Margaret's Elegant Question: #NewMacy in the 21st Century

WOSC 2021 Keynote
September 2021

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pangaro.com/wosc2021keynote/

Margaret Mead

Photo via UN Multimedia

Margaret's Elegant Question
Pandemics

The word "pandemic" comes from "all" and "people"—something negative that affects everyone in our community.

Margaret's Elegant Question
Pandemics

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The Internet and digital devices connect to 4 billion people.
"Today's AI" is inside technology we touch every day.

Margaret's Elegant Question
Pandemic of "Today's AI"

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Today's AI foments polarization, pushes irrelevant products,
spreads social bias, and surveils our lives.

Margaret's Elegant Question
Pandemic of "Today's AI"

The word "pandemic" comes from "all" and "people"—something negative that affects everyone in our community. The Internet and digital devices connect to 4 billion people. "Today's AI" is inside technology we touch every day. Today's AI foments polarization, pushes irrelevant products, spreads social bias, and surveils our lives. **Its impact on our daily living is growing every day.**

Pandemic of "Today's AI"

Facebook & Instagram

Google & Youtube

Amazon

Twitter

…

Artificial Intelligence Inside (™)

Artificial Intelligence Inside (™)

Facebook & Instagram

Google & Youtube

Amazon

Twitter

…

CODE =

AUTOMATION =

CODIFICATION

PANDEMIC

Pandemic of "Today's AI"

◉ Manipulation of attention by Internet platforms

◉ Manipulation of sentiment in politics & elections

◉ Loss of privacy through "surveillance capitalism"

◉ Bias in law enforcement algorithms

◉ Facial recognition leading to social control

◉ Overpowering of human capacity & "Human Downgrading"

—AI is making the world we see and the world we live in.
—Human purpose is lost.

Cybernetics

Why? Why Cybernetics?

Cybernetics = Origin of Neural Nets & AI

1940s   **Cybernetics + Neural Nets**

1960s   **Symbolic AI**

1980s   **Expert Systems**

2010s   **Neural Nets + Big Data + Massive Compute**

2020s   **"Today's AI"—AI everywhere in our lives**

But Cybernetics is very different from AI

Cybernetics

"Today's AI"

"Performative Ontology"
    Design for action with emergent goals
    Embodied interaction
    Circular causality
    Evolutionary viability / resilience

Could be applied anywhere
Lost the competition with computers
Stolen & elided by French intellectuals
Reduced to the prefix "cyber-"
Yet… undergoing a resurgence

"Intelligence Inside"
    Design for efficiency & scale
    Transactional interaction
    Input / output fulfilment
    Consistency / reliability

Limited to digital infrastructure
Grew from "smaller, cheaper, faster"
Became an industry, a market
Makes alternatives unthinkable
Overwhelms daily living

Cybernetics | "Today's AI"

Why & how does Cybernetics move us forward?

◎ developed before AI—and was AI's foundation

◎ embodies "the art and science" of purposive systems

◎ offers detailed models of regulation in complex adaptive systems

◎ brings an ethical imperative to human action

◎ founded as transdisciplinary / antidisciplinary *

◎ applies across siloed disciplines

◎ embraces the unknowable and the unpredictable

Margaret Mead

Photo via UN Multimedia

Cybernetics
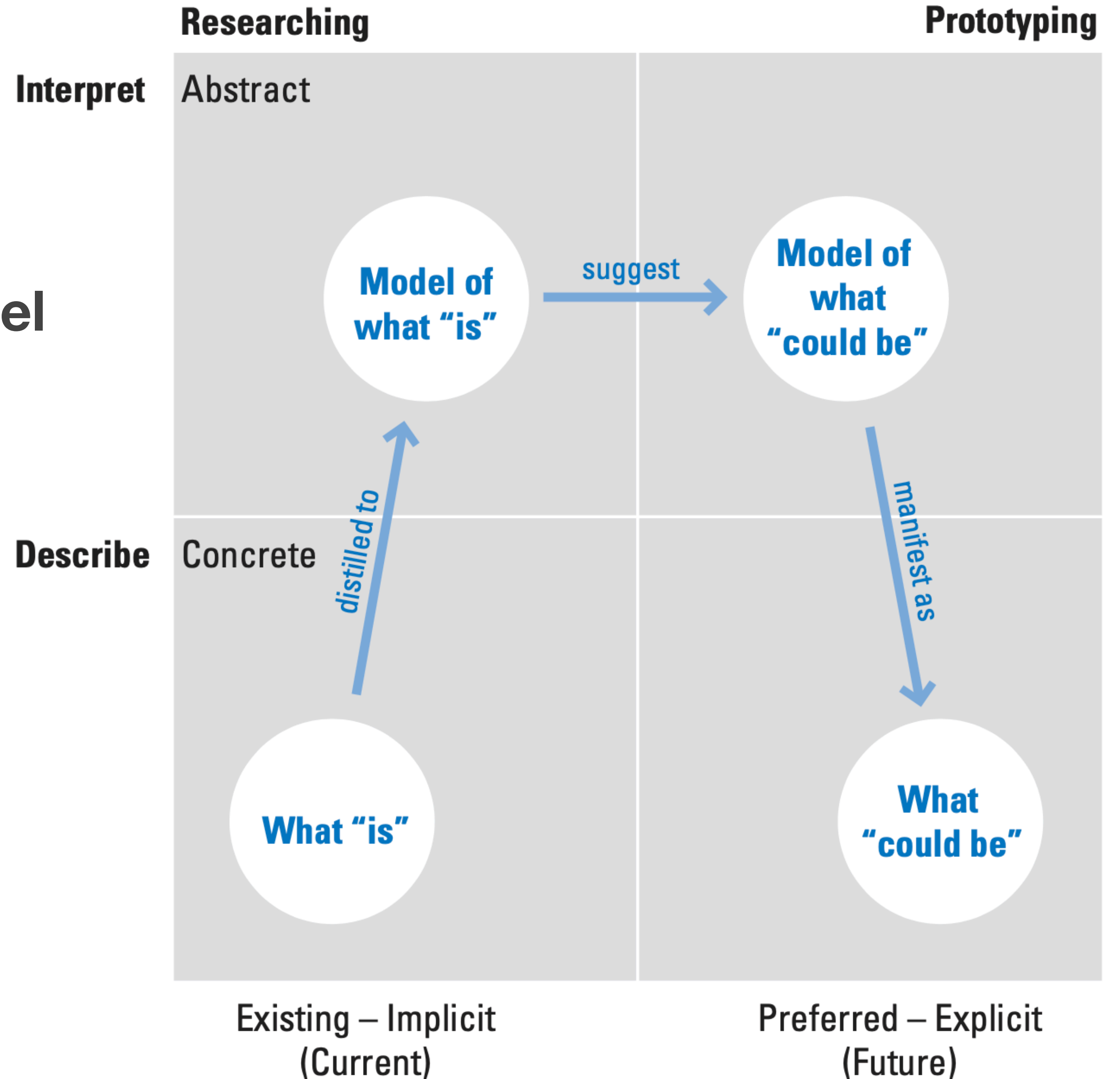
How? How Cybernetics?

Logical Framework

Meta-Design

A Path Forward
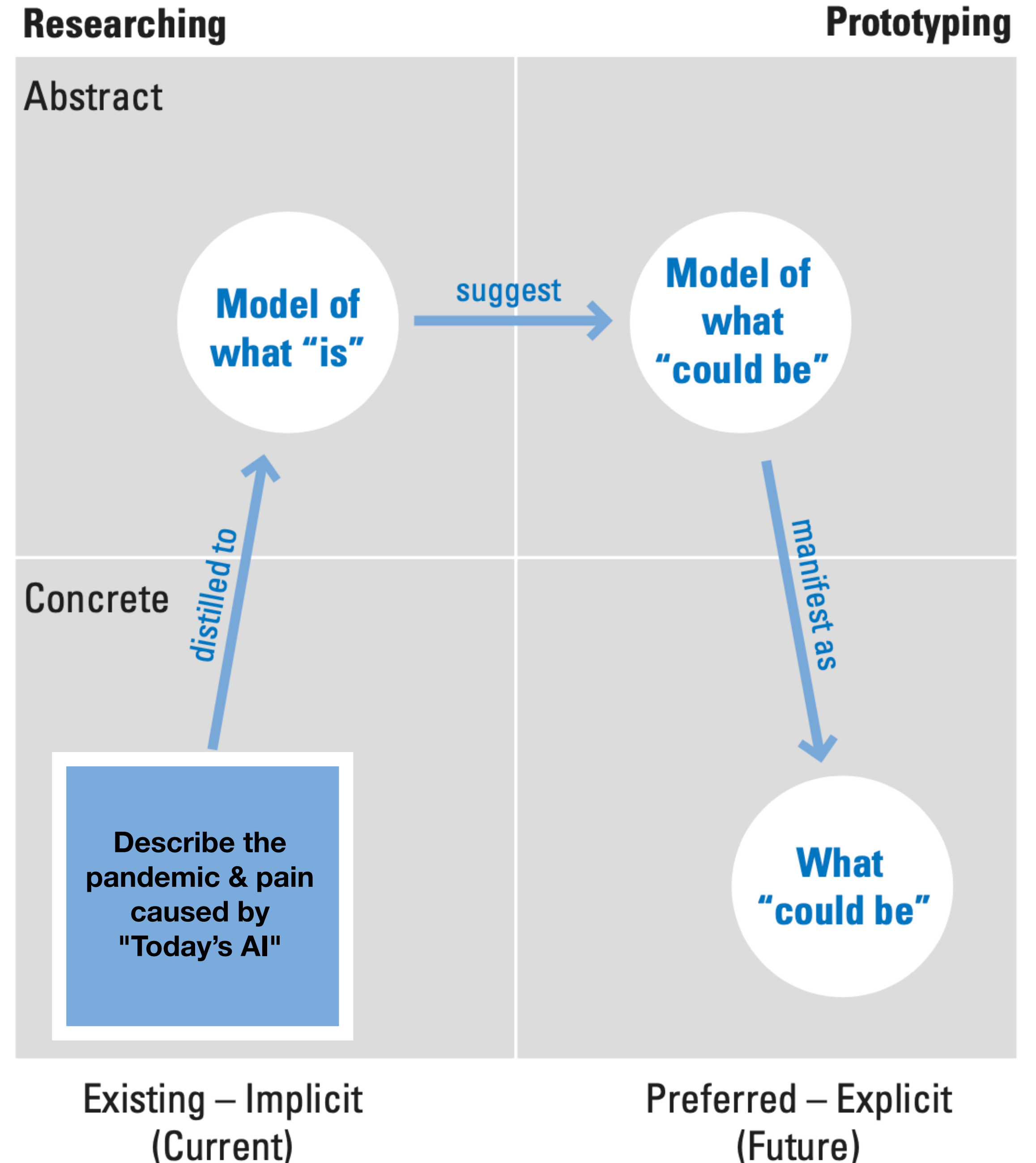
Analysis-Synthesis Bridge Model

