

# Stanford School & IDEO Models

## Stanford d.school (Hasso-Plattner Institute of Design) Model

- Developed at Stanford University.
- A **human-centered, iterative process** used to solve complex problems.
- **Five Stages:**
  1. **Empathize** – Understand the user's needs through observation and interaction.
  2. **Define** – Frame the core problem based on insights gathered.
  3. **Ideate** – Brainstorm creative solutions without constraints.
  4. **Prototype** – Build tangible representations of ideas.
  5. **Test** – Evaluate prototypes with users and refine based on feedback.

**Focus:** Human needs, empathy, and experimentation.

## 1 IDEO Model

- IDEO, a global design consultancy, popularized design thinking in business and engineering.
- **Phases:**
  1. **Inspiration** – Understand users and gather insights.
  2. **Ideation** – Generate, develop, and refine ideas.
  3. **Implementation** – Turn ideas into real solutions.

**Focus:** Creativity, collaboration, and rapid prototyping.

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**Problem: Senior citizens avoid online medication reminders because apps are confusing.**

- **Inspiration:** Observe seniors managing pills, interview family caregivers → learn the key pain: small text, confusing notifications, trust concerns.
- **Ideation:** Generate options — voice reminders, pillbox with light indicator, SMS reminders, pharmacist-coordinated calls.
- **Implementation:** Build a low-fidelity paper prototype of a voice-enabled reminder flow and a “concierge” pilot where staff call seniors at scheduled times. Test with 10 users, iterate to a simple voice+SMS hybrid. Pilot for 3 months, measure adherence uplift and satisfaction.

## IDEO Model — Detailed Explanation

IDEO's model of design thinking is a human-centered, practice-driven approach for solving complex problems and building innovative products, services, and systems. It's built around three broad, iterative phases — **Inspiration**, **Ideation**, **Implementation** — but each phase contains many concrete activities, mindsets, and artifacts. Below is a thorough, practical breakdown you can use for notes, teaching, or applying the process.

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### 1. Inspiration — understand users and uncover opportunities

**Purpose:** Discover real user needs, latent problems, and contextual constraints. This phase grounds the entire process in human insight.

**Key activities**

- **Desk research / context mapping** — gather background (market, tech, cultural, regulatory).
- **Ethnographic observation** — watch users in their environment to see behavior they may not articulate.
- **In-depth interviews** — open-ended conversations to reveal motivations, pain points, workarounds.
- **Shadowing / ride-alongs** — follow users through real tasks to capture micro-behaviors and exceptions.
- **Immersive methods** — role-playing, experience prototyping (try living the problem).
- **Surveys for breadth** — validate prevalence of observed problems across a larger sample.

### Mindsets to adopt

- Be curious; suspend judgement.
- Seek surprises and contradictions (these signal opportunity).
- Look for emotional as well as functional needs.

### Outputs / artifacts

- User stories and vignettes.
- Journey maps showing steps, pain points, emotions.
- Empathy maps (what users say/think/do/feel).
- “How might we...” opportunity statements.
- A prioritized list of insights and opportunity areas.

### Practical tips

- Use a mix of qualitative (depth) and quantitative (breadth).
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- Capture raw quotes and photos — they're persuasive later.
  - Aim to surface *latent* needs, not just stated wants.
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## 2. Ideation — generate, expand, and refine solution space

**Purpose:** Explore a wide range of possibilities, then converge toward promising concepts.  
Ideation is deliberately divergent then convergent.

### Divergent techniques

- **Brainstorming / brainwriting** — quantity before quality, defer criticism.
- **SCAMPER** — Substitute, Combine, Adapt, Modify, Put to another use, Eliminate, Reverse.
- **Analogy and provocation** — borrow from other domains.
- **Crazy 8s / sketching sprints** — fast individual idea generation.
- **Co-creation sessions** — involve users, cross-disciplinary team members, and stakeholders.

### Convergent techniques

- **Affinity mapping** — group similar ideas and themes.
- **Concept clustering** — form higher-level solution themes.
- **Criteria-based screening** — apply feasibility/viability/desirability (FVD).
- **Value proposition canvas / business model canvas** — test how ideas map to user needs and business.

### Tools & artifacts

- Idea boards, sticky notes, sketches, storyboards.
- Concept descriptions (short pitch + user scenario).

- Rapid concept cards: What it does, who it serves, why it matters.

## Mindsets

- Encourage unusual pairings and cross-pollination of disciplines.
- Frame constraints as creative fuel (time, budget, tech).

