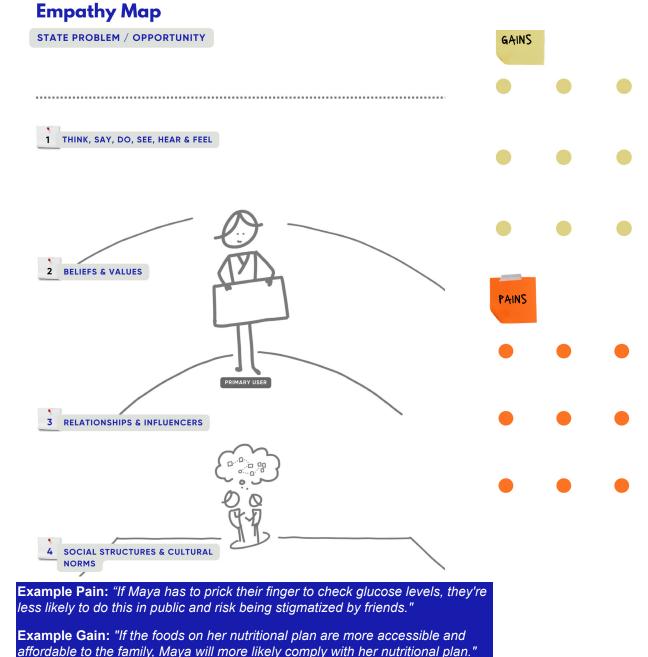
ACTIVITY: Find Unmet Needs

Before you start...

If you're running this activity in person, print the empty Empathy Map on a large piece of paper. Grab enough sitcky notes for everyone on the team to write on with markers. Remember - one thought per sticky note.

Instructions

- **1 -** Understand your target audience's experiences through a socio-economic lens and individual experiences to the context of how they live their lives.
- **2 Define the audience and frame the problem**, notice if you're intentionally or unintentionally excluding anyone. Your goal is to arrive at a short narrative that describes the problem for someone who best represents a target audience.
- 3 Give this person a name and attribute, e.g.Misunderstood Maya. Step into their shoes and imagine walking through their day from the moment they wake up.
- 4 Find quotes to best captures their emotional burden.E.g. "It's not fair! I hate needles! I wish I was normal."
- **5 Once you have a good map, generate a list in the Pains and Gains** section. Apply a hypothesis approach (IF...THEN) when generating this list.









ACTIVITY: Map Care Delivery

From the Empathy Map, extract interventions or interactions to derive the different stakeholders influencing decisions made by your persona. Start with your persona at the bottom center and work one circle a a time.

Instructions

As a group, add stickies that describe interactions across the ecosystem from the perspective of different stakeholders, e.g. buys groceries from the grocery store across town.

1 - Reimagine Intervention

Who are all the stakeholders you need to involve?

How does the intervention fit into existing services or is this an expansion of existing services?

Are there policies or regulations around your intervention?

2 - Feedback Loop

What makes data actionable and relevant?

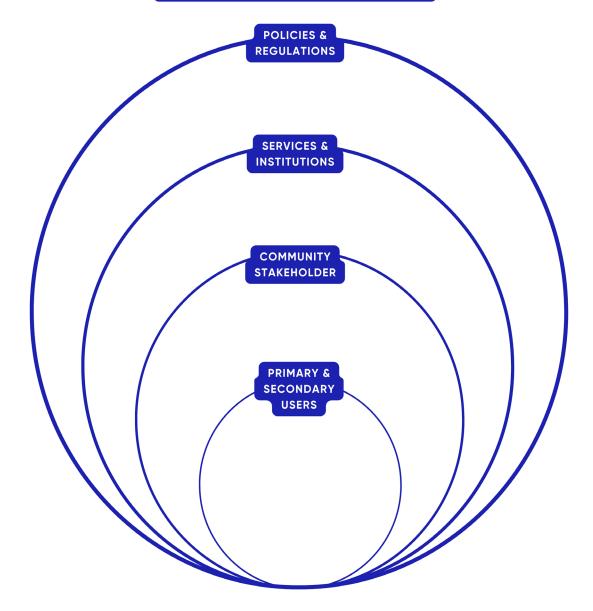
Where is data collected to inform the intervention?