Dubberly, Evenson, and Robinson, Interactions Magazine,
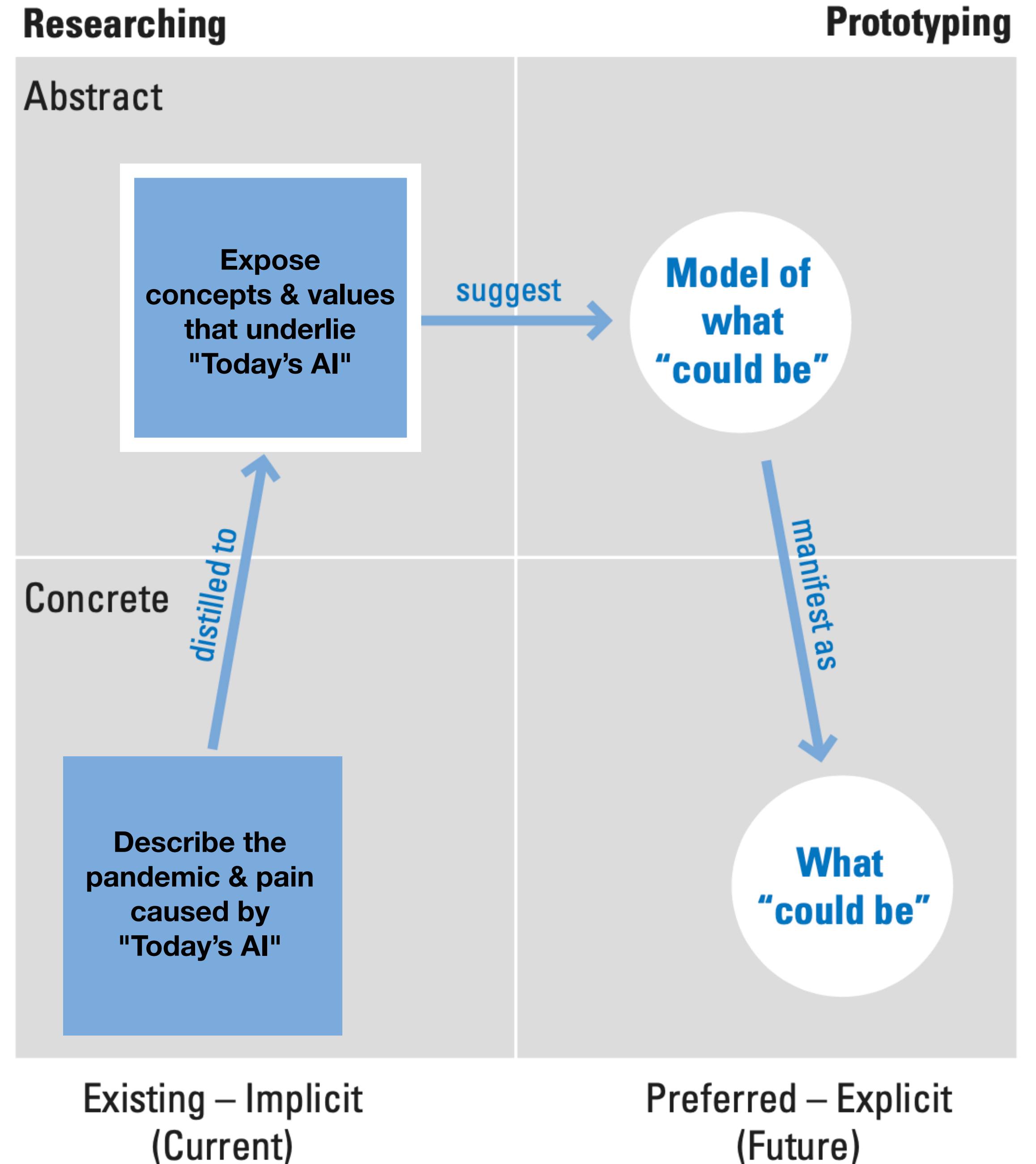Volume XV.2, March + April 2008

Describe

- **Manipulation of attention by Internet platforms**
- **Manipulation of sentiment in politics & elections**
- **Loss of privacy through "surveillance capitalism"**
- **"Dark Patterns" & "Deep Fakes"**
- **Bias in law enforcement algorithms**
- **Facial recognition leading to social control**
- **Overpowering of human capacity**

Dubberly, Evenson, and Robinson, Interactions Magazine,
Volume XV.2, March + April 2008

Researching   **Prototyping**

Abstract

Model of what "is" — suggest → Model of what "could be"

distilled to

Concrete

Describe the pandemic & pain caused by "Today's AI"

manifest as

What "could be"

Existing – Implicit (Current)   Preferred – Explicit (Future)

Expose

Dubberly, Evenson, and Robinson, Interactions Magazine, Volume XV.2, March + April 2008

Abstract

Expose concepts & values that underlie "Today's AI"

suggest →

Model of what "could be"

distilled to ↗

Describe the pandemic & pain caused by "Today's AI"

Concrete

manifest as ↘

What "could be"

Existing – Implicit (Current)   Preferred – Explicit (Future)

Counter

Researching

Prototyping

Abstract

Concrete

Expose concepts & values that underlie "Today's AI"

suggest →

Counter with alternative concepts & values

distilled to

manifest as

Describe the pandemic & pain caused by "Today's AI"

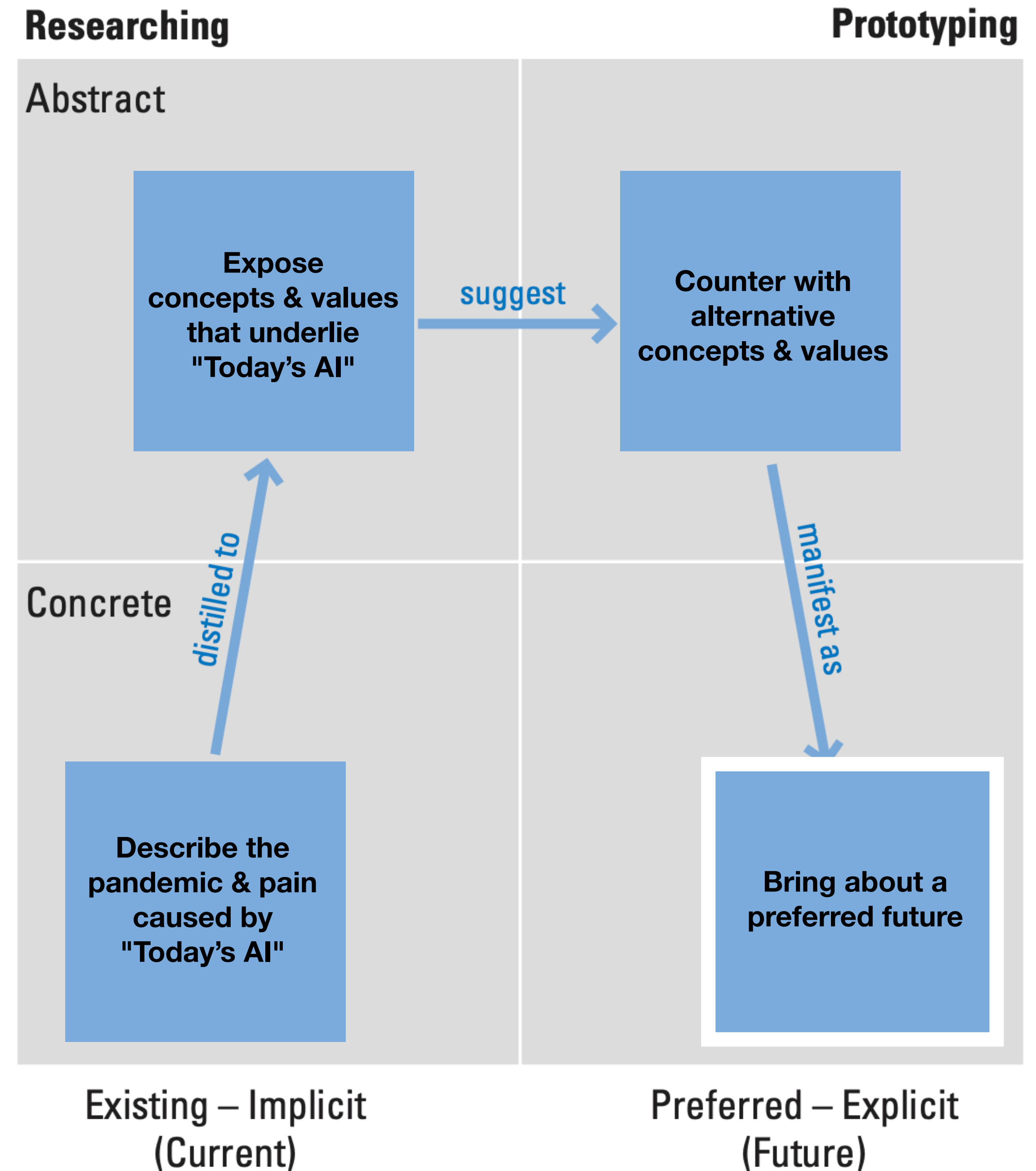What "could be"

Existing – Implicit (Current)

Preferred – Explicit (Future)

Dubberly, Evenson, and Robinson, Interactions Magazine, Volume XV.2, March + April 2008

Improve

Dubberly, Evenson, and Robinson, Interactions Magazine, Volume XV.2, March + April 2008