## Practical tips

- Time-box divergent sessions (e.g., 15–30 min bursts).
  - Rotate facilitation to keep energy up.
  - Keep early concepts rough — polish comes later.
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## 3. Implementation — make ideas real and scale them

**Purpose:** Prototype, test, refine, and deliver a solution that can be implemented and sustained.

### Stages inside implementation

- **Rapid prototyping (low-fidelity)** — paper mockups, role-plays, click-through wireframes. Fast and cheap.
- **Medium-fidelity & validation** — interactive digital prototypes, mock service rehearsals, concierge/ Wizard-of-Oz approaches to simulate functionality.
- **High-fidelity prototyping** — production-like hardware, code, or pilot services.
- **Pilot and roll-out** — small-scale deployment, performance monitoring, iteration.
- **Scale & sustain** — refine operations, business processes, and handover to delivery teams.

### Testing approaches

- **Usability testing** — observe real users interacting and completing tasks.

- **A/B / multivariate** — compare versions to measure behavior changes (mainly for digital products).
- **Pilot metrics** — measure adoption, retention, task success, qualitative satisfaction.
- **Service pilots** — run the service in controlled real-world settings to test end-to-end.

## Artifacts

- Tested prototypes, design specs, implementation roadmaps.
- KPIs and monitoring dashboards.
- Training and operational documents for teams taking the solution forward.

## Mindsets

- Expect failure and learn quickly — iterate based on evidence.
- Involve implementers early (engineers, operations, finance) to avoid infeasible handoffs.

## Practical tips

- Use “fake it till you make it” techniques (concierge, Wizard-of-Oz) to test core value before building heavy tech.
  - Define a minimum lovable product (MLP) or minimum viable service (MVS) — not just an MVP in technical terms.
  - Plan for transition: who owns the product after the design team steps back?
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## Cross-cutting practices IDEO emphasizes

### 1. Multidisciplinary teams

- Designers, engineers, business strategists, subject-matter experts, and users working together accelerate discovery and reduce blind spots.

## **2. Prototyping mindset**

- Build to think; prototypes are experiments, not demonstrations.

## **3. Storytelling**

- Use narratives and artifacts to communicate insights and rally stakeholders.

## **4. Co-creation with users**

- Treat users as partners in design — they help shape realistic, desirable solutions.

## **5. Rapid cycles**

- Short build/test/learn loops reduce risk and uncover unexpected user reactions.
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## **Typical timeline & deliverables for a small project (example)**

- **Week 1–2 (Inspiration):** Field interviews, observations → Journey map, empathy map, opportunity briefs.
- **Week 3 (Ideation):** Divergent ideation sprints → Concept cards and storyboards.
- **Week 4–6 (Prototype & Test):** Paper prototypes → clickable wireframes → user tests → iteration.
- **Week 7–8 (Pilot/Implementation):** High-fidelity prototype/pilot → metrics dashboard → handoff plan.

(Adjust scale/time based on project complexity.)

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## **Common pitfalls & how to avoid them**

- **Pitfall:** Jumping to solutions before understanding users.  
**Avoid by:** Spending adequate time in field research and validating assumptions.
  - **Pitfall:** Siloed teams (no engineering/business input).  
**Avoid by:** Forming cross-functional teams and involving implementers early.
  - **Pitfall:** Overbuilding without testing desirability.  
**Avoid by:** Prototyping cheaply and testing value propositions first.
  - **Pitfall:** Treating prototyping as a polishing stage.  
**Avoid by:** Using prototypes primarily for learning, not presentation.
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## Example mini case (concise)

Problem: Senior citizens avoid online medication reminders because apps are confusing.

- **Inspiration:** Observe seniors managing pills, interview family caregivers → learn the key pain: small text, confusing notifications, trust concerns.
  - **Ideation:** Generate options — voice reminders, pillbox with light indicator, SMS reminders, pharmacist-coordinated calls.
  - **Implementation:** Build a low-fidelity paper prototype of a voice-enabled reminder flow and a “concierge” pilot where staff call seniors at scheduled times. Test with 10 users, iterate to a simple voice+SMS hybrid. Pilot for 3 months, measure adherence uplift and satisfaction.
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## Quick checklist for running an IDEO-style project

- Form a multidisciplinary team.
- Spend 30–50% time on research (Inspiration).
- Capture raw user quotes and video/photos.
- Run at least two divergent ideation sessions with different prompts.

- Prototype early, test with real users, and iterate fast.
  - Define KPIs before scaling (adoption, task success, NPS/qualitative feedback).
  - Prepare handoff docs and an implementation owner.
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## One-line summary

IDEO's model turns human insight into tangible solutions through empathy-led research (Inspiration), broad creative exploration (Ideation), and practical experiments that lead to real-world impact (Implementation) — all driven by prototyping, multidisciplinary collaboration, and continuous learning.