What is the impact on patient-provider interactions?

How are health outcomes measured to continuously adapt to new learnings?

Ecosystem Map

IDENTIFY LEVERAGE POINTS & FEEDBACK LOOPS



Define

1 - Frame the Problem

The Define phase is about framing the problem that needs to be solved in a way where the scope, intent, and outcome for an intended audience are clear. The process should feel like focusing a camera lens on an object within the frame. Learn how by creating a story around the problem, using metaphors, in narrative and visual form, so that others might understand and empathize with the problem.

2 - Synergistic Collaboration

Team collaboration is a key principle in design thinking to drive delivery of human-centered solutions. Participatory design sessions create the space for a wider ecosystem of participants, like clinical staff to come together to share experiences and have ownership of the solution. Design sessions develop critical thinking skills that can result in new shared language. This shared language is needed to increase communication channels across the healthcare ecosystem. Shared language is a mechanism for leaders to access valuable insights and timely feedback from the front lines.

3 - Emergent Metaphors

Through a shared understanding of the problem during the design process, metaphors will emerge to describe the problem. These metaphors will help you navigate ambiguity and make sense of patterns of behavior. The definition that emerges can then be presented as a current state journey map. When the work is from shared effort, everyone's perspective will be reflected in artifacts, including discussions around unintended consequences.

Tip!

Build leadership skills that foster dialogue and conversation, not debate. **Embrace uncertainty.** Be comfortable with ambiguity and avoid rushing to answers. Fall in love with the problem.





Define

Diverge

Empathy Map

Exploratory Research

- The process of framing a problem requires uncovering underlying factors that contribute to the problem. Exploratory research involves methods to gather data from various sources and observations, then synthesizing into themes and patterns of behavior.
- This is typically the hardest part of the process and requires putting aside our biases and preconceived notions. Spend most of the time framing the problem and you'll spend a lot less time solving it.

Converge

Problem Statement

Design Challenge

- A problem or opportunity is presented as a design challenge in order to attract innovative and viable solutions.
- A design challenge helps develop creative thinking and problem-solving skills by presenting the opportunity in a way that anyone can resonate with. The challenge frames the unmet need as spanning beyond the individual and describes context of use in community, change behavior that benefits others, which then helps the team uncover strategies to mitigate harm in the future.

Here's an example of a problem statement for an unmet need in healthcare: "The current healthcare system lacks efficient and accessible mental health support services for adolescents, leading to a significant gap in early intervention and support for this vulnerable population, resulting in increased rates of untreated mental health conditions and long-term negative health outcomes."

Using AI to Synthesize Insights

- **AI-Powered Text** Analysis: Use natural language processing (NLP) tools to analyze interviews, surveys, and research reports to uncover patterns.
- **Data Visualization:** Utilize tools like Power BI to map pain points and identify trends in patient care.







Ideate

1 - Backcast From The Future - What If ...

Understand how the curiosity of change can inspire you to think differently about the present. We're NOT attempting to predict the future, but rather to illuminate unexpected implications of present-day issues. The emphasis isn't on what will happen, but the plausible futures, of what could happen, given various change drivers.

2 - How Might We...

A way to become more curious. "How might we" (HMW) is a phrase commonly used to reframe a problem or challenge into an open-ended question that invites creative solutions. It is a tool for generating ideas and solutions and building on each other's ideas. Draw analogies to natural systems like a murmuration. Add a biomimicry lens to generate ideas inspired by nature, example, how might we create a community that can adapt to changes like a murmuration. With this slight shift in framing, we've opened up space for other disciplines to influence the design and development of our solutions.