Describe

- **Manipulation of attention by Internet platforms**
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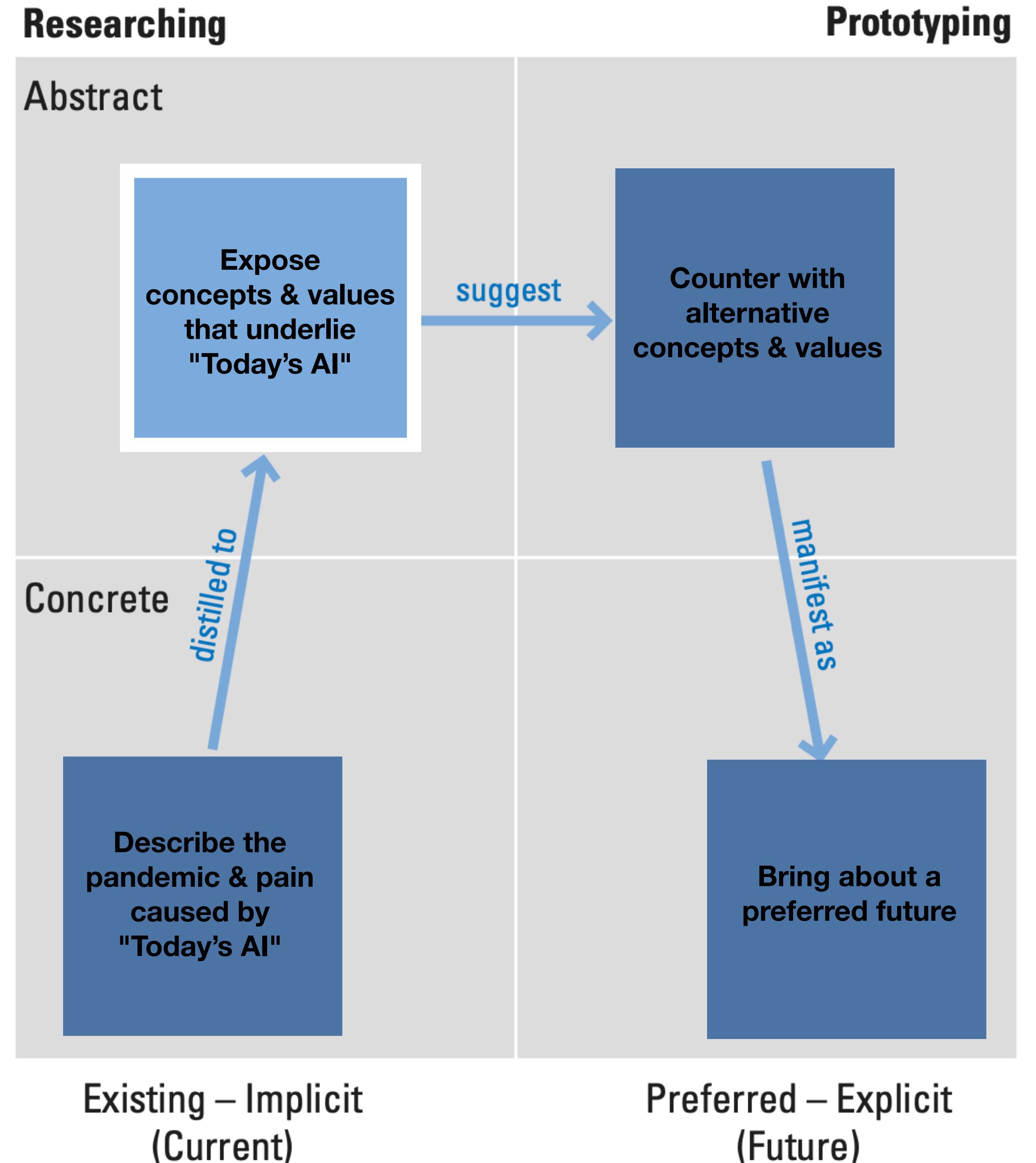- **Overpowering of human capacity**
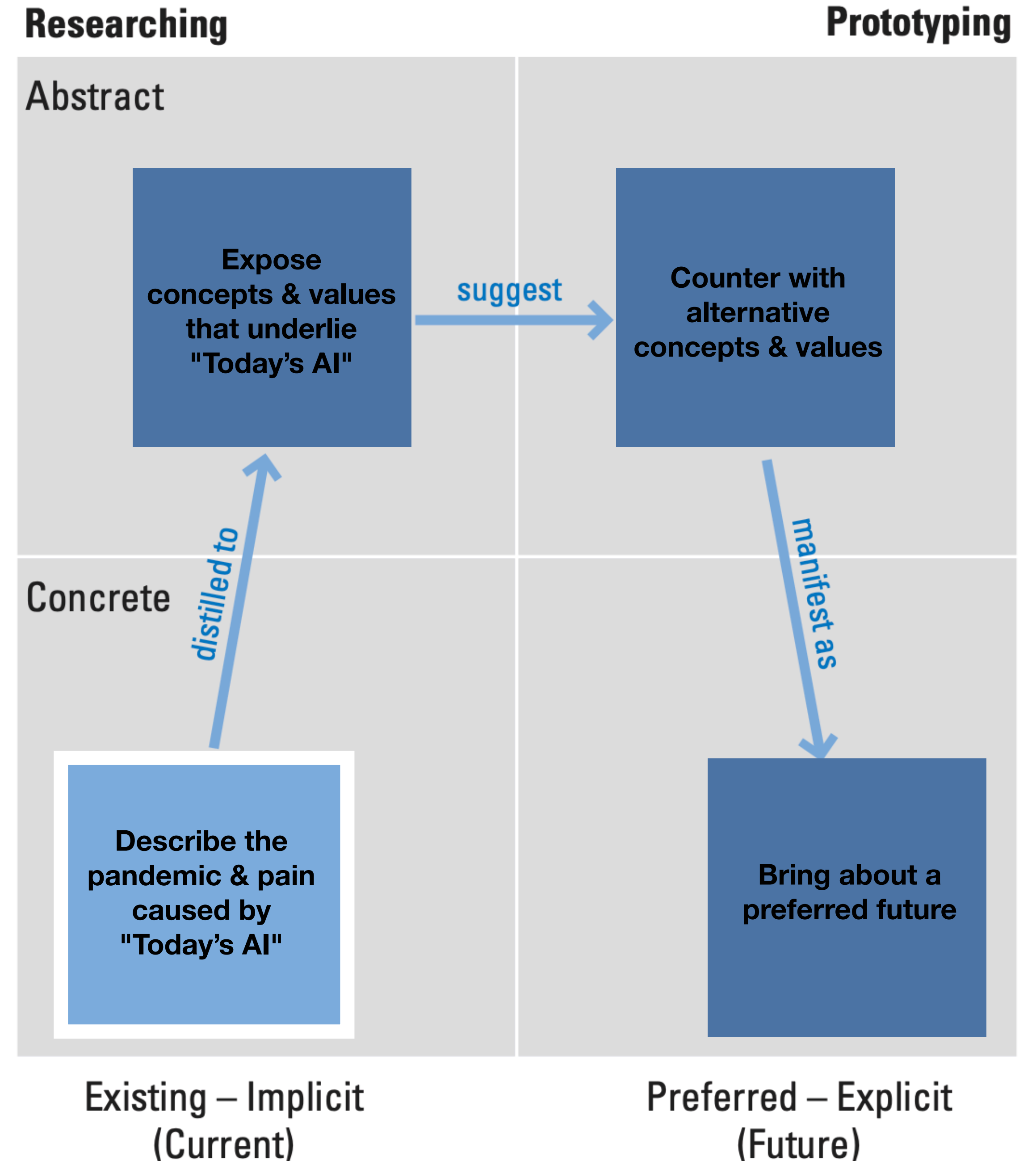
Dubberly, Evenson, and Robinson, Interactions Magazine,
Volume XV.2, March + April 2008

Expose

Digital technology forges a culture focused primarily on what computers can easily do. Most often for profit.

Values inherent in the code of Today's AI are so often at odds with being human.

Dubberly, Evenson, and Robinson, Interactions Magazine, Volume XV.2, March + April 2008

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Expose concepts & values that underlie "Today's AI" — *suggest* → Counter with alternative concepts & values

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Concrete

Describe the pandemic & pain caused by "Today's AI"

Bring about a preferred future

Existing – Implicit (Current)   Preferred – Explicit (Future)

Premise—It's the "Digital Culture"

Digital technology forges a culture focused primarily on what computers can easily do. Most often for profit.

Values inherent in the code of Today's AI are so often at odds with being human.
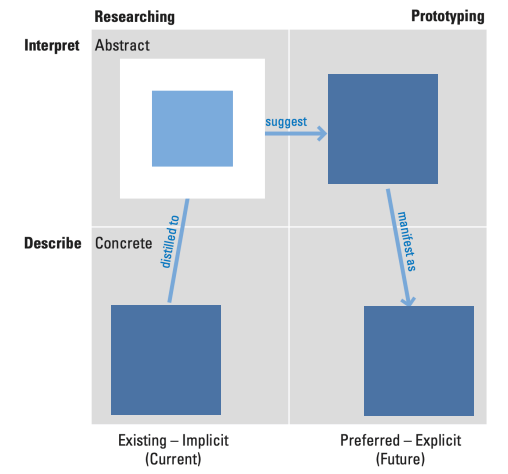
Assumptions from Digital Culture
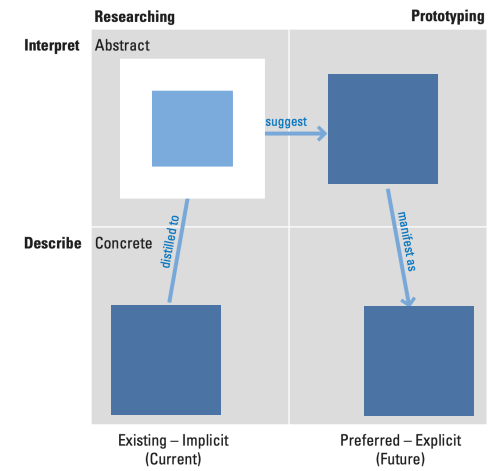
Digital Culture assumes:

- interaction is mechanistic

- information is objective

- intelligence is a process that sits inside a person or computer

So it "it becomes true" that:

- human behavior can be generalized and accurately predicted

- the same option offered at an interface has the same meaning for everyone

- machine prediction is intelligent—so the machine's selection need not be questioned or tested by the human
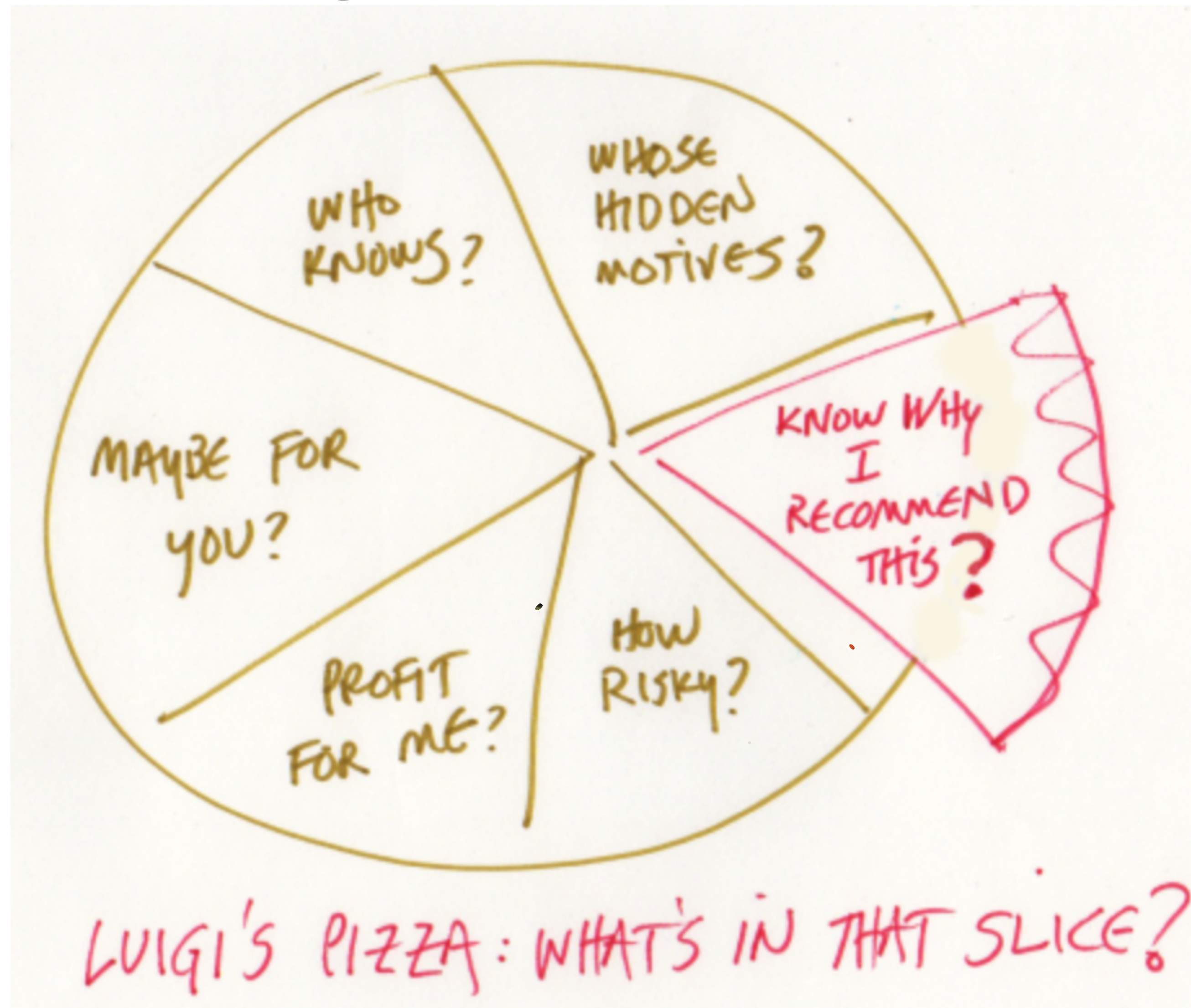
EXAMPLES

