

Designing for Control

From Command to
Co-Creation in
Human-AI Interaction

Agenda

- 1 **Context:** The Paradigm Shift in AI Interaction
- 2 **Framework:** A Three-Layer Model for Control
- 3 **Research:** Operationalizing Control
- 4 **Transfer:** Impact for Hochschule Aalen

The Paradigm Shift

Redefining Autonomy: From Execution to Direction



**Command Based
Interfaces (CLI & GUI)**

Passive Tool

Evolution of the Tool



**Generative Artificial
Intelligence (AI)**

Autonomous
Partner

Control

Manual Execution

Shift of Autonomy

Curation

Strategic Direction

**Human
Creativity**

Expansion of Creativity

**Augmented
Creativity**

The Problem: Chat as a "Command Bottleneck"

Welcome

How can I help you today?

+ Research

Claude Sonnet 4

Write Learn Code Life stuff Connect apps NEW

From idea to app in an instant
Build with AI that means business

Help me track marketing's progress against project goals and deadlines for our upcoming brand launch

New Suggestion

Build it now

perplexity

Ask anything...

Search

Web Search

Parenting Troubleshoot Fact Check Local Sports

What can I help with?

Ask anything

Attach Search

Voice

Get advice Analyze data Analyze images Summarize text More

Hello
What can I do for you?

Give Manus a task to work on...

Attach

Voice

Slides Image Video Webpage Playbook

Hi, I'm DeepSeek.

How can I help you today?

Message DeepSeek

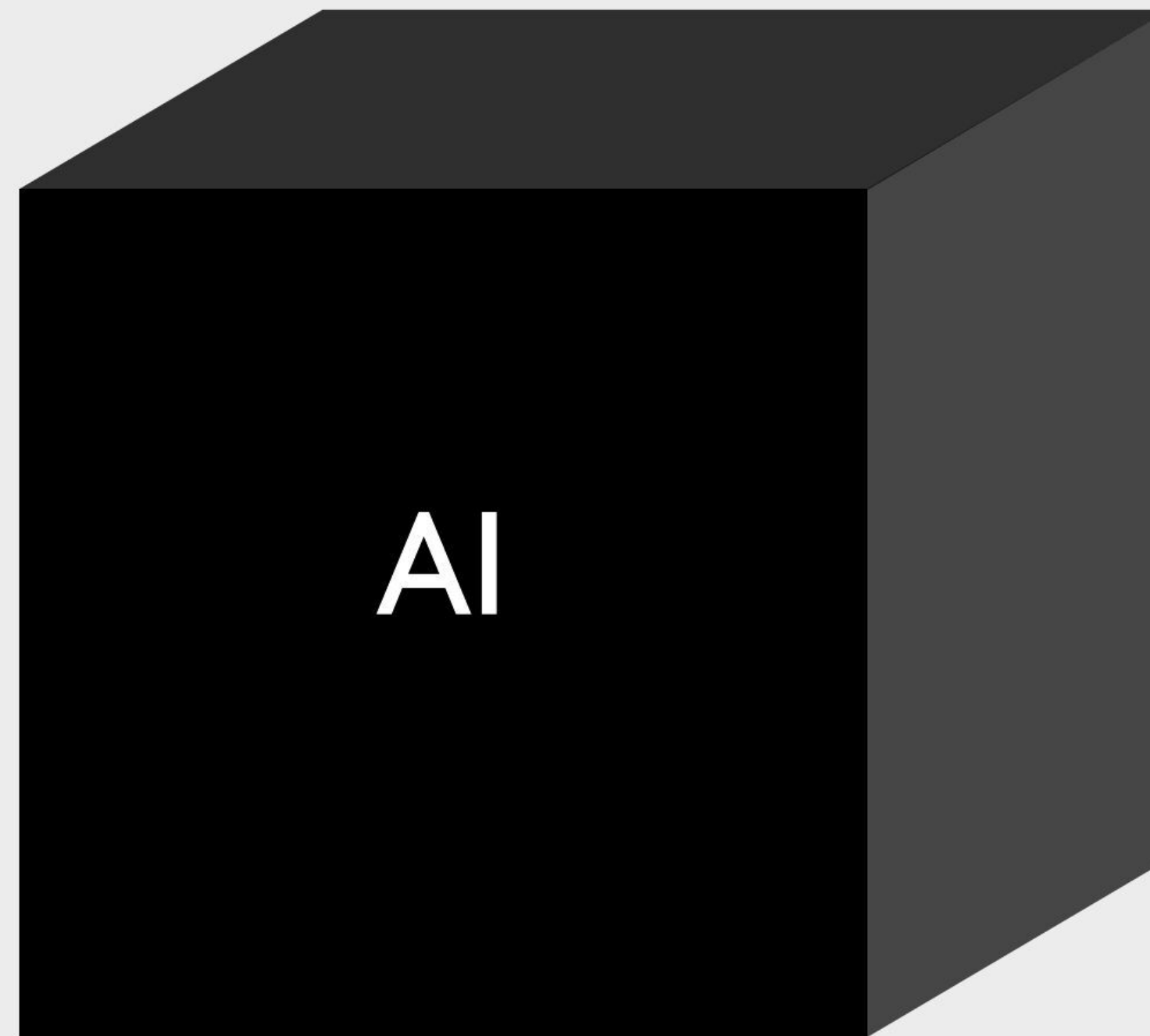
DeepThink (R1) Search

Attach

AI becomes a Black Box

Lack of Transparency

Loss of Control



Loss of Judgment

***"The AI we want to see must be
human-centered and dynamic."***

Dan Saffer

Scientific Basis: Augmented Creativity

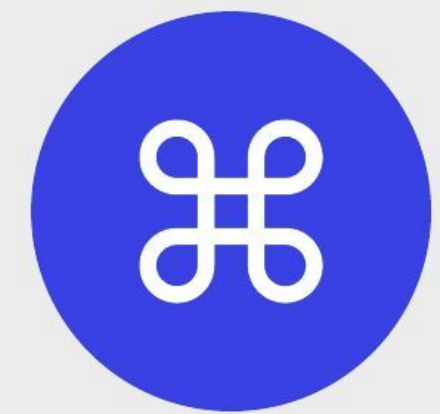
**"Vom Gestalten zum Kuratieren:
Autonomie im hybriden Designprozess."**