3 - Concept Design

To create solutions that are relevant, effective, and usable, the outcomes of the exercises, these artifacts, are generated to be shared so that you can continuously improve on how well the idea meets needs and perspectives of those who will use them.

4 - Technology Integration

Identify where technology can be best incorporated to enhance the effectiveness and usability of your solution. Leverage cutting-edge tools and innovations to address present-day issues and drive transformative change.

Tip!

Tools like Azure DevOps are intended for this kind of ideation. Simply navigate to the Boards feature and start dropping in some user stories. You can easily drag them around to reflect priority.







Ideate

Diverge



North Star

- A vision that guides the development of the solution sometimes described as a set of guiding principles.
- It ensures that the team is working towards a shared goal and that individual decisions and ideas are aligned with that goal. It also provides a way to evaluate the success of the project and determine whether it has achieved its intended impact.

Converge



Participatory Co-Design

- Participatory design is an approach designers use to lead workshops, interviews, and other activities that invite end-users to share their insights and experiences and align stakeholders.
- These insights are then used to inform the design process, with the healthcare team working alongside end-users to co-create solutions that meet their needs and preferences.

Enhancing Brainstorming with Technology

- **Al-Assisted** Brainstorming: Use Al tools like CoPilot as a thought prompter and co-designer to build creative thinking skills, anticipate possibilities, validate potential solutions, and identify unintended consequences.
- **Collaborative Digital** Platforms: Leverage tools such as Microsoft Whiteboard for virtual brainstorming and cocreation.
- **Generative Design:** Explore how Al-driven generative design can propose multiple potential solutions based on input criteria.







ACTIVITY: (HMW) How Might We...

What you need to know

Get the most obvious ideas out first. The goal is to describe how the solution might work, in as much detail as you can, across different dimensions. This is where having a diverse team is critical, so each perspective adds clarity and depth to an idea.

For instance, a clinical lens will ensure the solution is safe and efficacious, a design lens will ensure the experience is frictionless and beneficial, an engineering lens will ensure the experience can be feasibly delivered, and a strategic lens will help the leaders guide teams on the optimal path to operationalize the solution.

Instructions: Refer to the artifacts created: empathy map, ecosystem map, etc.

- 1 Imagine the solution your target audience needs. In the first 4 minutes, come up with one idea in the top most panel. Describe visually, by sketching and using comics, rather than writing a narrative. In the last 10 seconds, give it a headline that best represents the value proposition.
- 2 Pass your idea to the person on your right. In the second panel on top, build on the idea in the first panel. You'll have 2 minutes before passing it on again. Repeat till your idea returns to you.
- 3 Take 5 minutes to discuss. Then sketch out the best idea to move forward with.

It's sometimes hard to let go of your own ideas. To make it easier to let go, develop an idea library for all the potential solutions that didn't make the cut. Everyone is going to have ideas throughout the project, so create a database of ideas you might come back to at a later time.

How Might We	What's your BIG BOLD Idea?
1. Write your idea and pass to to the person on your right	he next
2. This is a good idea because	
z. ms is a good idea secause	
3. The challenges we will face are	
4. We can overcome these challeng	ges if
5. The unintended consequences c	ould be
	IDEATE
	9







ACTIVITY: Idea Prioritization

What you need to know

Unless you have unlimited resources and time. you will need to focus efforts. Start with gathering artifacts created. This is a convergent activity. Together, the team generates a list of strategies and/or actions to take to the next step, to activate as prototypes.

Instructions

1 - Generate a List

Together, as a group, generate a list of items to prioritize e.g. create a sticky note with "A mobile wellbeing program." Be as specific as possible but not so detailed that the list is too long to review in one sitting.