## 2 Empathize & Define: User Interviews and Surveys

### Empathize

- The goal is to **see the world through the user's eyes**.
- Helps uncover **latent needs** (what users don't say directly).

#### Methods:

- **User Interviews:**
  - One-on-one conversations to explore user behavior, pain points, and motivations.
  - Use open-ended questions ("How do you usually...?", "What frustrates you about...?").
- **Surveys/Questionnaires:**
  - Collect quantitative data from a larger group.
  - Useful for identifying trends and validating interview findings.

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### Define

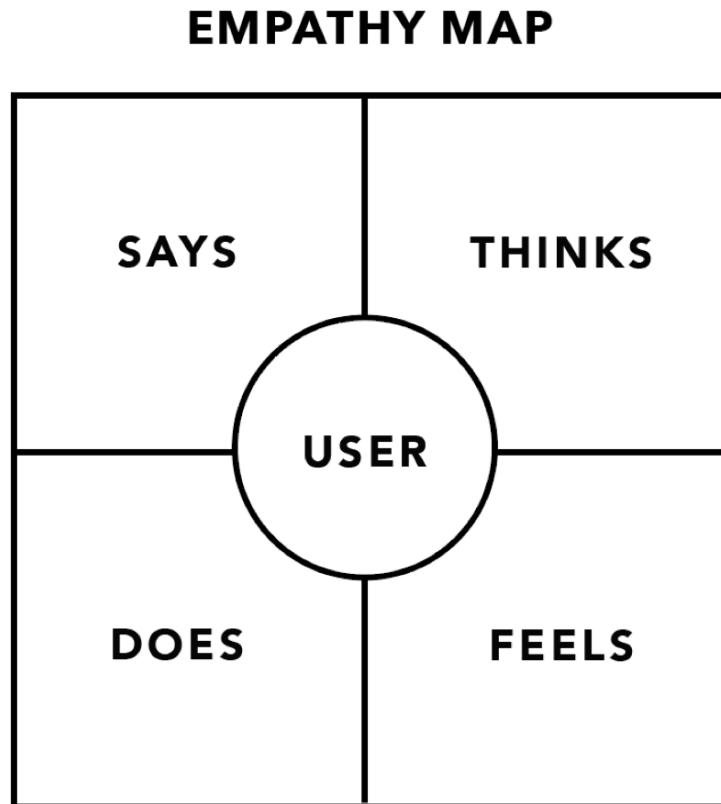
- The synthesis phase — transform observations into **clear problem statements**.
  - Focus on the **right problem to solve**, not just the obvious one.
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## 3 Empathy Maps