- **Google "Page Rank"**— Lack of Transparency of Intent
  You cannot learn why options were offered

- **Youtube "Up Next"**—Asymmetry of Control of Focus
  You cannot question or redirect options offered

- **Facebook "News Feed"**— Lack of Control of Choice
  You can decline options but not define them

CODE = CODIFICATION

- **Lack of Transparency of Intent**
  You cannot learn why options were offered

- **Asymmetry of Control of Focus**
  You cannot question or redirect options offered

- **Lack of Control of Choice**
  You can decline options but not define them

CODIFICATION enshrines values that control outcomes

The Parable of Luigi's Pizza

LUIGI'S PIZZA : WHAT'S IN THAT SLICE?

[WHO KNOWS? / WHOSE HIDDEN MOTIVES? / MAYBE FOR YOU? / PROFIT FOR ME? / HOW RISKY? / KNOW WHY I RECOMMEND THIS?]

More about Luigi's Pizza

Premise—It's not Technology

Technology itself is not at fault—it is how we fashion it and the traits we embed in it.

In pursuit of profit, we build engines that dazzle our brains and addict us to our human & biological vulnerabilities.
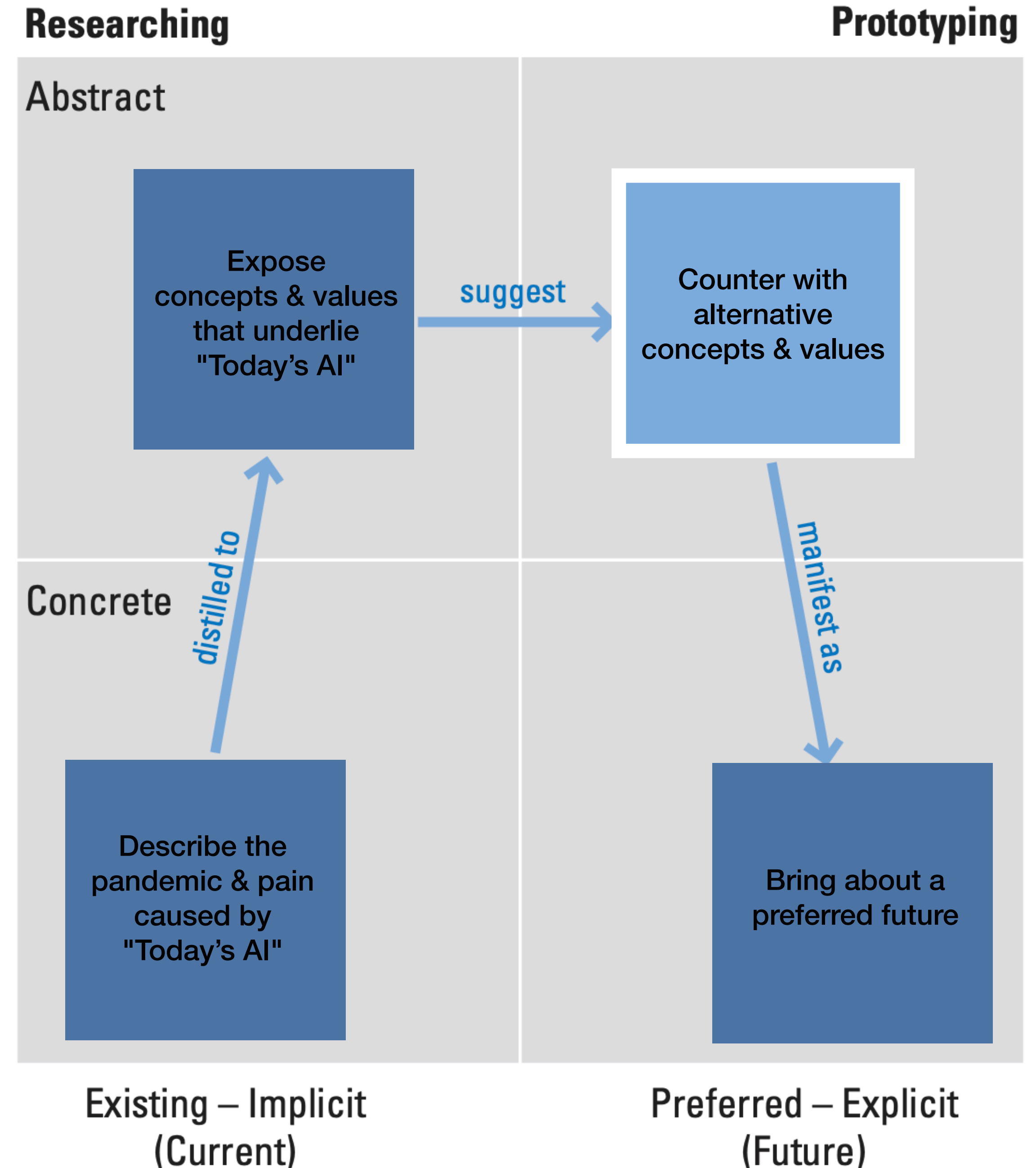
This is not the only option.

We can shift technology from **digital assumptions** and swing back toward our **analog** roots— our physical, organic, biological selves.
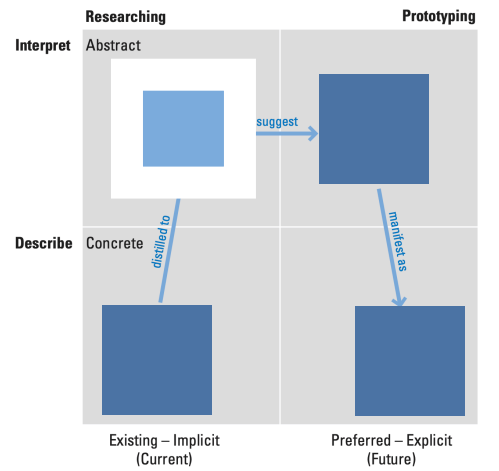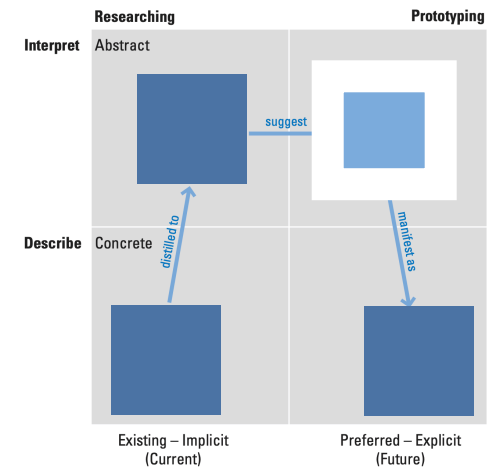
Novelty and choice, transparency and conversation can become the new core principles of Today's AI.

Counter

To upset the dominance of the pernicious algorithms of AI, we must design and propagate a set of humane, organic, and **analog interactional frameworks**.

…starting from Cybernetics

Researching   **Prototyping**

Abstract

Expose concepts & values that underlie "Today's AI" → *suggest* → Counter with alternative concepts & values

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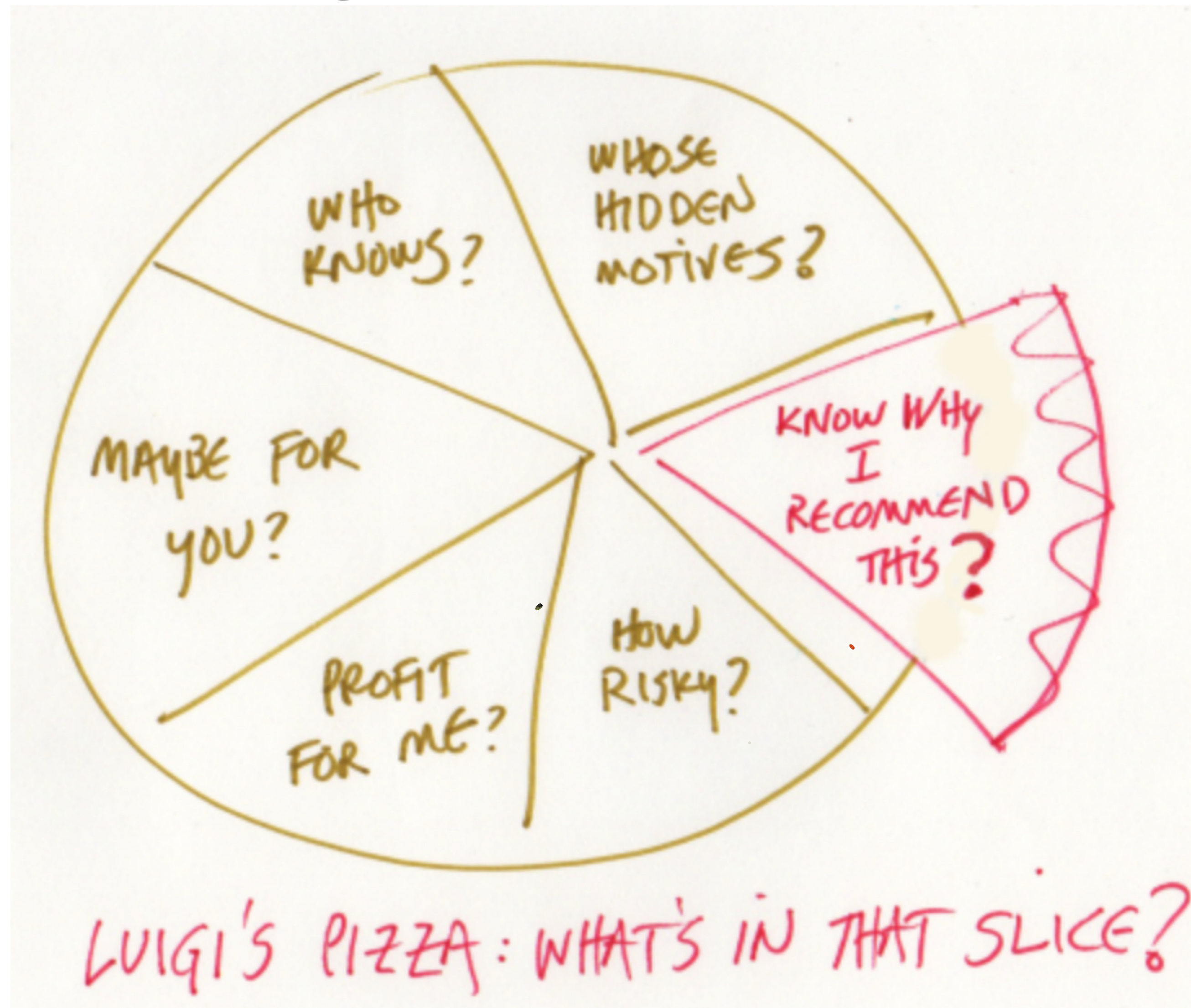
Countering with new frameworks