2 - Map in Matrix

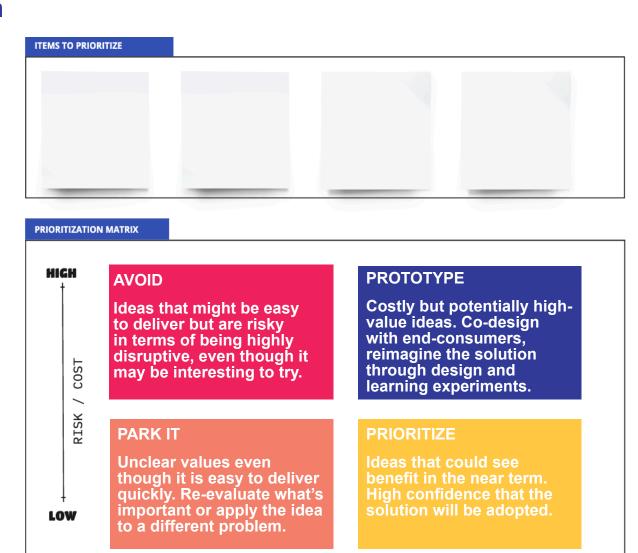
Move each item into one of the quadrants of the Prioritization matrix.

3 - Focus on Top Right Quadrant

Is there consensus around how the items are classified? Once the team comes to consensus. focus on the items in the top right quadrant.

4 - Create Activation Plan

Develop a detailed use case or plan for activating that strategy. Reflect on the benefits and consider any unintended consequences.









BENEFICIAL VALUE / IMPORTANCE

Prototype

1 - Rapid Prototyping

Getting to the right solutions requires a mix of art and science to fit a market need. How do you get to the key features that meet a need without falling into the one-size-fits-all trap?

Rapid prototyping is a process of quickly creating and testing a rough model or low-fidelity solution. It utilizes available resources and materials to create a version of the solution that can be interacted with, to be tested and refined before investing more time and resources in its development.

Incorporate technology early in the prototyping phase to identify potential enhancements and efficiencies.

2 - Future Scenarios

How you build the right thing is to understand what decisions people make, their mental model, and how your solution helps them make better trade-offs within different contexts.

Future scenarios is a method for exploring different possibilities within environments of continuous transformation. In healthcare, future scenarios would involve multiple technologies and social, economic, and political factors. For example, a future scenario might describe how advances in AI, genomics, and robotics could transform the way healthcare is delivered and accessed at community health centers.

Section Tip!

Responsibility as an innovation leader is to set the North Star and create space, a sandbox for your team. Be comfortable with the uncertainty of being in the sandbox.





Prototype

Diverge

North Star

Concept Designs

Design goals, narratives, and sketches that communicate key ideas and explore potential variations, which can then be prioritized later. It could represent a use case but shouldn't include too much detail, just enough to gather feedback without too much explanation.

Converge



Minimum Viable Product (MVP)

- A minimum set of features that can be released to the market to test its viability and gather feedback from customers. It is a key concept in Lean Startup Methodology.
- The MVP is how your solution is experienced by the target audience. It is functional, usable, and provides value to the user, then improves, in iterations, over time.

Rapid Digital Prototyping

- Low-Code/No-Code **Prototyping:** Use platforms like Figma, Adobe XD, and Bubble to create interactive prototypes.
- **3D Printing & Digital** Twins: Leverage 3D printing for solution prototyping and digital twin technology for testing healthcare workflows.
- **Cloud-Based Testing:** Deploy prototypes in sandbox environments using cloud platforms like Microsoft Azure to test feasibility.





Test

1 - Qualitative Research

A type of research to continuously validate that the solution matches changing needs:

- If the solution is a product or service, who will be using it?
- What are their needs, goals, and motivations?
- What challenges do users face when interacting with the solution?
- How can the solution be improved to better meet needs and expectations?

2 - Ethnographic Research

A type of qualitative research that involves observing and interacting with individuals or groups within their natural setting to gain an in-depth understanding of their behaviors, beliefs, and cultural practices. It involves the researcher immersing themselves in the culture or community they are studying and using a variety of data collection methods, such as interviews, field notes, and document analysis, to gain a comprehensive understanding of the group's experiences and perspectives.