**Purpose:** Visual tool to understand users' mindset and emotions.

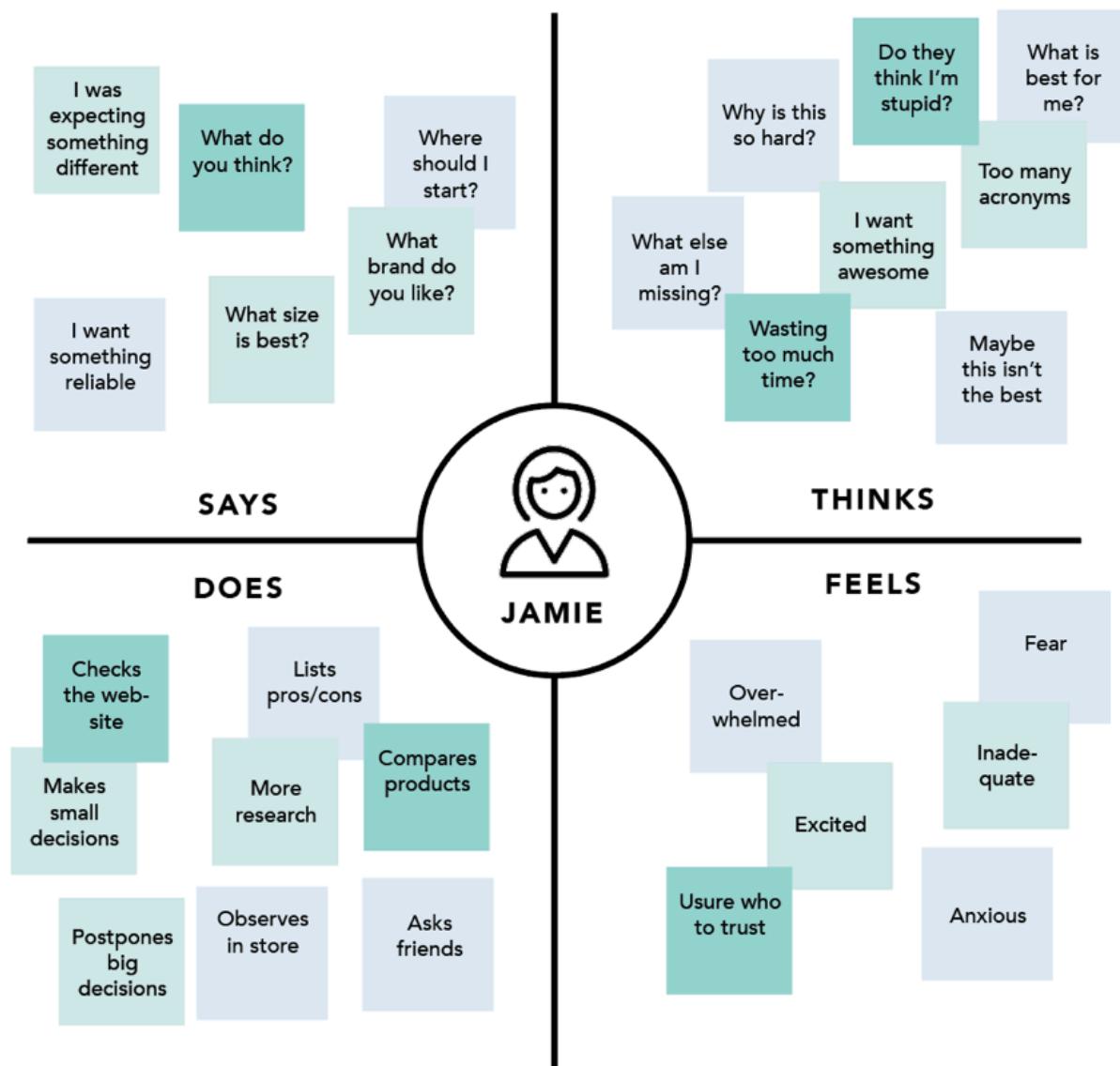
**Four Quadrants:**

1. **Says** – What the user verbally expresses.
2. **Thinks** – What they think privately (insights or beliefs).
3. **Does** – Actions and behaviors observed.
4. **Feels** – Emotional responses and motivations.



<https://www.nngroup.com/articles/empathy-mapping/>

## EMPATHY MAP Example (*Buying a TV*)



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**Use:** Combines qualitative data into a single, user-centered perspective.

## 4 Problem Statements

**Definition:** A clear, actionable statement defining the user's problem.

**Formula:**

[User] needs a way to [user's need] because [insight or reason].

**Example:**

A college student needs a way to manage time effectively because balancing assignments, classes, and personal commitments is overwhelming.

**Tips:**

- Focus on **users, not technology**.
  - Avoid embedding solutions in the statement.
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## 5 Ideate: Divergent and Convergent Thinking

### Divergent Thinking

- **Goal:** Generate as many ideas as possible.
- **Methods:** Brainstorming, mind mapping, SCAMPER, brainwriting.
- No criticism; encourage wild ideas.

### Convergent Thinking

- **Goal:** Narrow down and select the best ideas.
  - Evaluate based on feasibility, viability, and desirability (FVD).
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## 6 Idea Selection using FVD (Feasibility–Viability–Desirability)

Criteria	Description	Key Question
<b>Feasibility</b>	Can we build it? (Technical capability, time, resources)	Is it technically possible?
<b>Viability</b>	Should we build it? (Business model, cost-effectiveness)	Is it financially sustainable?
<b>Desirability</b>	Do users want it? (User needs, emotional appeal)	Will users value and adopt it?

**Sweet Spot of Innovation:** Intersection of all three dimensions.

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## 7 Prototype and Test

### Prototyping

- Process of creating **tangible models** of ideas.
- Helps visualize, communicate, and test solutions early.

#### Types:

- **Low-fidelity:** Simple, inexpensive representations (paper sketches, wireframes).
  - **High-fidelity:** Detailed, interactive, close to final product (CAD models, working apps).
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### Rapid Prototyping Tools

Tool	Description	Example
<b>Paper Prototypes</b>	Quick hand-drawn sketches or mockups	App screen sketches

<b>CAD (Computer-Aided Design)</b>	Digital 3D models used for design and simulation	SolidWorks, AutoCAD
<b>3D Printing</b>	Physical models created layer-by-layer from CAD	Functional product mockups

**Goal:** Test ideas quickly and iteratively with minimal cost.