**Augmented
Creativity**



**Redefinition of the
Designer Role**

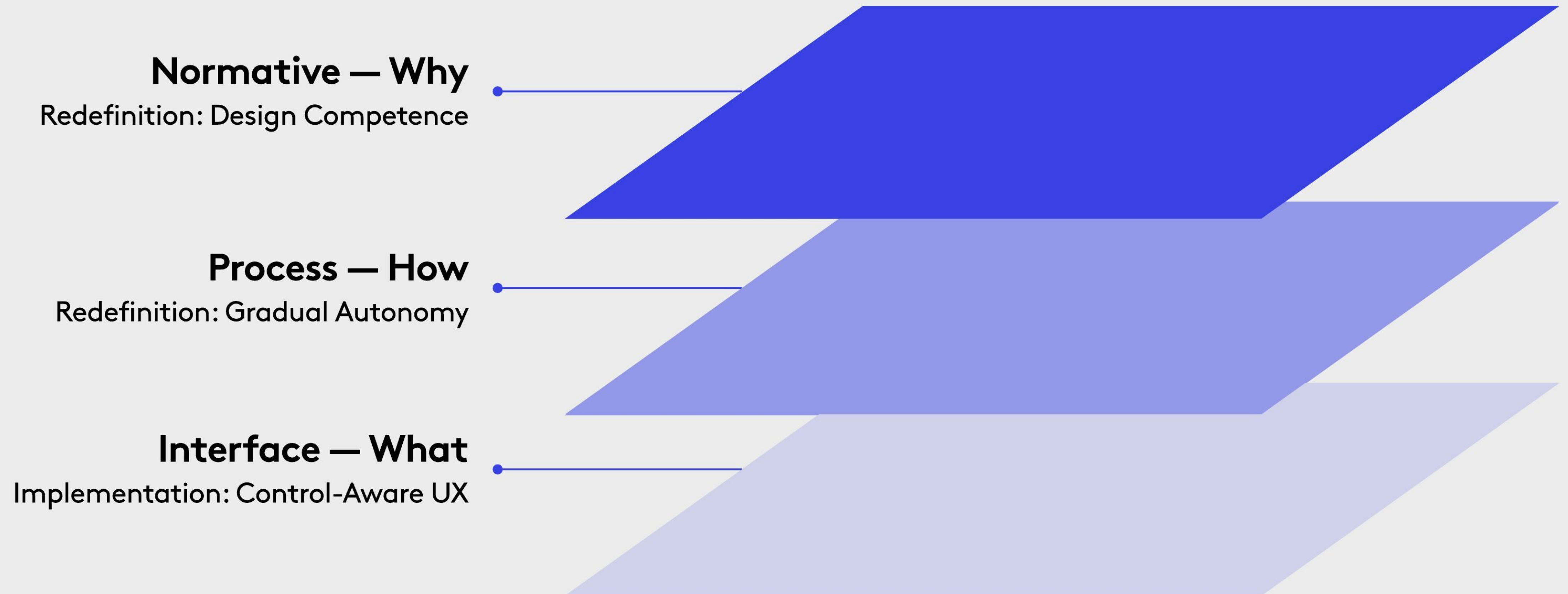


**Human-in-
the-loop**

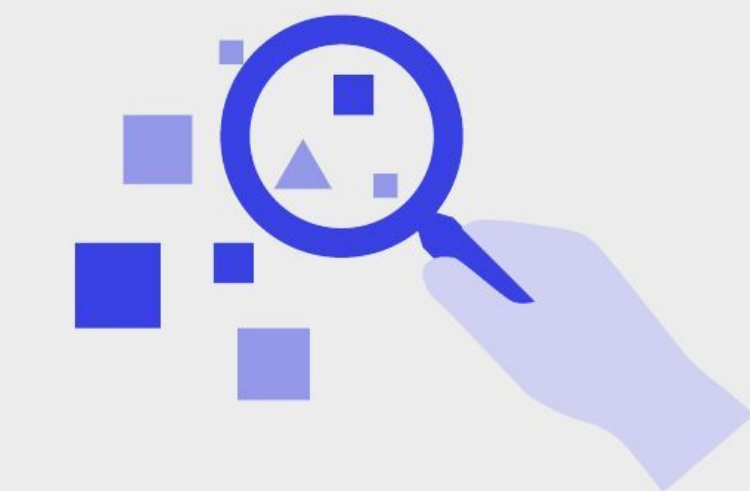


Witzke, Dominik. "Vom Gestalten zum Kuratieren: Autonomie im hybriden Designprozess."
In *Designforschung und KI: Ästhetische Transformation im Zeitalter artifizierter Systeme*.
Wiesbaden: Springer Fachmedien Wiesbaden, 2025. 87-105.