3 - Organizational Resilience

As part of this section, we introduce the need for a resilient team and what that looks like. We define resilience as the ability for a team to collectively anticipate, respond, and adapt to changes and feedback. It requires the ability to learn continuously, experiment with new ideas, sense potential new disruptions within a system, and revise approaches based on new knowledge, deploying new strategies and coordinating communication across teams and systems. A resilient team is able to respond to adversity and maintain the resources needed to persevere.

Section Tip!

To develop a resilient team, leaders need to quide teams with validation resources, measures and mentorship





ACTIVITY: Pilot Interview

Develop questions to get feedback on your solution in a way that reduces bias in your answers. For example, instead of asking "Don't you think that X is a good idea?" ask "What are your thoughts on X?"

Instructions

- **1** Pair up with someone who is unfamiliar with your solution.
- 2 In each pair, one person will act as the interviewer and the other person will act as the interviewee.
- 3 The interviewer briefly describes the solution then asks the interviewee one open-end question to validate assumptions around who might benefit from the solution.
- 4 The interviewee answers the questions as honestly and openly as possible while also paying attention to the language used by the interviewer.
- 5 After each interview, the pair debriefs and discusses how the question might be improved to minimize assumptions in the question.
- 6 Participants can rotate roles and repeat the exercise with a new set of questions and partners.



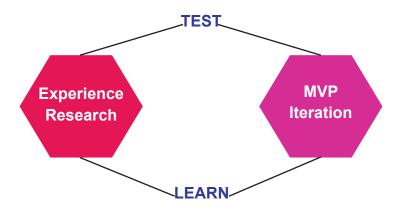




Test and Learn

Learning Experiment

- Hypothesis-driven testing and experimentation in the context of the user experience is the process of formulating and testing assumptions or hypotheses about a new behavioral intervention or solution.
- The goal is to learn how the solution can be improved to evaluate the effectiveness of the solution for a target audience.



Feedback Loops

- The goal of feedback loops is to rapidly iterate and refine the solution until it meets a desired outcome or validates a hypothesis.
- Feedback loops help teams continuously improve their solutions from data gathered during user testing and incorporating them into the design process. It helps ensure that the final solution is not only usable and functional, but also addresses the needs and expectations of the target audience and stakeholders.

Technology-Driven Experimentation

- A/B Testing & Digital Feedback Loops: Use digital surveys, Alpowered focus groups, and A/B testing tools to refine solutions.
- Simulated **Environments:** Test healthcare interventions in virtual or augmented reality settings before real-world deployment.
- **Blockchain for Secure** Testing: Ensure data integrity and security in testing phases using blockchain-based tracking and verification.





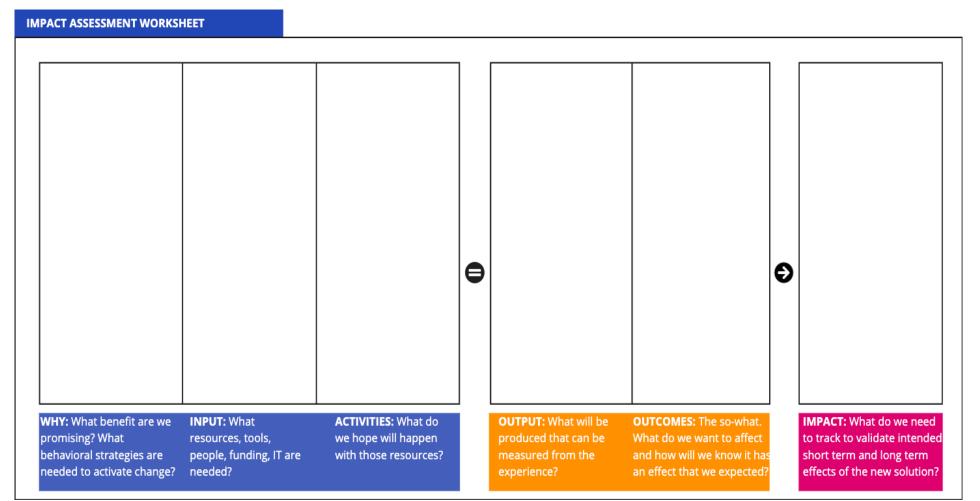
ACTIVITY: Meaningful Measures to Assess Impact