Digital Culture assumes:

◉ **interaction** is mechanistic

◉ **information** is objective

◉ **intelligence** is a process that sits inside a person or computer

Cybernetics offers:

◉ **interaction** can be conversational—inviting interpretation & responses from other contexts & understandings

◉ **information** can mean the triggering of ideas and reactions—the opening of new possibilities, ideas, & actions

◉ **intelligence** can be relational—an attribute of an interaction and not something inside a person or a box.

The Parable of Luigi's Pizza

LUIGI'S PIZZA: WHAT'S IN THAT SLICE?

[Pie chart slices labeled: WHO KNOWS?, WHOSE HIDDEN MOTIVES?, KNOW WHY I RECOMMEND THIS?, HOW RISKY?, PROFIT FOR ME?, MAYBE FOR YOU?]

More about Luigi's Pizza

CODE = CODIFICATION = DIGITAL

- **Lack of Transparency of Intent**
  You cannot learn why options were offered

- **Asymmetry of Control of Focus**
  You cannot question or redirect options offered

- **Lack of Control of Choice**
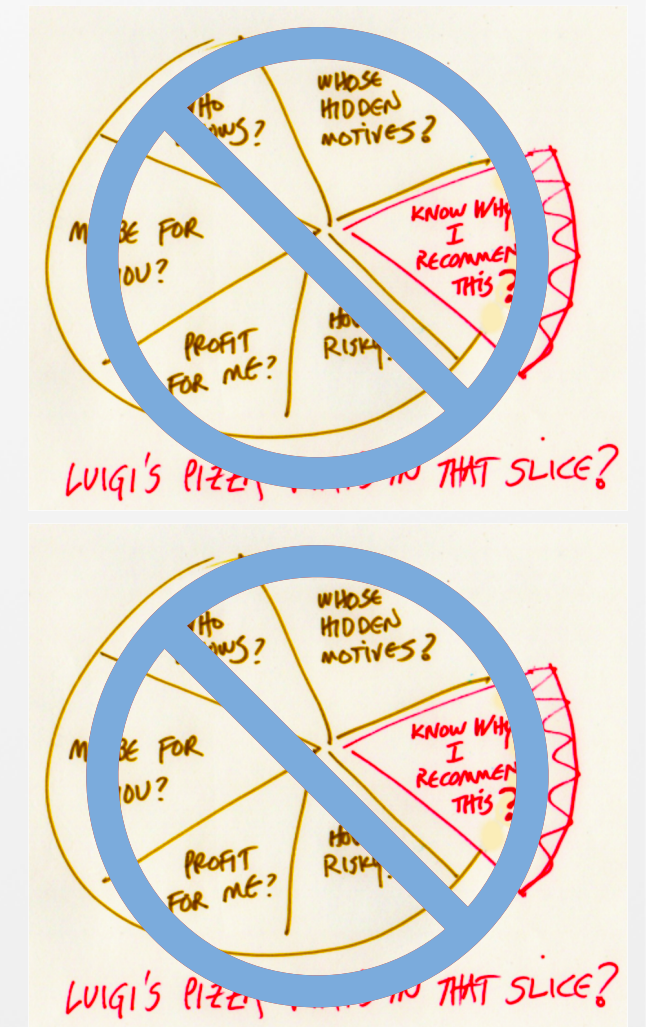 You can decline options but not define them
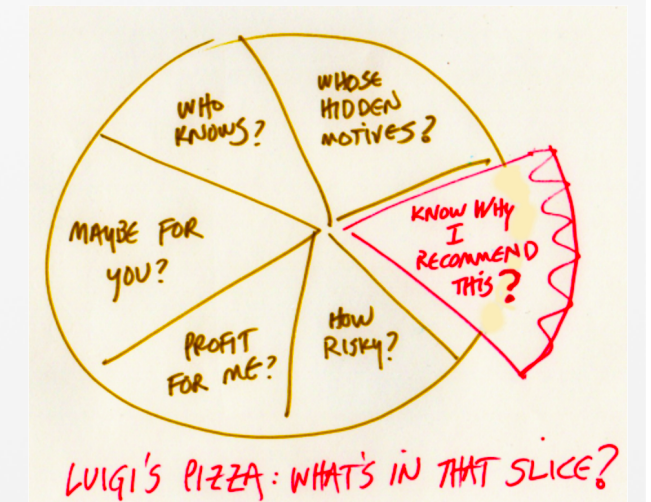
CODE = CODIFICATION = ANALOG

- ~~Lack of~~ Transparency of Intent
  "Why is Luigi's Pizza the best pizza?"

- Asymmetry of Control of Focus
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- Lack of Control of Choice
  You can decline options but not define them
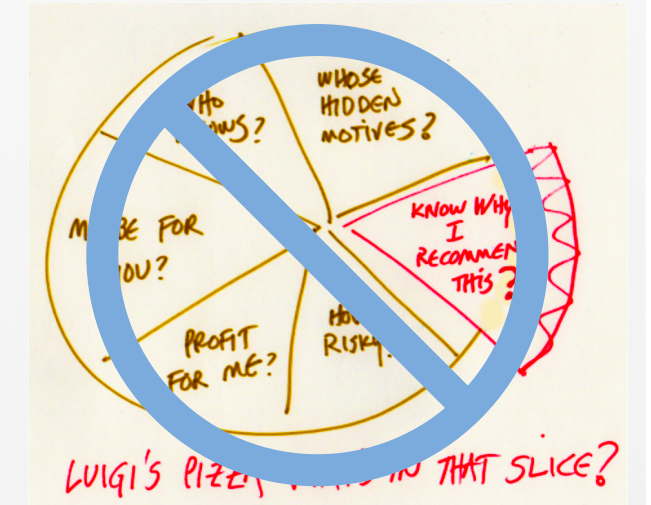
CODE = CODIFICATION = ANALOG

- ~~Lack of~~ **Transparency of Intent**
  "Why is Luigi's Pizza the best pizza?"

- ~~Asymmetry of~~ **Collaborative Focus**
  "Does Luigi's serve gluten-free pizza?"

- **Lack of Control of Choice**
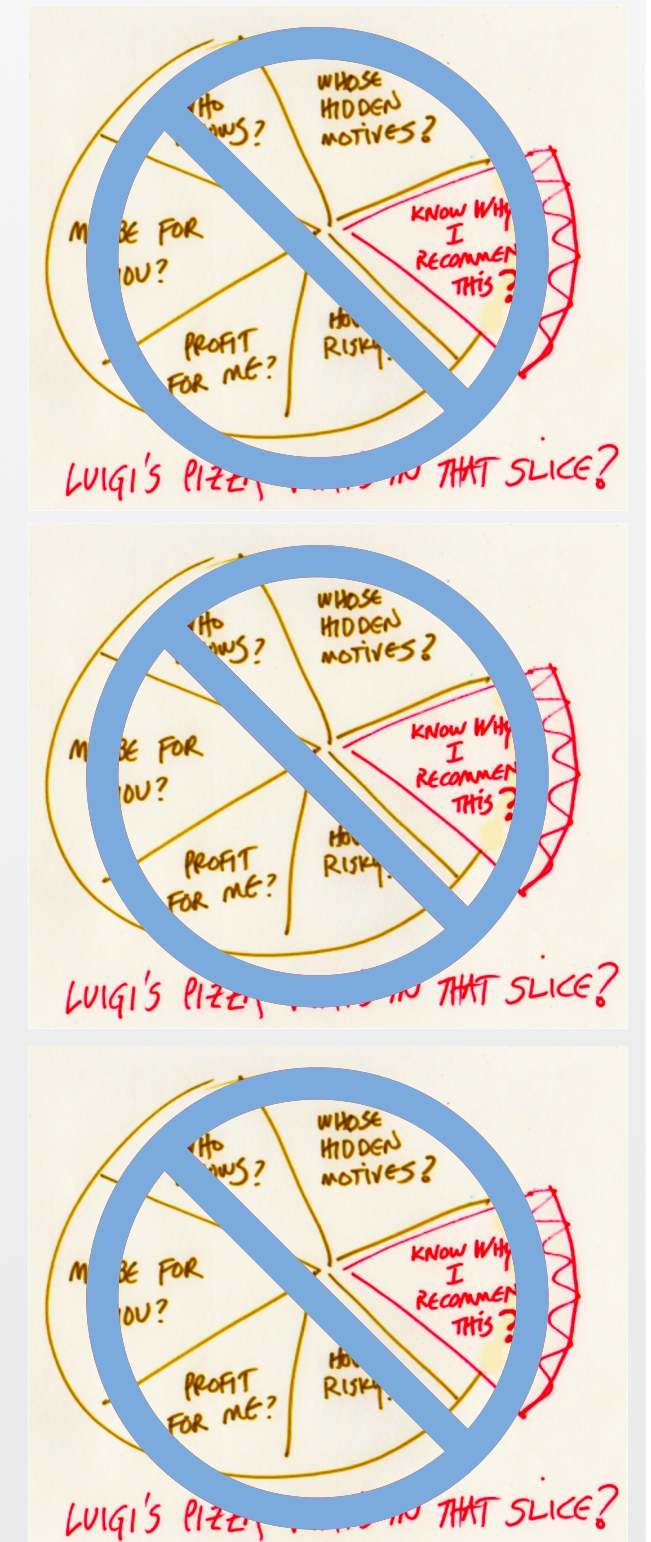 You can decline options but not define them

CODE = CODIFICATION = ANALOG

- ~~Lack of~~ **Transparency of Intent**
  "Why is Luigi's Pizza the best pizza?"