The Solution: A Systematic Three-Layer Model



Normative — Why Redefinition: Design Competence

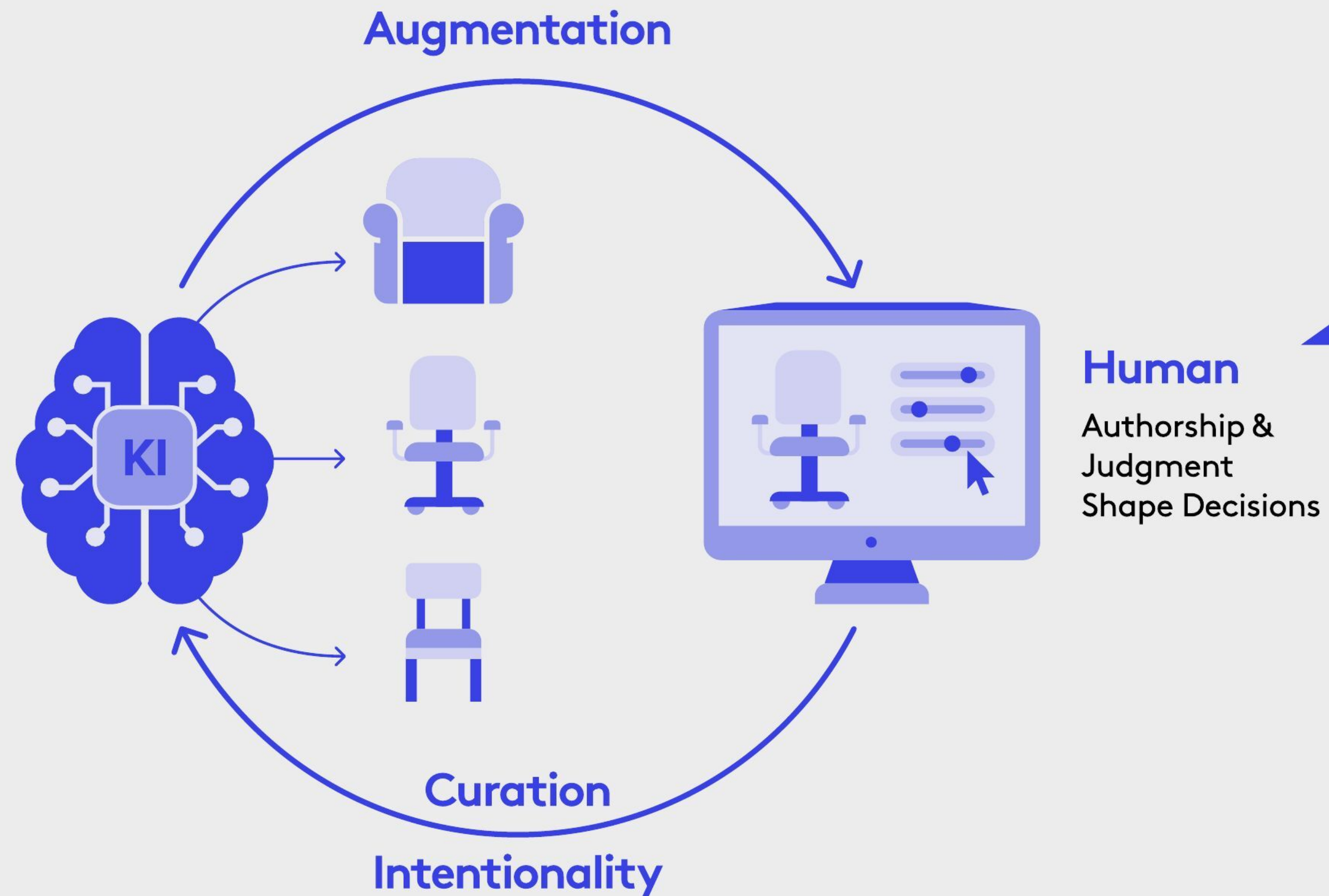


Augmented Creativity

The New Competence:
Curatorial Activity

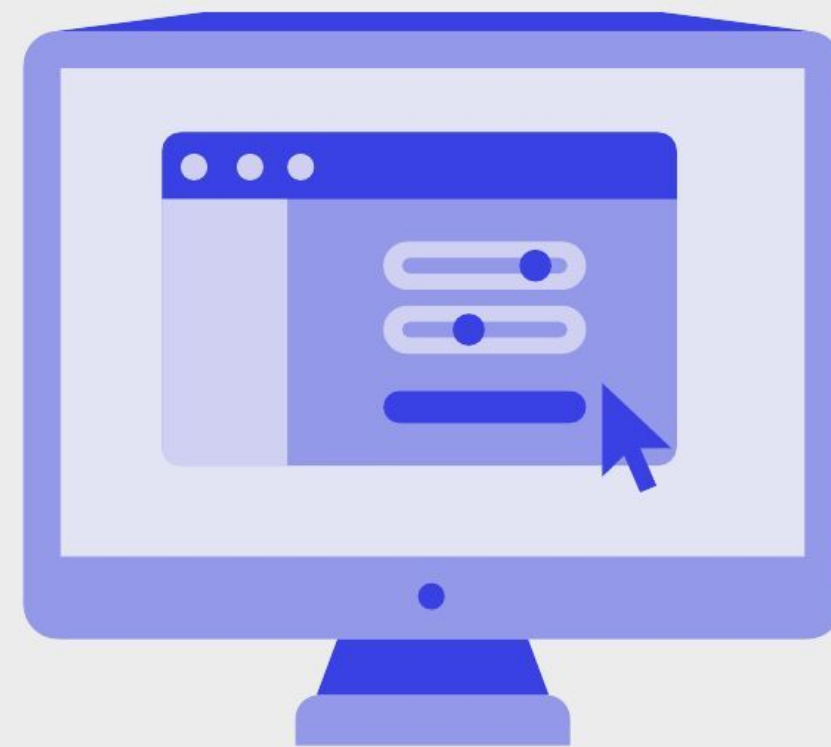
Generative AI

AI creates the
space of possibility



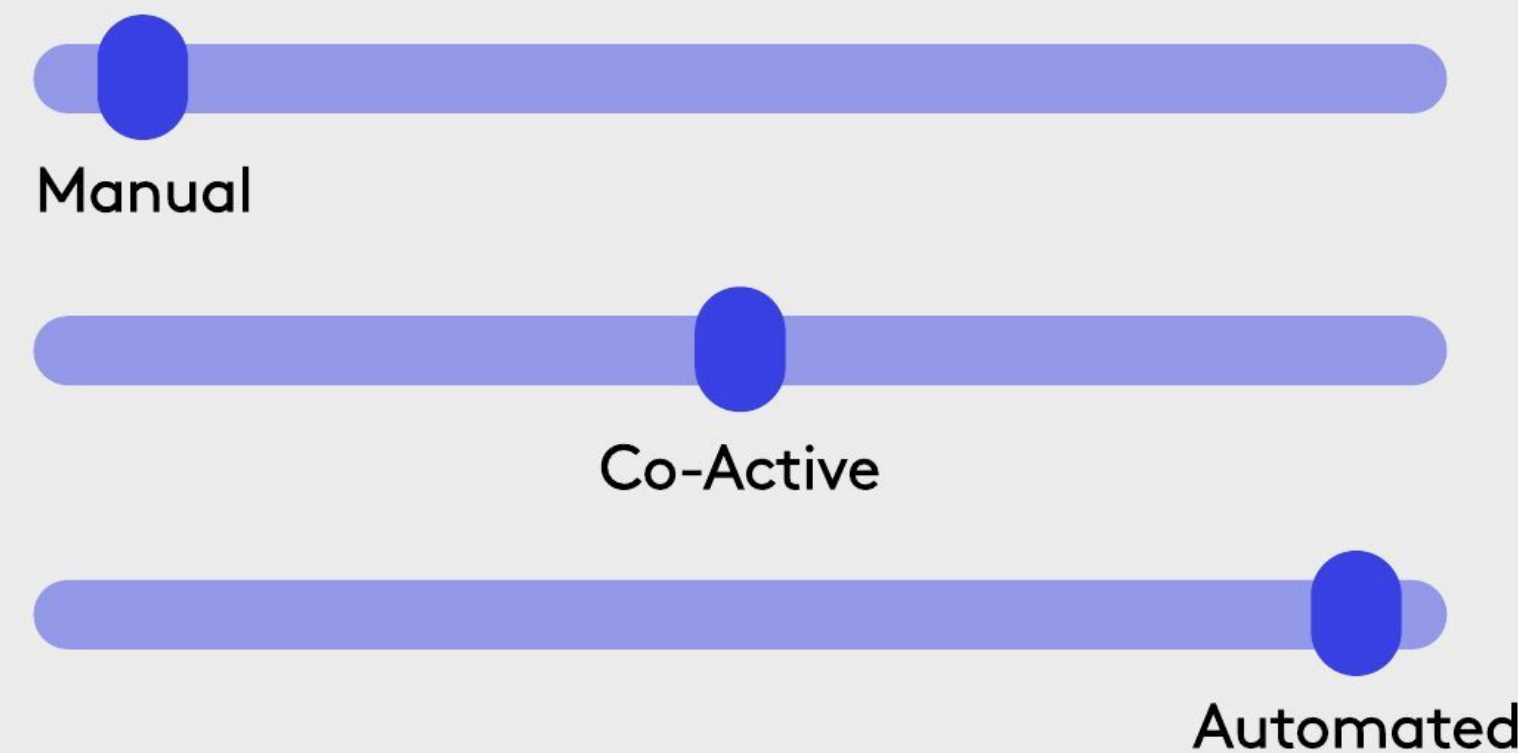
Process — How Redefinition: Gradual Autonomy

