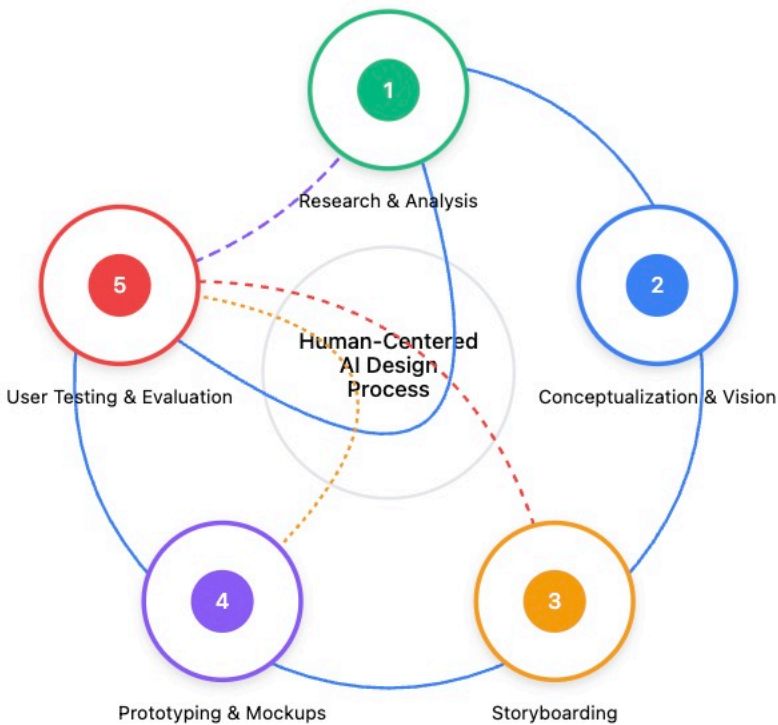


Process Flow Diagram

Visual representation of the iterative HCAI design cycle with feedback loops



Flow Legend

- Main Flow**
— Sequential progression through design stages
- Major Revisions**
- - - Testing → Storyboarding (workflow changes)
- Minor Refinements**
... Testing → Prototyping (interface tweaks)
- Fundamental Changes**
- - - Testing → Research (new requirements)

Process Overview

- 1 Research & Analysis
- 2 Conceptualization & Vision
- 3 Storyboarding
- 4 Prototyping & Mockups
- 5 User Testing & Evaluation

Key Design Principles

Storyboards vs. Prototypes

Storyboards focus on the user's holistic journey and experience over time, capturing context and emotional state. Prototypes simulate the system's interface and functionality for testing specific components.

AI System Complexity

AI components involve system automation and behind-the-scenes processes. This iterative approach ensures AI functionality integrates seamlessly with existing work practices rather than disrupting them.

Cost Reduction

Early prototyping and testing can achieve 3:1 cost savings by identifying significant problems before expensive development phases, preventing investment in unnecessary AI features.

Detailed Process Breakdown

In-depth exploration of each stage in the HCAI design process

1

Research & Analysis

Establish User Needs & Context (The starting point for HCAI design.)

Key Artifacts & Processes

User Interviews Personas Journey Maps Consolidated Sequence Models

Relationship to HCAI

Focuses on understanding the user's context and work practice, which is paramount before introducing complex AI automation. This stage ensures that any AI system will be grounded in real user needs rather than technological possibilities.

2

Conceptualization & Vision

Tangible Speculation / Defining the Solution (Setting the direction for the new system, including AI activity.)

Key Artifacts & Processes

Consolidated Vision Low-Level Vision AI Capability Mapping

Technology Assessment

Relationship to HCAI

Defines how new technology, including proposed AI capabilities, will better achieve the user's intent. This stage bridges user needs with AI possibilities, ensuring the vision is both ambitious and achievable.

3

Storyboarding

Visualizing Interaction & Automation Sequence (Focus: User Journey, Context, and AI Workflow.)

Key Artifacts & Processes

Storyboards (Low-Fidelity) Interaction Sketches Workflow Panels

Automation Steps AI Decision Points

Relationship to HCAI

Used to work out the details of system activity and automation. Helps the team think synthetically about the AI's role in the full work process, ensuring AI enhancement doesn't disrupt existing workflows but enhances them naturally.

4

Prototyping & Mockups

Simulating the Interface and Functionality (Focus: Interface Layout, Structure, and Usability.)

Key Artifacts & Processes

Paper Prototypes Digital Wireframes Interactive Mockups

Wizard of Oz Prototypes AI Simulation

Relationship to HCAI

Used to test core functionality, concepts, and terminology. If AI functionality is complex, the Wizard of Oz technique allows exploration of advanced AI concepts beyond current technology, helping validate AI interactions before expensive development.

5

User Testing & Evaluation

Gathering Feedback and Identifying Flaws (Testing whether the design supports the user's goals.)

Key Artifacts & Processes

Usability Tests Feedback Collection Issue Identification

Pluses/Minuses Analysis AI Performance Metrics

Relationship to HCAI

Data from tests validates the design empirically and minimizes opinion-based discussions about the complex interface. Testing finds flaws in the working simulation and reveals unnecessary AI features that might get in the way of the application's real purpose.