- ~~Asymmetry of~~ **Collaborative Focus**
  "Does Luigi's serve gluten-free pizza?"

- ~~Lack of~~ **Coordinated Choice**
  "Why might I like this new dish?"

CODE = CODIFICATION = ANALOG

- Transparency of Intent
"Why is Luigi's Pizza the best pizza?"

- Collaborative Focus
"Does Luigi's serve gluten-free pizza?"

- Coordinated Choice
"Why might I like this new dish?"

CODE = CODIFICATION = ANALOG

- **Transparency of Intent**
  "Why is Luigi's Pizza the best pizza?"

- **Collaborative Focus**
  "Does Luigi's serve gluten-free pizza?"

- **Coordinated Choice**
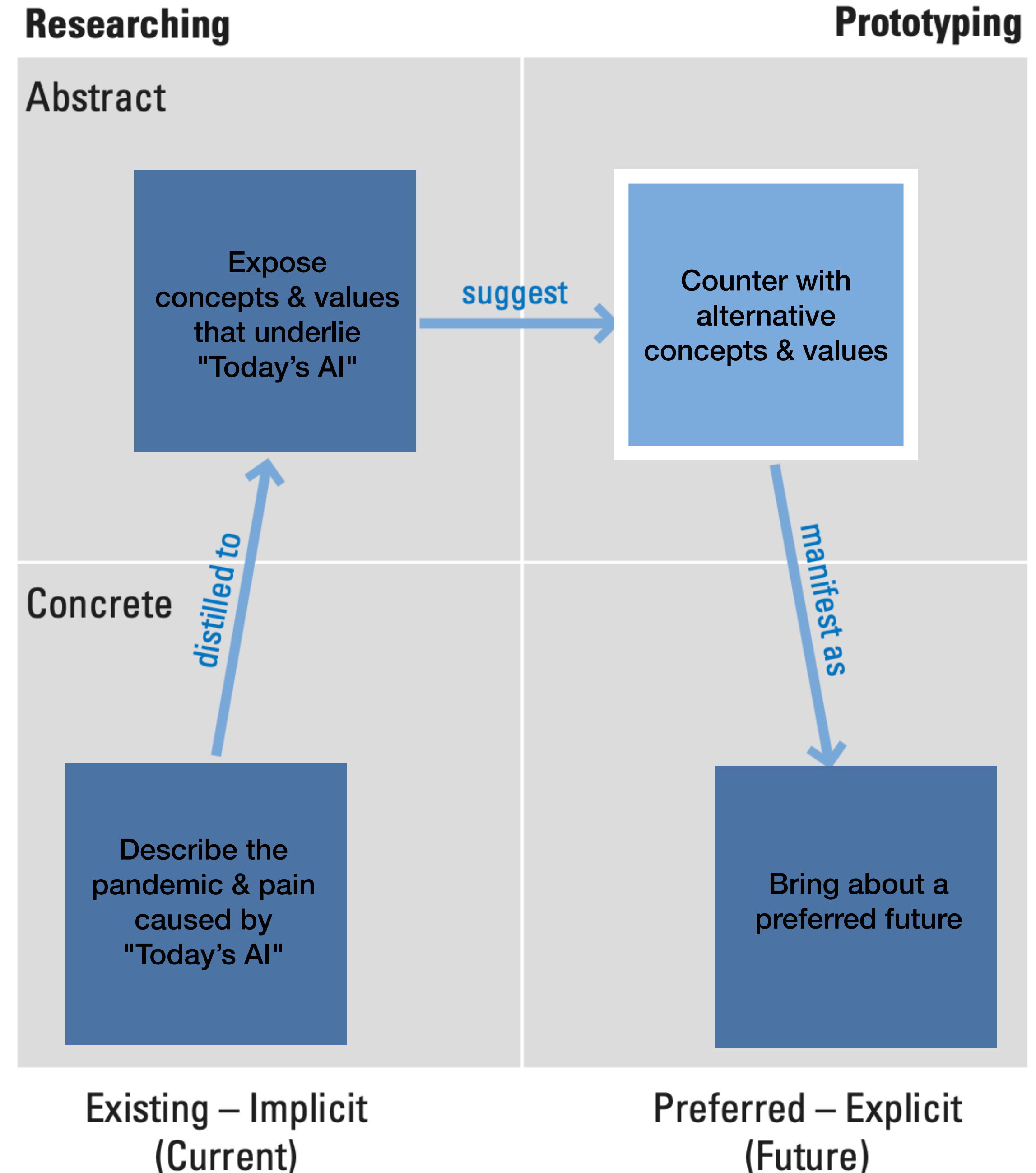 "Why might I like this new dish?"

= CONVERSATION = ANALOG

CODE = CONVERSATION = ANALOG

- **Transparency of Intent**
  "Why is Luigi's Pizza the best pizza?"

- **Collaborative Focus**
  "Does Luigi's serve gluten-free pizza?"

- **Coordinated Choice**
  "Why might I like this new dish?"

Novelty and choice, transparency and conversation <u>would become</u> the new core principles of interaction.

Counter

To upset the dominance of the pernicious algorithms of AI, we must design and propagate a set of humane, organic, and **analog interactional frameworks**.

Researching — **Prototyping**

Abstract

Expose concepts & values that underlie "Today's AI"

suggest →

Counter with alternative concepts & values

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Concrete

Describe the pandemic & pain caused by "Today's AI"

manifest as

Bring about a preferred future

Existing – Implicit (Current)

Preferred – Explicit (Future)
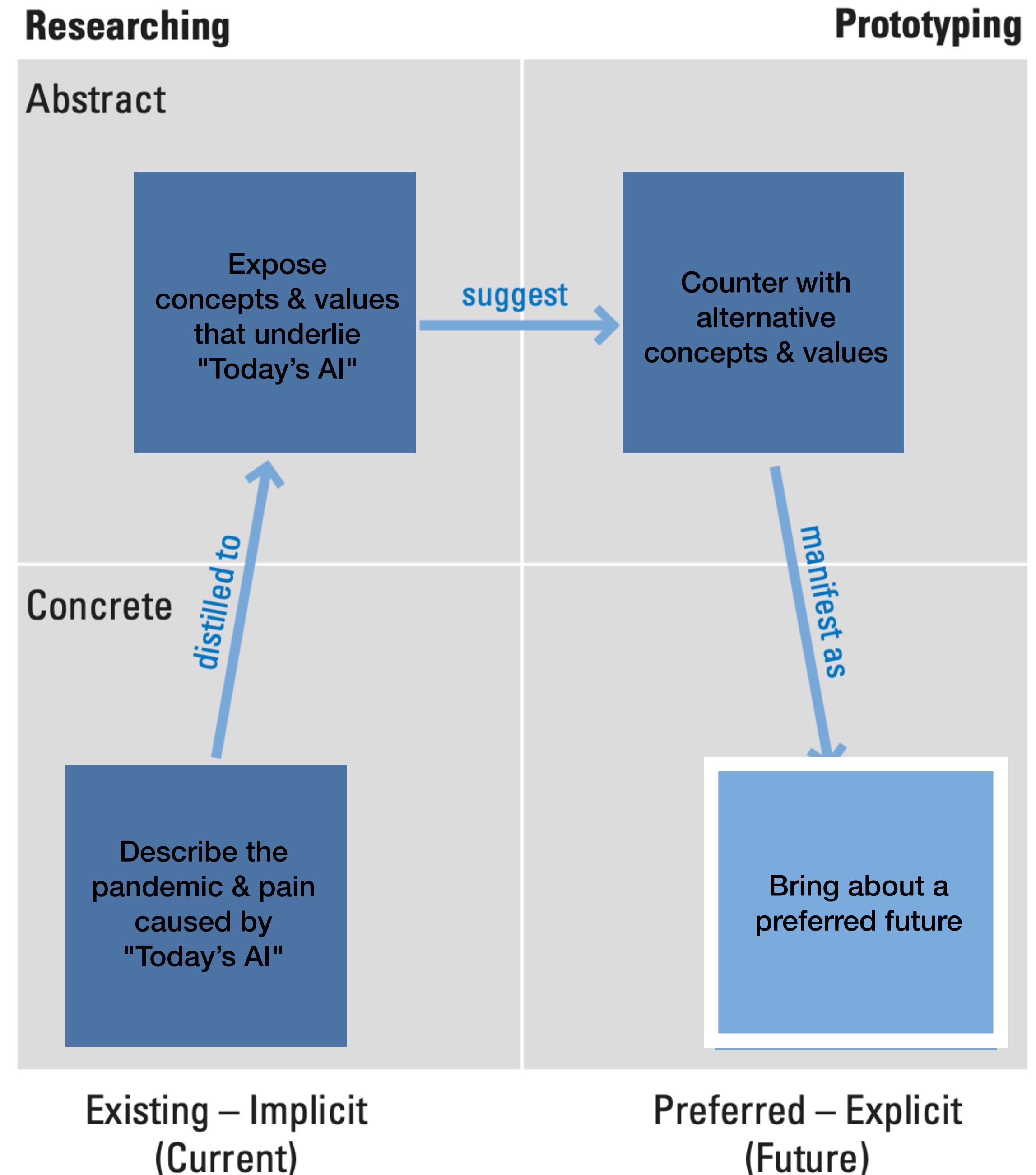
A preferred future

To upset the dominance of the pernicious algorithms of AI, we must design and propagate a set of humane, organic, and **analog interactional frameworks**.

If we bring forth replacements for the algorithms of Today's AI, we can begin to have a positive effect and better serve our social fabric.

Researching   **Prototyping**

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Expose concepts & values that underlie "Today's AI" — suggest → Counter with alternative concepts & values

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# Bringing about a preferred future

Our goal is to design and integrate
new classes of interactional systems
with today's AI and digital technologies
to create and promote a new category of
analog interactional frameworks.