Human-AI Collaboration

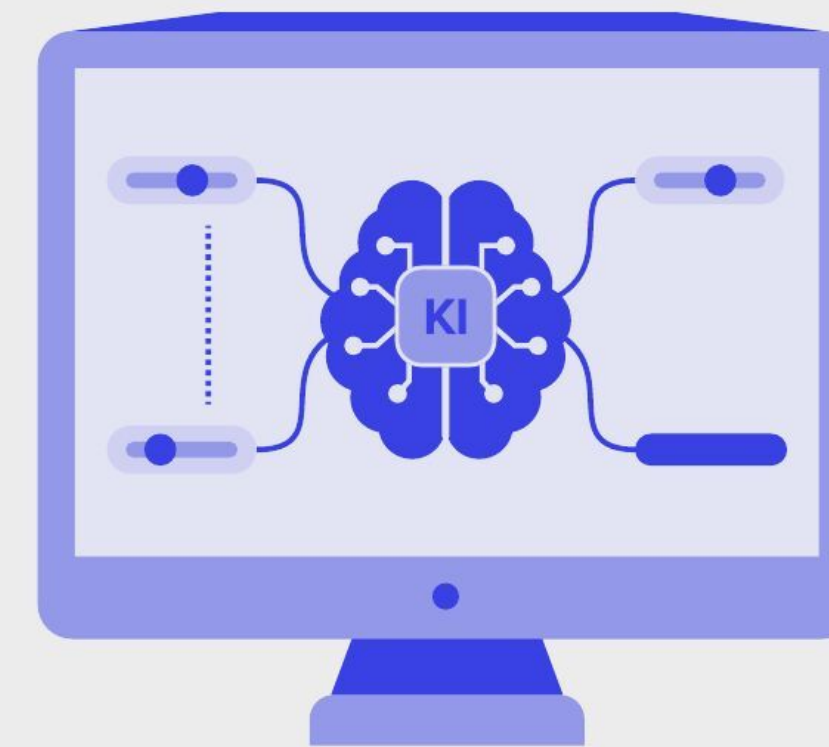


Human Control

Human acts manually
and performs the
detailed work



The Spectrum of Collaboration

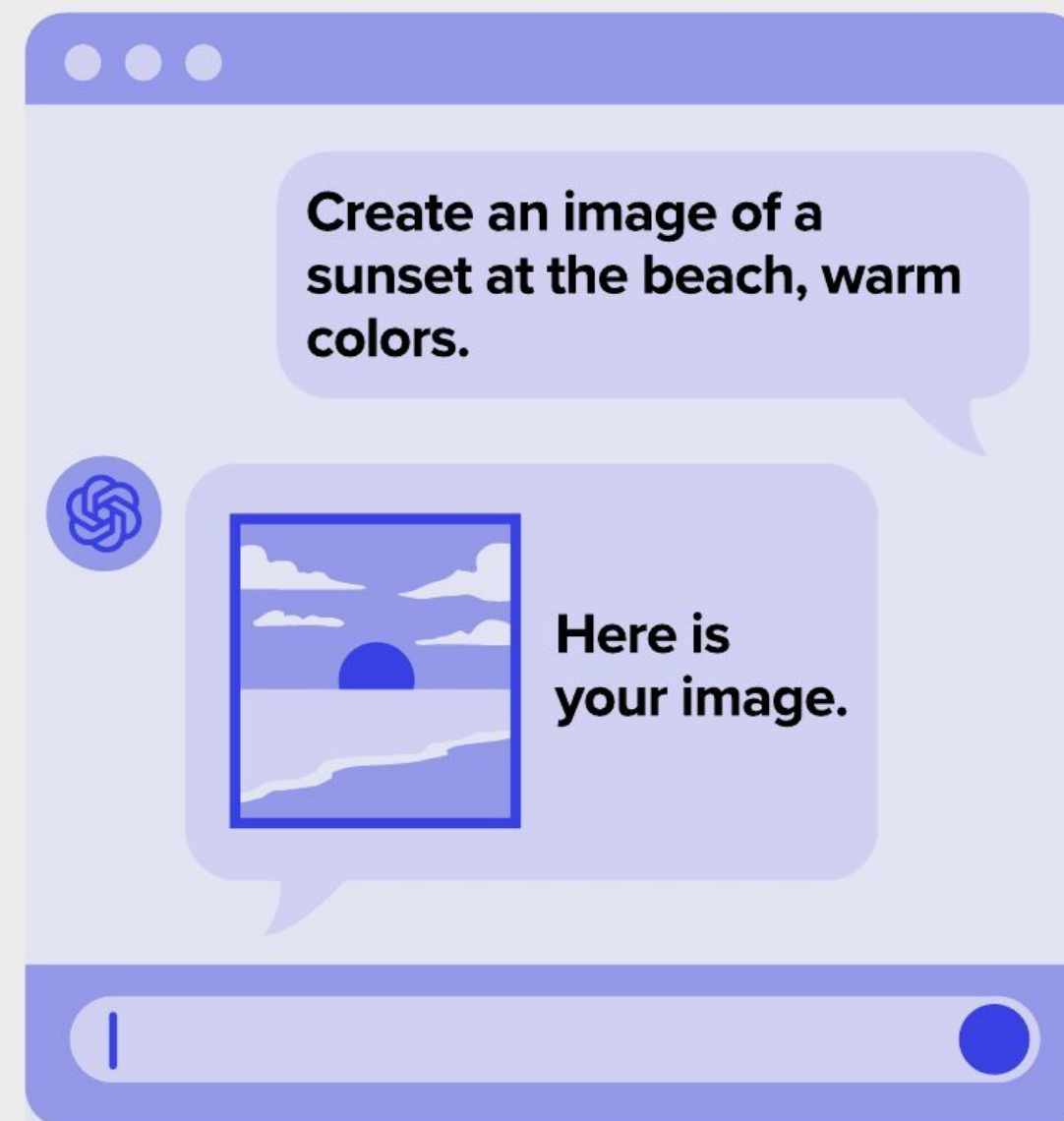


AI Automation

AI acts autonomously
and takes over mass
production

Interface — What

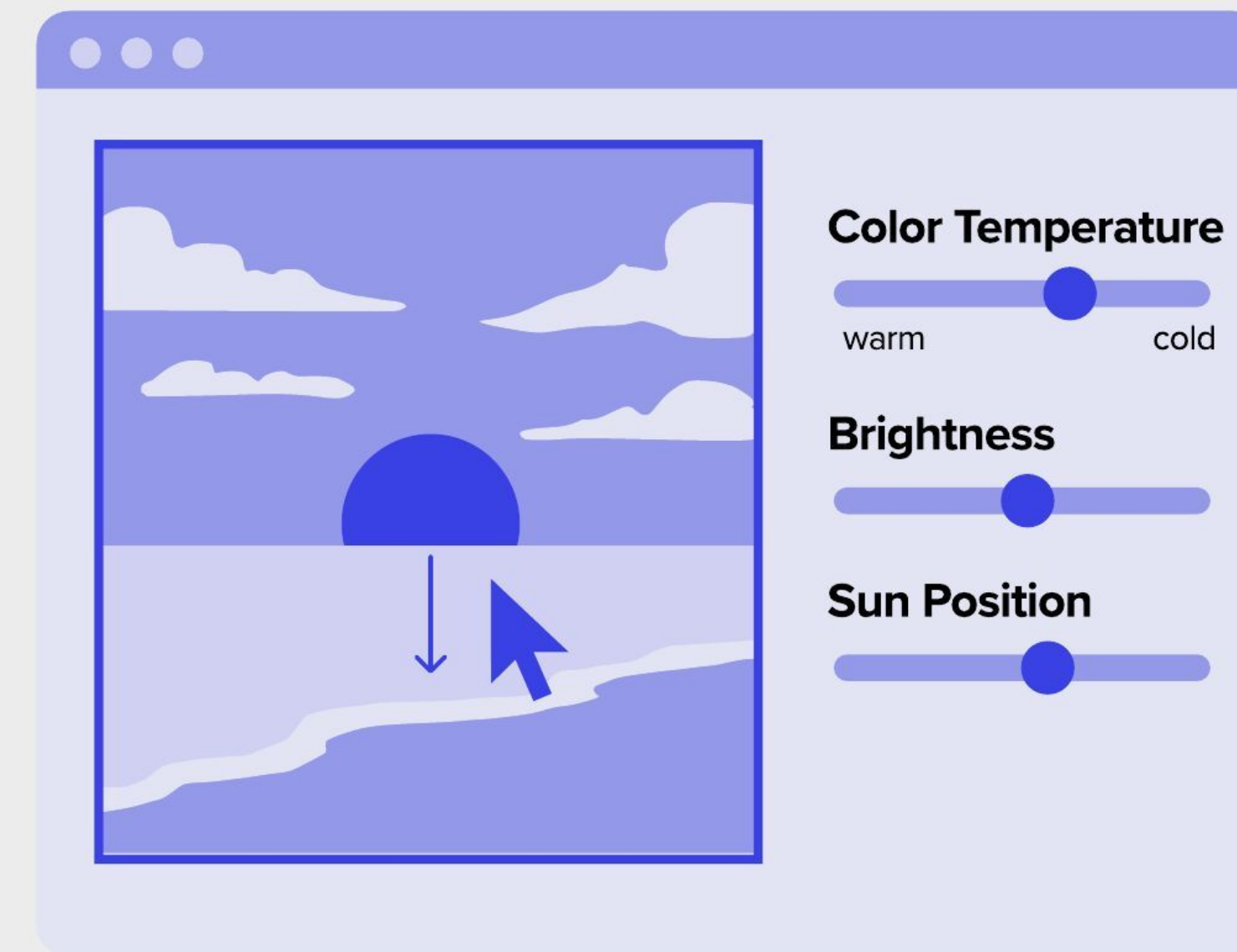
Implementation: Control-Aware UX



Chat

Sequential chat and
command pattern

Beyond-Chat & XUI



Controlled Implementation

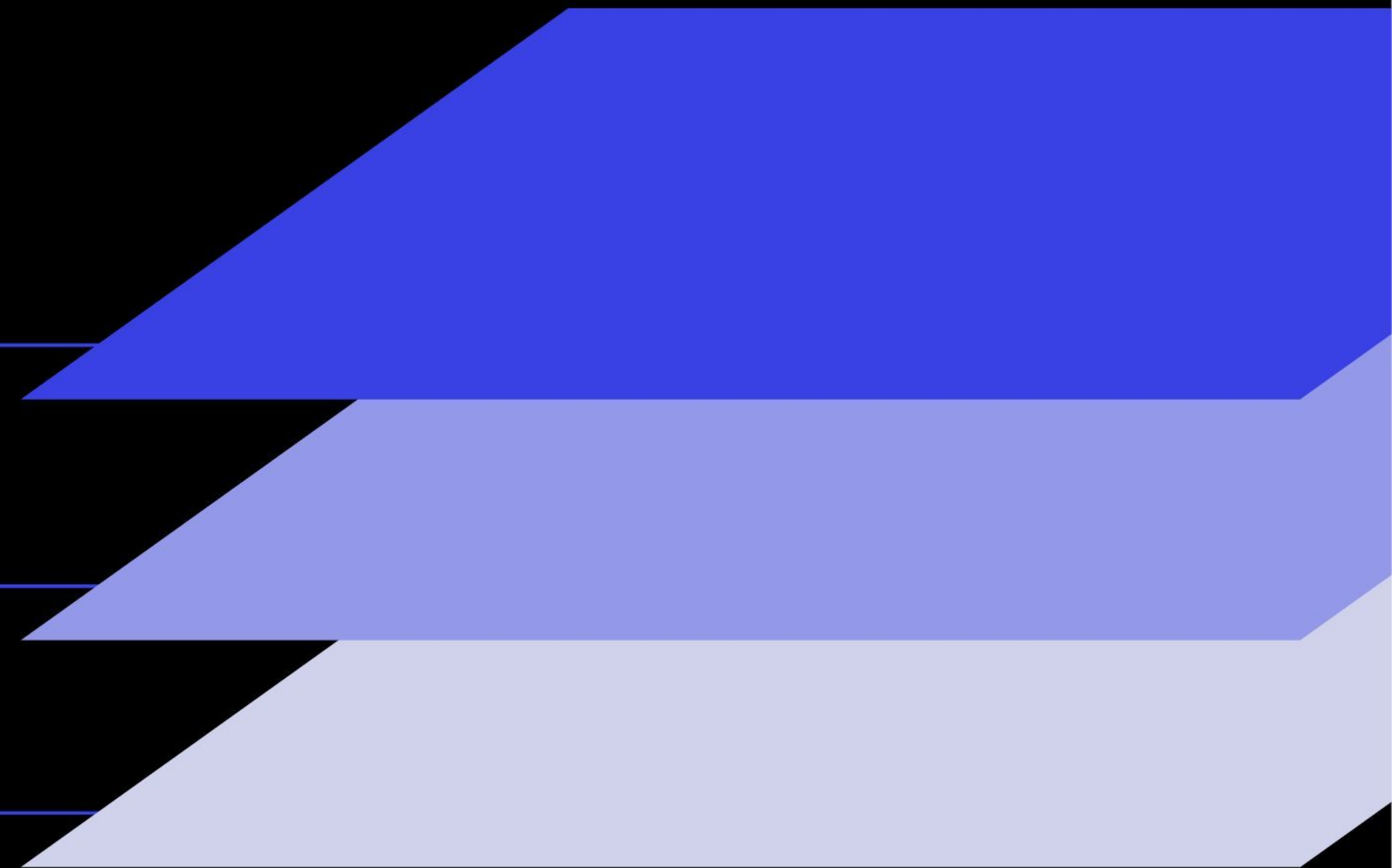