What you need to know:

Define with stakeholders what is important to measure to indicate progress. What's the operational model and governance that's needed to enable successful transformative change. The Impact Assessment worksheet will help you ask critical questions to arrive at measures that are meaningful to track.

Instructions

- 1 Complete the Impact Assessment Worksheet by reviewing the questions under each box.
- 2 What teams and spaces will be needed to manage change?
- 3 What will you measure to validate impact and track progress?
- 4 Highlight any unintended consequences. E.g. if everyone works two 12-hours shifts, an unintended consequence could be no continuity in patient care.









Pitch Template

INTRODUCTION and VISION: The Story



- Start with a story that brings the problem you are trying to solve to life.
- Do you have a personal connection to the problem you're solving?
- Who is affected?(persona(s))
- Describe your idea and how it will solve your problem
- What will it do?
- · How does it change one's experience? Why?



SOLUTION

- Impact and Sustainability: Describe the overall impact that you hope to achieve, and highlight your vision for scalability over the next two years.
- Highlight key activities, primary outcomes, and metrics.
- · Who are the key stakeholders that you will need to influence.
- Describe the key challenges your solution will address.



EXPERIENCE

- · Describe your team; highlight your team's diversity.
- List your team members here and their credentials.
- · What expertise does everyone bring to the table?
- How does your diverse skillset support your innovation?



Get Ready for the NurseHack4Health Pitch-A-Thon



Mark your calendars! Applications to submit for the 2025 NurseHack4Health Pitch-A-Thon open on August 18th.

Next Steps

- 1 Think about the problem you would like to solve.
- 2 Form and engage your nurse-led interdisciplinary team within your health system or organization.
- 3 Take the NurseHack4Health Innovation Academy to learn more about Design Thinking, Crafting the Perfect Pitch, and Artificial Intelligence (AI) in Nursing and Healthcare and receive two contact hours upon completion.
- 4 Reach out to us for support and guidance! Contact us at support@nursehack4health.org.
- 5 Follow us on social media to receive updates regarding the Pitch-A-Thon and future events.



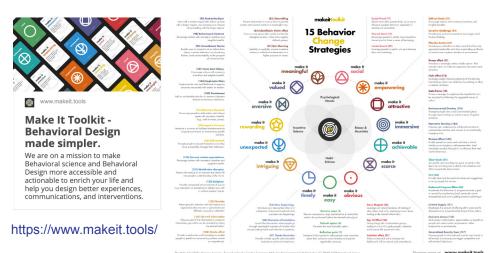




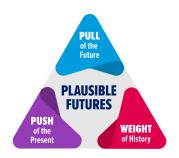


References

Additional Tools & Resources



Futures Thinking

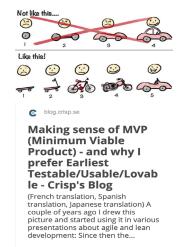


The **Futures Triangle**, a tool developed by Sohail Inayatullah, offers us a way out of this trap of succumbing to urgent needs.



https://www.nngroup.com/articles/journey-mapping-approaches/

Lean Development (MVP)



https://blog.crisp.se/2016/01/25/ henrikkniberg/making-sense-of-mvp

Additional Literature



Additional Tools & Resources



https://raindrop.io/rachaelacker/design-andinnovation-30395844



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Notes









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Our Commitment to Nursing (summary of resources)



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