Analogic Frameworks — Alternatives to Today's AI

DATA-ANIMATED

binary
discrete
deterministic
artificial
representational
specific
predictive
transactional
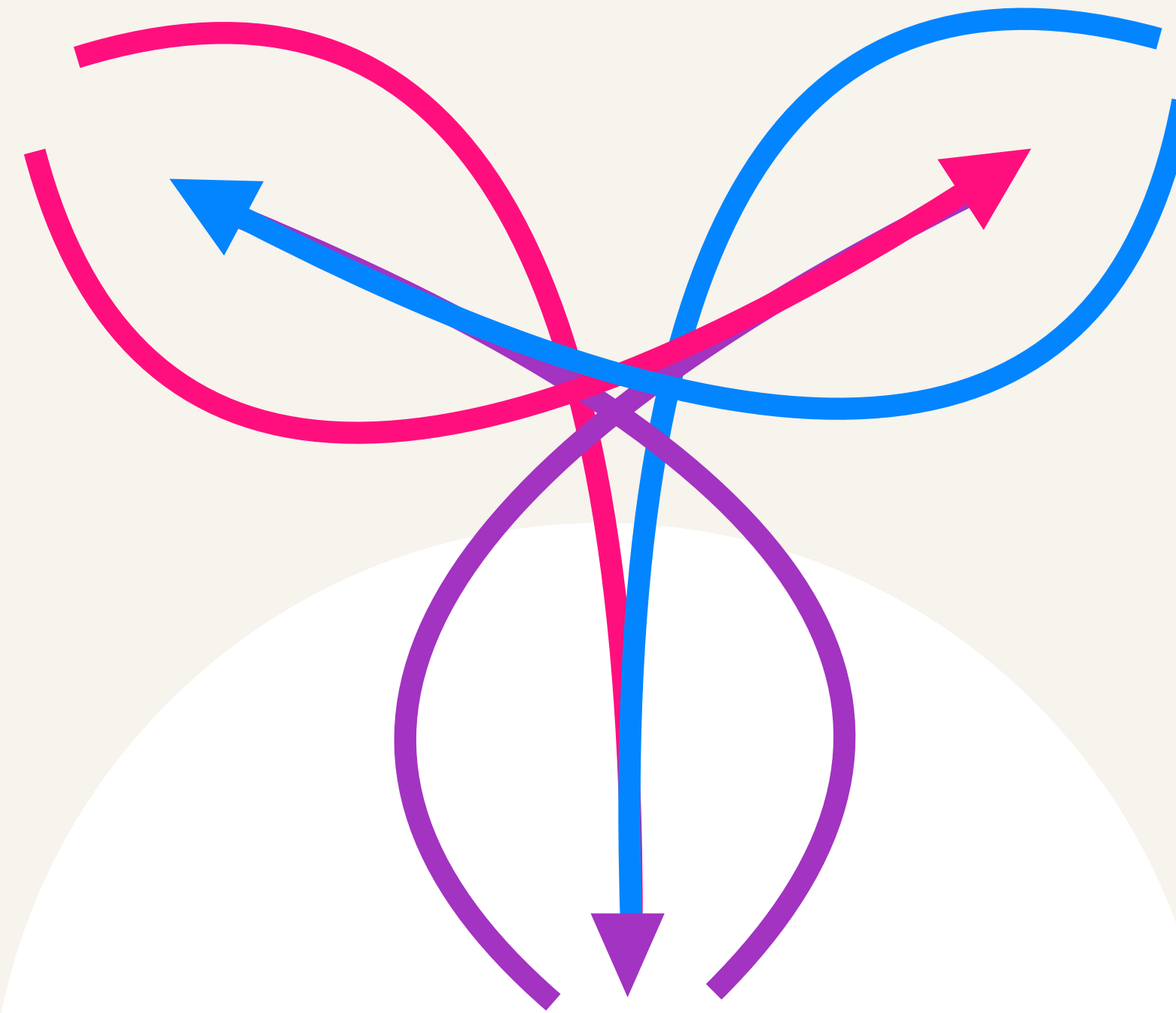
SOCIALLY-ANIMATED

biological
fluid
open-ended
organic
resonant
ambiguous
uncertain
conversational

Cybernetics
bilingual sensibility

Digital   **Analog**

Colloquy of Mobiles
Centre Pompidou
Paris 2020

Gordon Pask—Analog Interaction

Colloquy of Mobiles

Autonomous agents that converse and cooperate

Bilingual sensibility—analog & social, machinic & digital

Information triggers response, does not determine it

Intelligence in the interaction, not stand-alone

Gordon Pask

Goals of Conversation Theory

To rigorously understand what makes conversation work—and to make machines conversant like humans.

To rigorously understand how systems learn—and to makes machines that learn like humans.

Analogic Frameworks — Alternatives to Today's AI

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Analogic Frameworks — Alternatives to Today's AI

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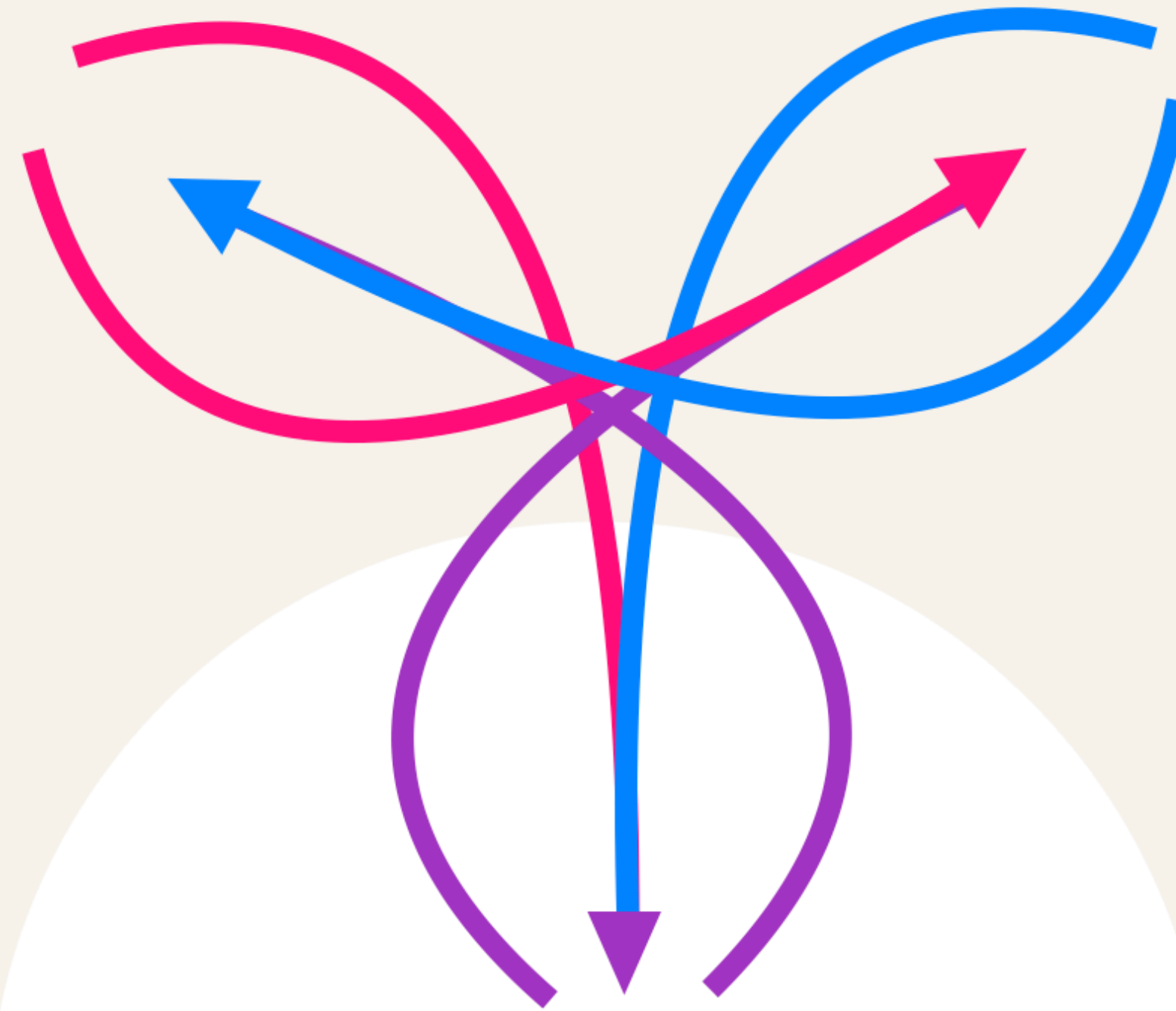
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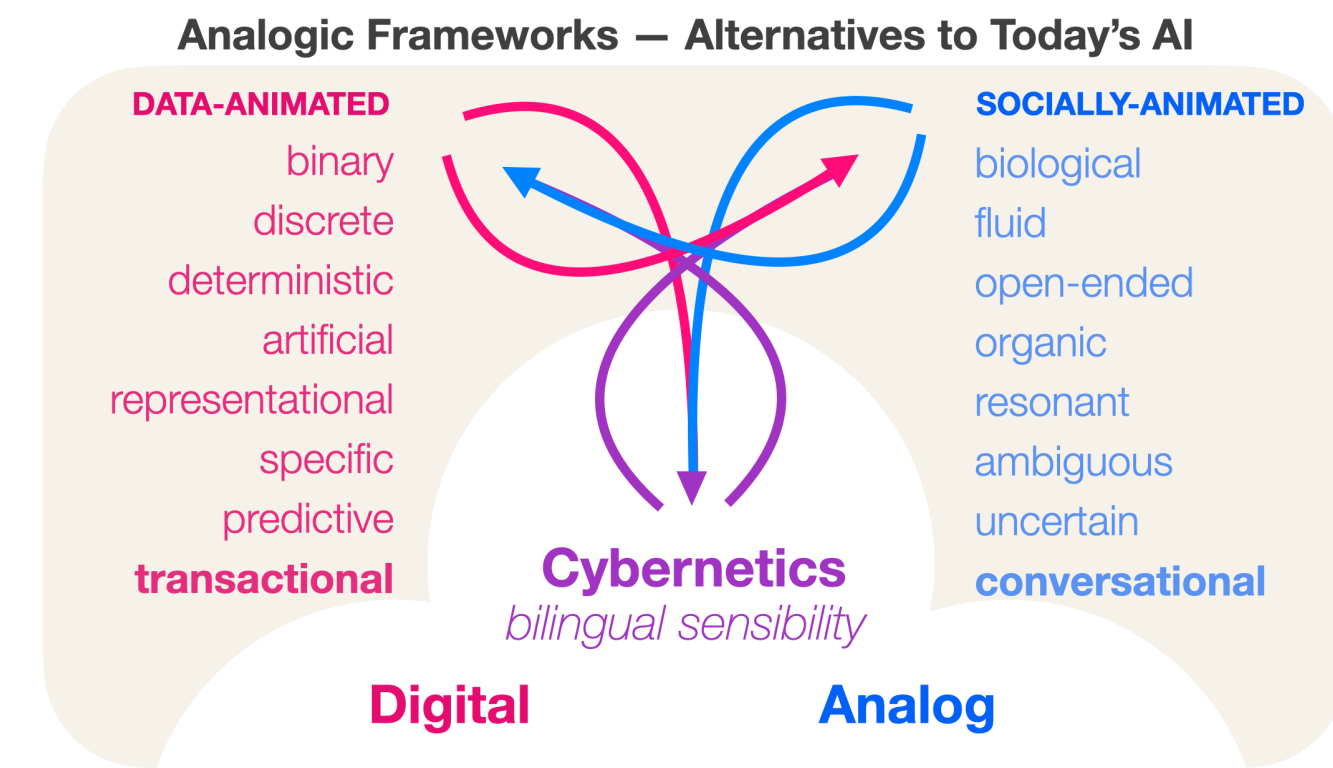organic
resonant
ambiguous
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conversational

Cybernetics
bilingual sensibility

Digital   Analog

Bringing about a preferred future
A Bilingual Synthesis

"What if an AI system could facilitate conversations…
across distances and times in a way that generates a
continually changing configuration of ideas?