Visual and directly
manipulable parameters

The Research Map: From Framework to Questions

How do we ensure reliability in safety-critical systems?

How do we build trust through explainability?

How do we enable creative exploration beyond chat?



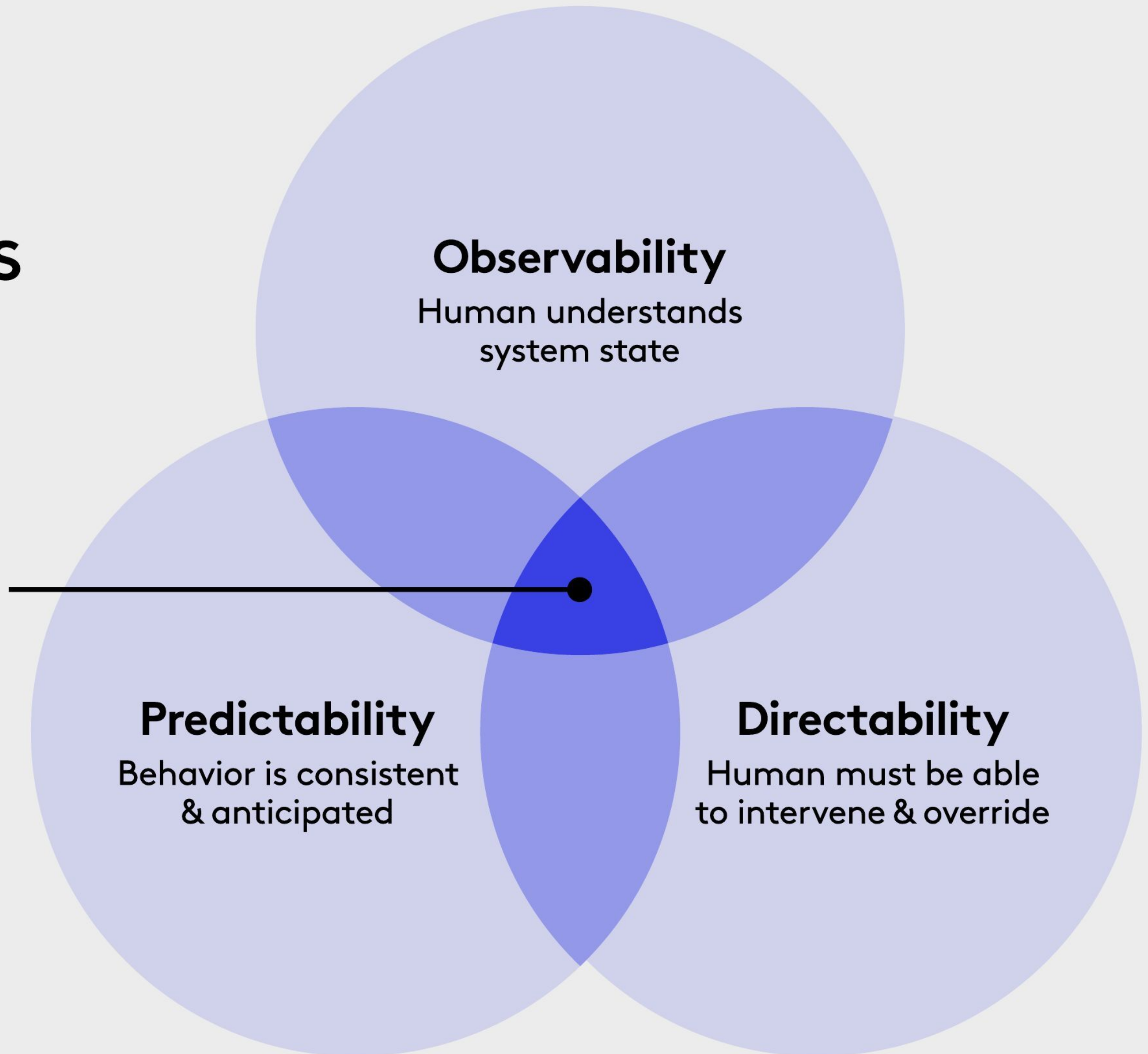
Solution F1

Reliable Control in Safety-Critical Contexts

**Reliable Control &
Trustworthy Autonomy**

The Dimensions of Reliable Control

Context: Industry 4.0 and
Medical Technology.

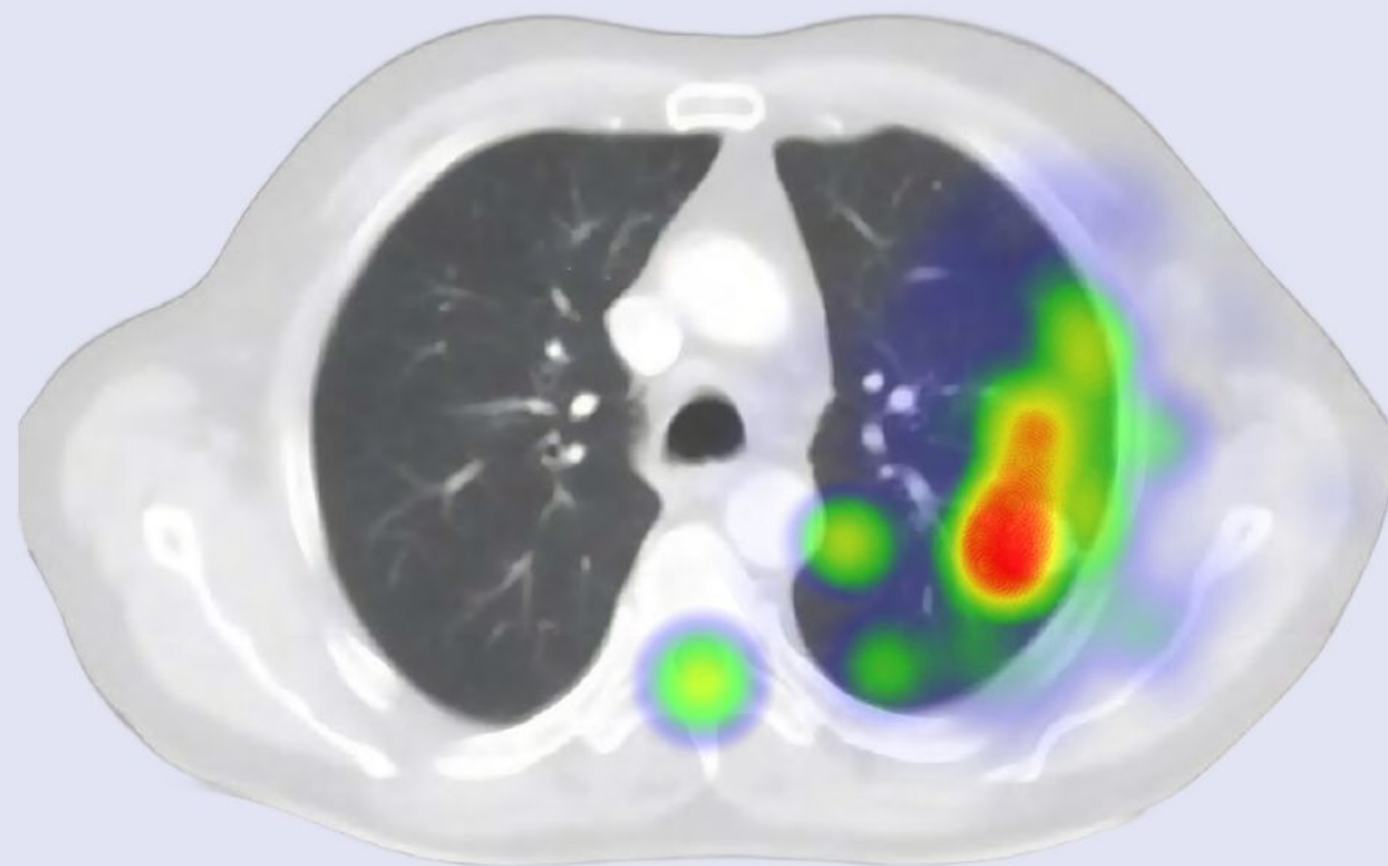


Solution F1

Reliable Control in Safety-Critical Contexts

The Binary Loop

Trial & Error Loop



Prompt: "Optimize Plan"