"These ideas could then be sources for conversations
that could provide new input to the system…

"Perhaps it would better embody the **emancipatory and
participative epistemology** that cybernetics has come
to embrace."

— Dr Larry Richards

Cybernetics

How? How Cybernetics?

Logical Framework — First-order Design

Meta-Design — Second-order Design

CYBERNETICS

CIRCULAR CAUSAL AND FEEDBACK MECHANISMS

IN BIOLOGICAL AND SOCIAL SYSTEMS

#NEW MACY MEETINGS

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Cybernetics + Macy Meetings

In the 1940s and 1950s, a series of small conferences were funded by the Josiah Macy Jr Foundation.

Experts from a vast range of disciplines focused on purpose in understanding and designing complex systems. They created a new way of thinking and acting in the world and started a revolution.

They called this new field cybernetics from a Greek word meaning the art of steering toward a goal—acting with purpose.

These original Macy Meetings changed the worlds of science, engineering, and humanities.

Cybernetics + Macy Meetings

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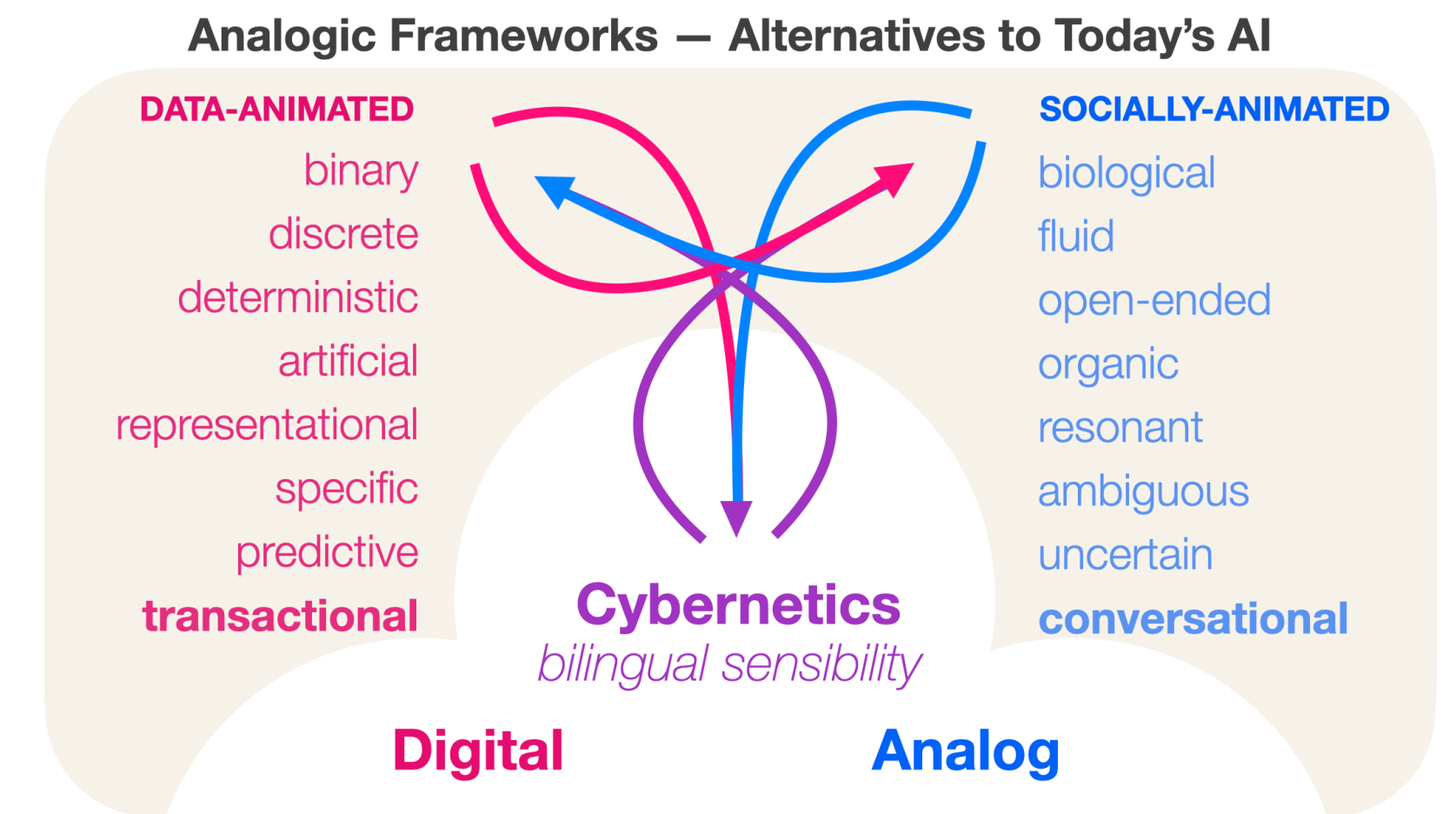
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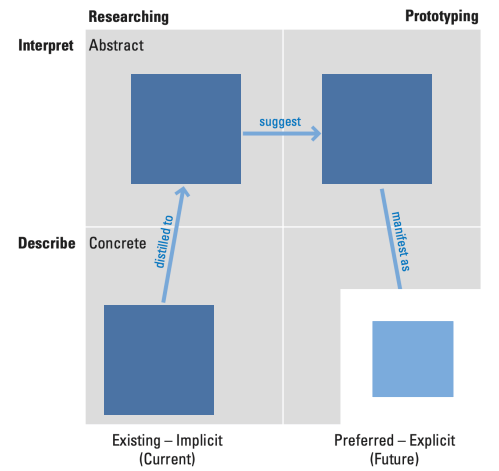They called this new field cybernetics from a Greek word meaning the art of steering toward a goal—acting with purpose.

These original Macy Meetings changed the worlds of science, engineering, and humanities. We need such a revolution again to tame today's "wicked problems"—#NewMacy Meetings.

Bringing about a preferred future #NewMacy in the 21st Century

Our purpose is to design and integrate new classes of interactional systems with today's AI and digital technologies to **create and promote** a new category of **analog interactional frameworks**.

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Digital   **Analog**

Bringing about a preferred future
#NewMacy in the 21st Century

Create and promote analog interactional frameworks

a. Identify participants & examples
- find current examples
- characterize their qualities
- fan out to find related efforts
- develop database
- share openly and seek critique

b. Characterize contexts where AI is now influential or prevalent
- gather types of AI algorithms
- deconstruct search, recommenders, social…
- build models of today's AI algorithmic types
- share openly and seek critique

c. Establish a new paradigm of analog interactional systems
- match AI contexts to new frameworks
- prioritize for impact & importance
- gather experts to evolve the frameworks
- share openly and seek critique
- produce and distribute outcomes as design patterns, toolkits, and workshops

d. Code new systems & disseminate
- prototype these alternatives as open source
- critique with sociologists, economists, MBAs…
- add to curricula for designers, coders…

#NewMacy Meeting #3

October 16 2021 — 12.00 EDT USA

Paul Pangaro
ppangaro@cmu.edu

american society
for cybernetics

#newmacy

Cybernetics & Macy Meetings

Original Macy Meetings
1943 – 1955

◎ post-WWII "world order"

◎ digital rising

◎ circular causal & feedback mechanisms

◎ closed selection of participants

◎ transdisciplinary

#NewMacy Meetings
2020 –

◎ post-COVID "wicked problems"

◎ digital supreme

◎ … + socio-technical entanglements

◎ open network of collaborators

◎ transdisciplinary
transglobal
transgenerational

#NewMacy Conversations

Summary of activities

◉ Launched at <u>Seminar</u> at Carnegie Mellon, March 2020

◉ On-going conversations in association with the American Society for Cybernetics, from April 2020

◉ <u>Cybernetics and Designing for Action</u>, September 2020

◉ <u>#NewMacy Meeting Experiment #1</u>, September 2020

◉ <u>Presentation at AIAgora</u> at TU Delft, December 2020

◉ <u>Manifesto</u> document, March 2021

◉ <u>Responding to the Pandemic of "Today's AI"</u> evolving draft

◉ <u>#NewMacy Meeting #2: "Urgent Questions"</u> in response to "Today's AI", ASC Series Event, September 2021

What's next

◉ Advancing the plan to respond to Today's AI

◉ Formulating Conversations for October 2021

◉ Interactive Session at RSD10 held at TU Delft

◉ Designing for variety in #NewMacy Conversations

◉ Reaching GenZ (18 to 25 year-olds) to represent their worldview and values on upcoming generations

◉ Seeking #NewMacy Network organizations

◉ Seeking #NewMacy Network individual participants

◉ Continuing to build #NewMacy Advisory Council

#NewMacy Advisory Council

Confirmed Members

- **Philip Beesley / U of Waterloo – Toronto**

- **Hugh Dubberly / San Francisco**

- **Deborah Forster / USA**

- **Omar Kahn / Carnegie Mellon – USA**

- **Guilherme Kujawski / São Paolo**

- **Delia Pembrey MacNamara / Australia**

- **Innocent Ndubuisi-Obi, Jr / USA**

- **Nga Nguyen / New York**

- **Despina Papadopoulos / New York**

- **Andy Pickering / UK**

- **Bernard Scott / UK**

- **Renee V. Wallace / Detroit**

—More to follow

Margaret's Elegant Question
#NewMacy in the 21st Century

Today I have argued that:

◉ **Digital culture contributes to the Pandemic of "Today's AI."**

◉ **Human experiences of interaction, information, and intelligence are compromised.**

◉ **Analog interactional frameworks can be organic, conversational, and humane.**

◉ **Cybernetics offers bilingual sensibility to bridge the analog & the digital.**

◉ **Promoting new design patterns & working prototypes can bring positive change.**

◉ **Urgency of the need and scale of the challenge requires that we convene #NewMacy Conversations in a Network of #NewMacy Meetings.**

#NewMacy Network + #NewMacy Meetings
#NewMacy in the 21st Century

Let us bring about a rich mesh of collaborations
among individuals and organizations—
across disciplines, geographies, and generations.

We will be deliberate about what we wish to conserve
as analog, biological, social beings—
and then use technology to serve our principles.

We are excited to see what can emerge.

Please join us. Write to ppangaro@cmu.edu

#NewMacy Network + #NewMacy Meetings

Margaret Mead
Photo via UN Multimedia

#NewMacy Network + #NewMacy Meetings

Thank you.

Special thanks to:
Igor Perko
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"Moreover, if we move in the direction of
making machines which learn
and whose behavior is modified by experience,
we must face the fact that every degree of
independence we give the machine
is a degree of possible defiance of our wishes."

—Norbert Wiener 1949

Margaret's Elegant Question:
#NewMacy in the 21st Century

Thank you.

Links

#NewMacy-Related Links

#NewMacyMeeting #1

Cybernetics, AI, and Ethical Conversations

Pickering, "The Next Macy Conference"

Pickering, "Ontology and Antidisciplinarity"

Wiener 1949, NYTimes article by John Markoff

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"As a designer, I shall act always so as to increase the total number of choices for a user."*

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*****_after Heinz von Foerster's_ Ethical Imperative