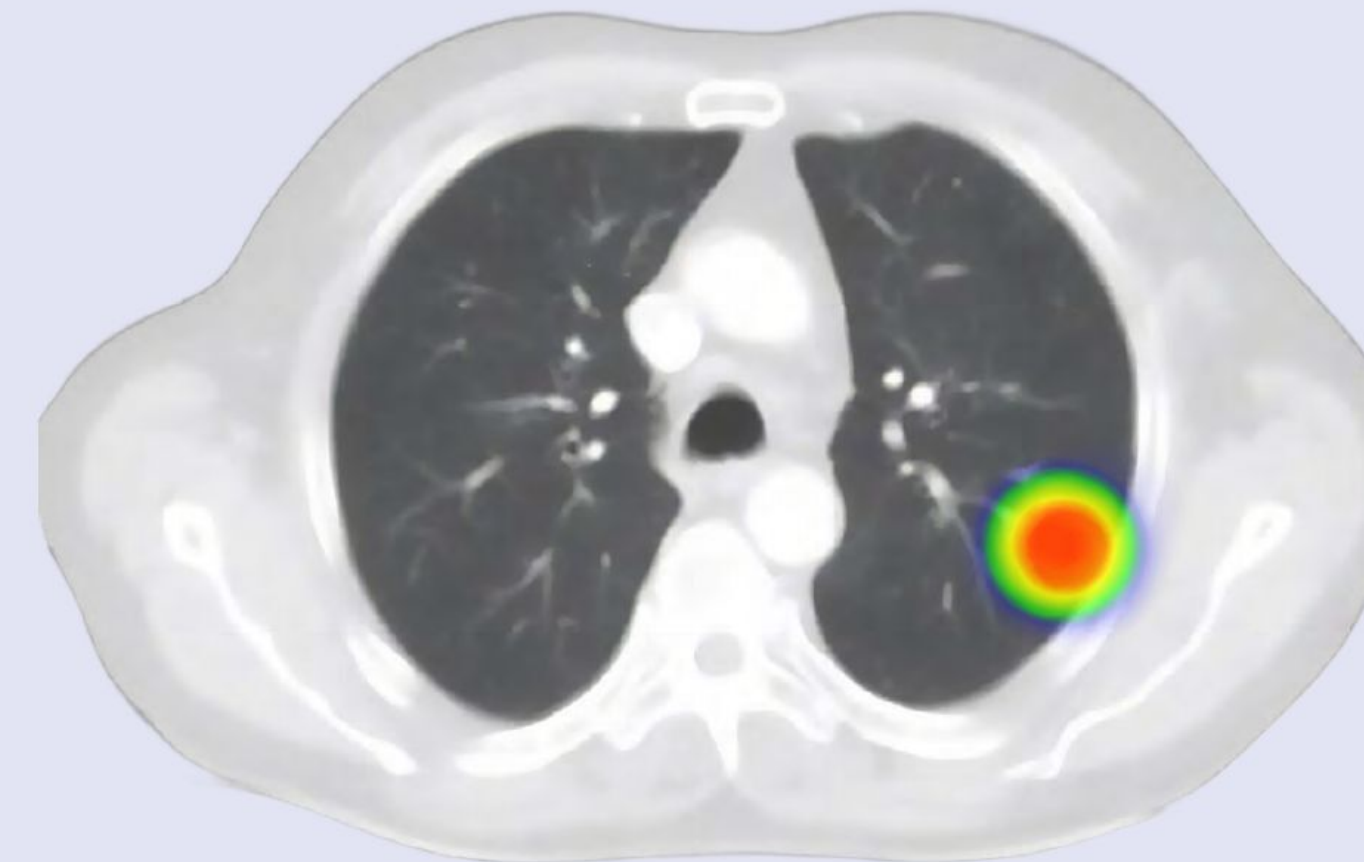
Reject

Accept



The Directable Loop

Alignment-in-the-Loop



Organs at Risk

Spinal Cord < 45 Gy



Heart < 26 Gy

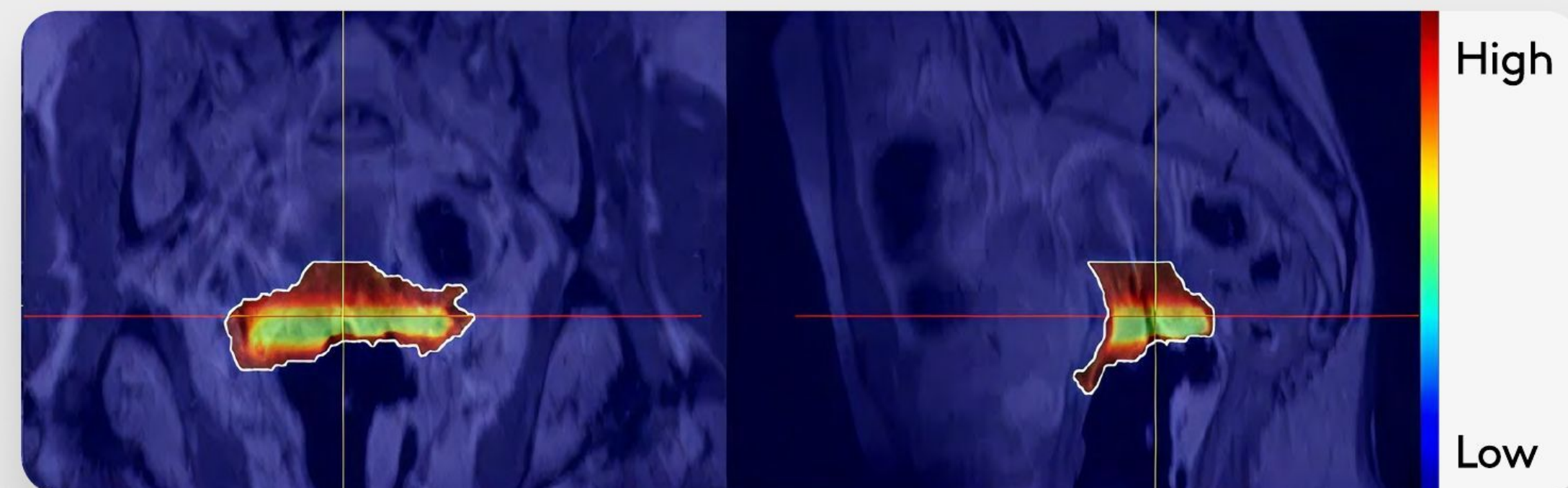


Solution F2

Meaningful XAI & Trust

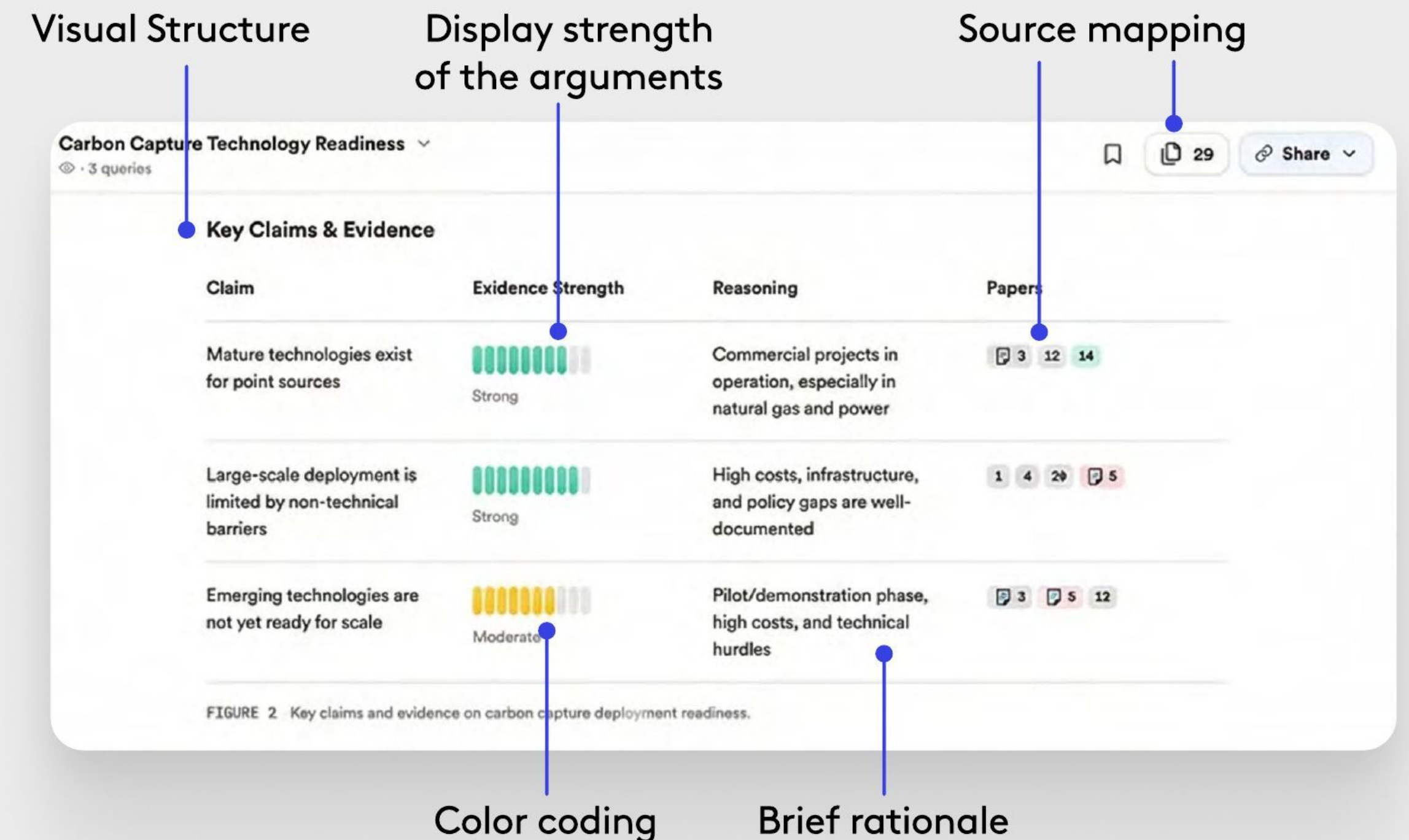
Uncertainty Visualization

Context: Decision Support.



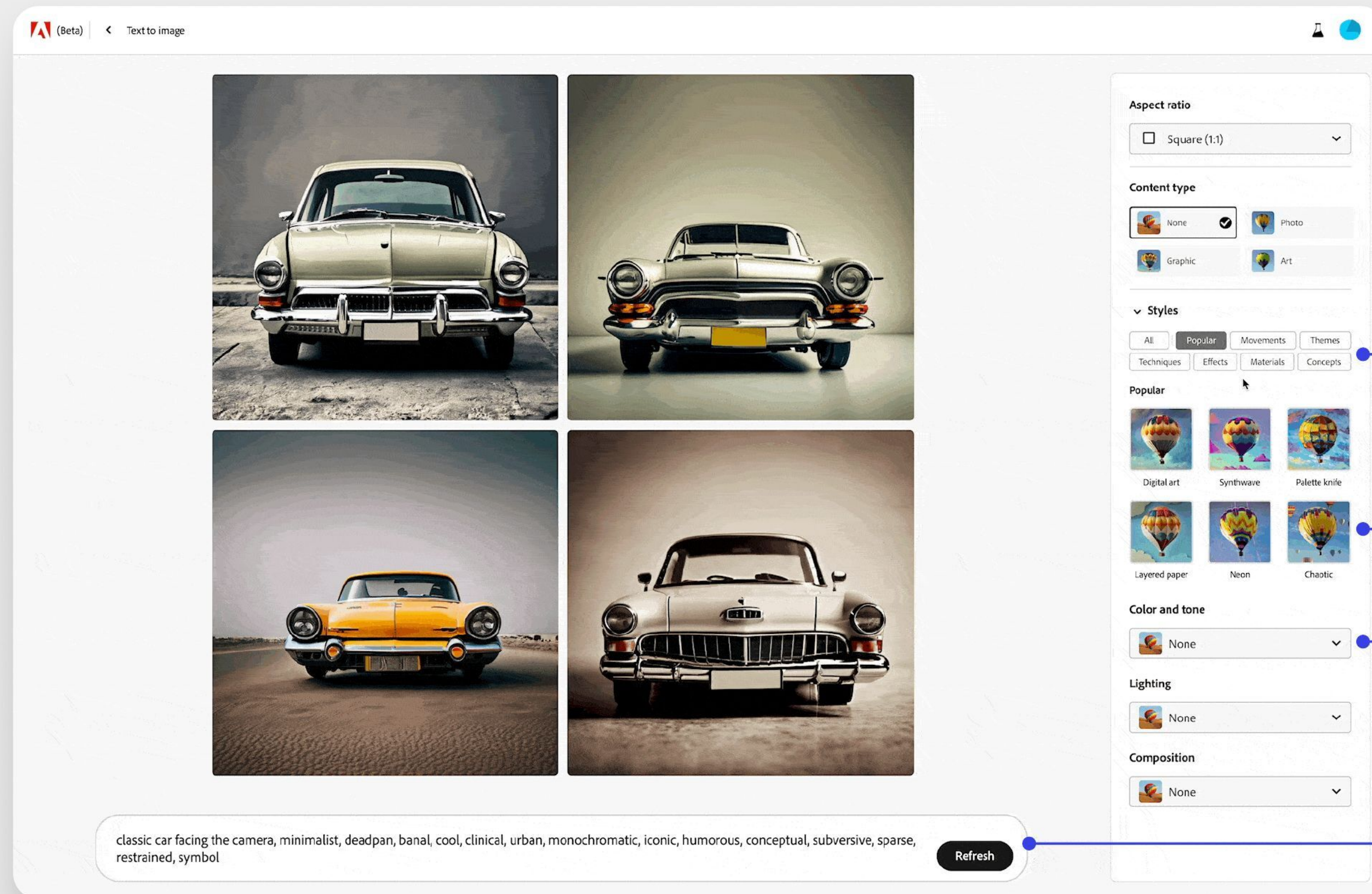
Transparency builds confidence

Context: Understand the rationals



Solution F3a

Beyond Chat: Visual & Parametric Control



Parametric and direct manipulation

Context: Design/Construction (Fine-grained control).

Control Points

Presets

Dropdowns

Textinput

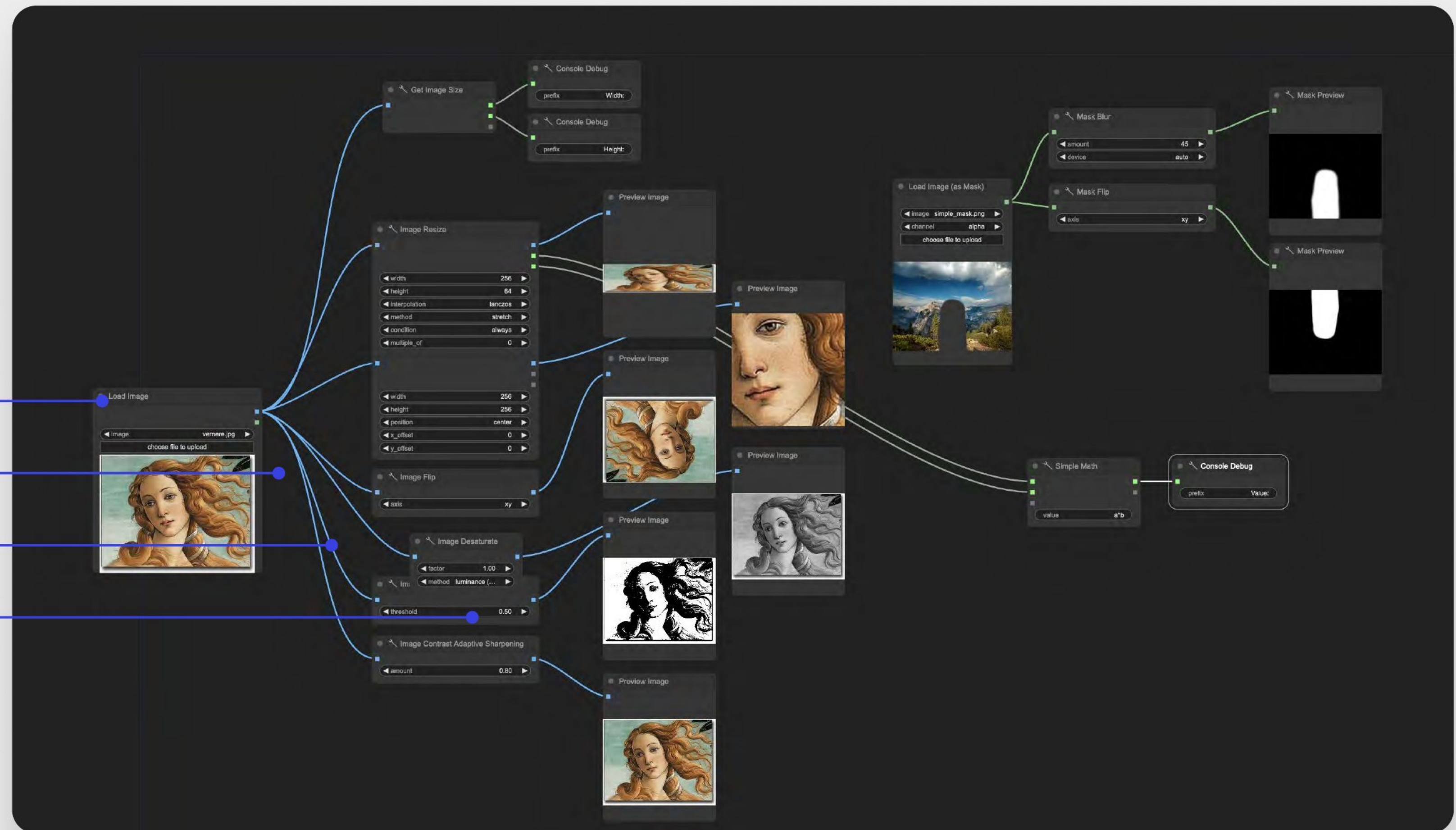
Solution F3b

Beyond Chat: Canvas- & Node-Based Control

Non-linear-AI-pipeline

Context: Design/Construction
(Architectural control)

Nodes
Branching Point
Connectors
Intervention points



Synthesis: Empowering Human Autonomy



Directability



Explainability



UI Patterns Beyond Chat

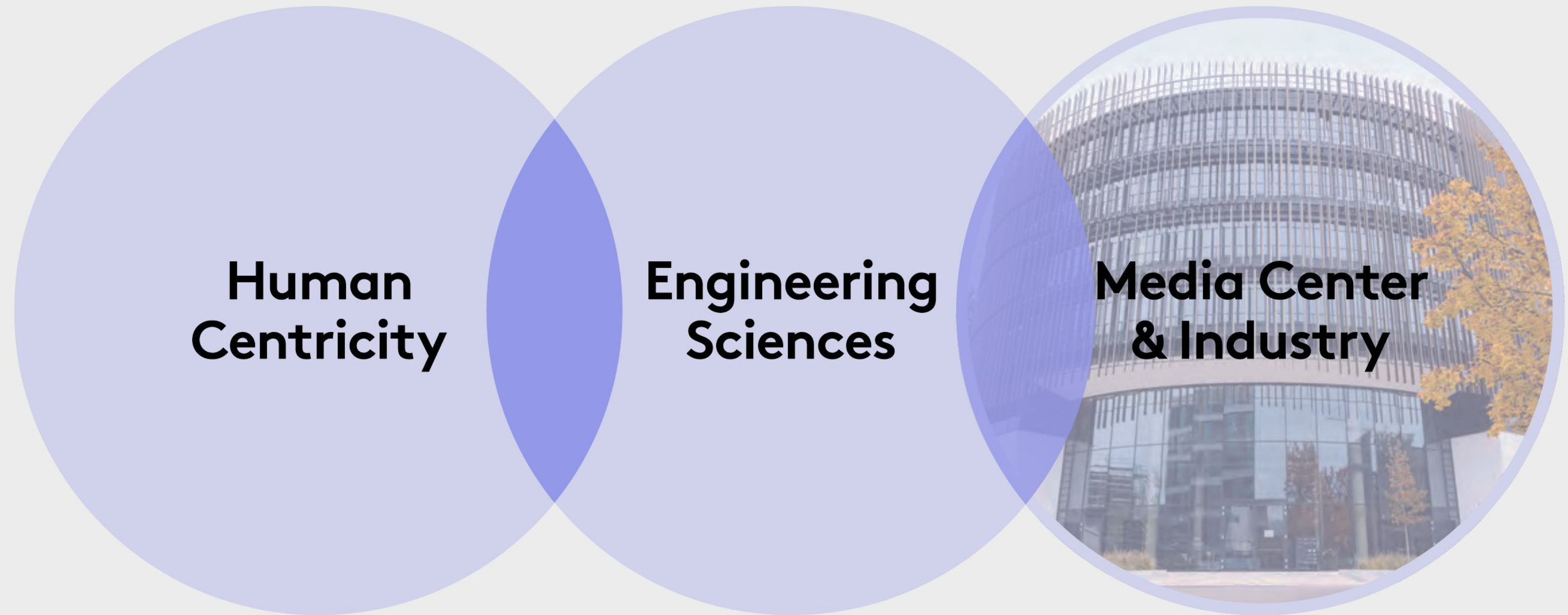


**Augmented
Creativity**

Methodology – Research through Design



Vision & Transfer into Teaching & Infrastructure





Designing for Control

Q&A

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Q&A

What would you leave to AI – and where would you want to keep control?