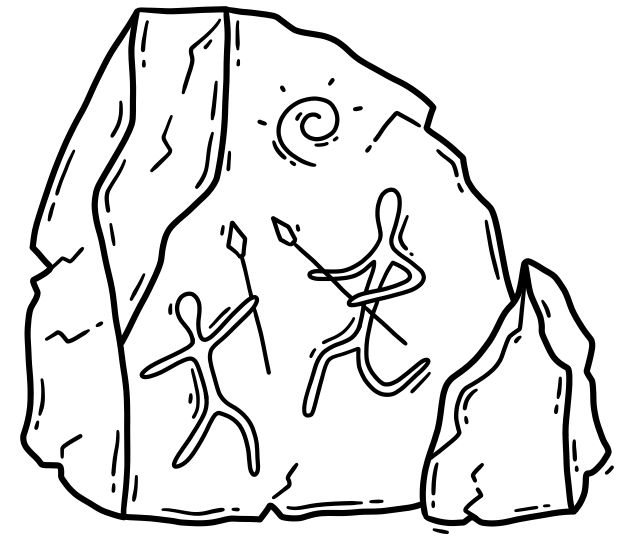# Visualizing Outcomes

From black boxes to viable systems in software and society

Our imagination is arguably the single most significant contributing factor to our technological, scientific, and social progress. However, this progress is now impeded by the black box complex systems we create, which limit the viability of what we build.
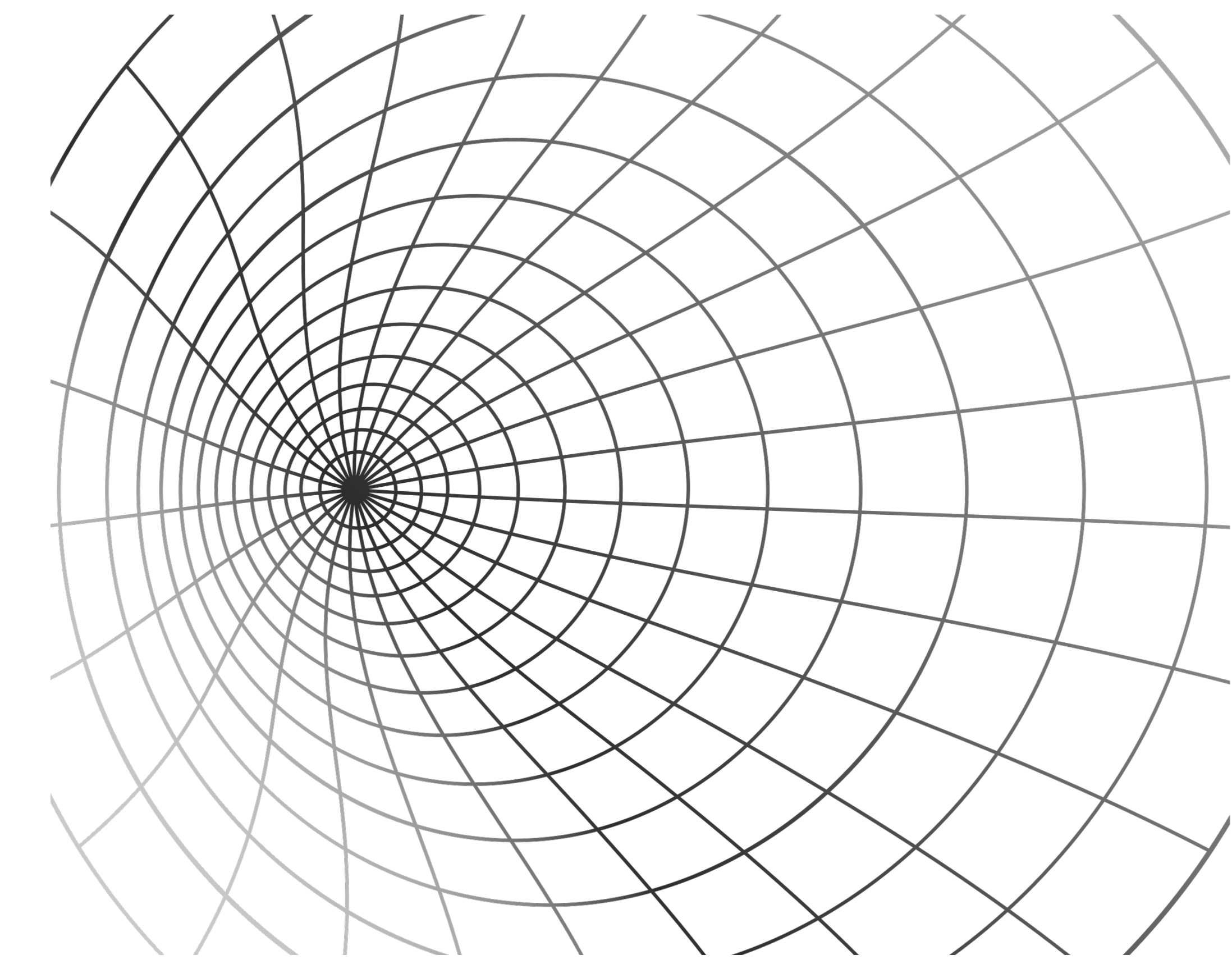
Can we rely on imagination once again in the 21st century?

"For the first time in history science can do whatever can be exactly specified. [...] Our job is to start specifying."

Stafford Beer, "Designing Freedom"

Authors
Boyan Angelov

Affiliation
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01 Starting with the Why

Designing an innovative, large system from basic, seemingly random building blocks is difficult—impossible without a vision. If we don't do it, we leave the future to chance and current trends (the **environment**).

The result is **unusable solutions** in software and **hauntology*** in society.

*persistence of elements from the past, showcasing a lack of new ideas and creativity

$$i + s = o$$

ingredients, steps, outcome

$$s = ?$$
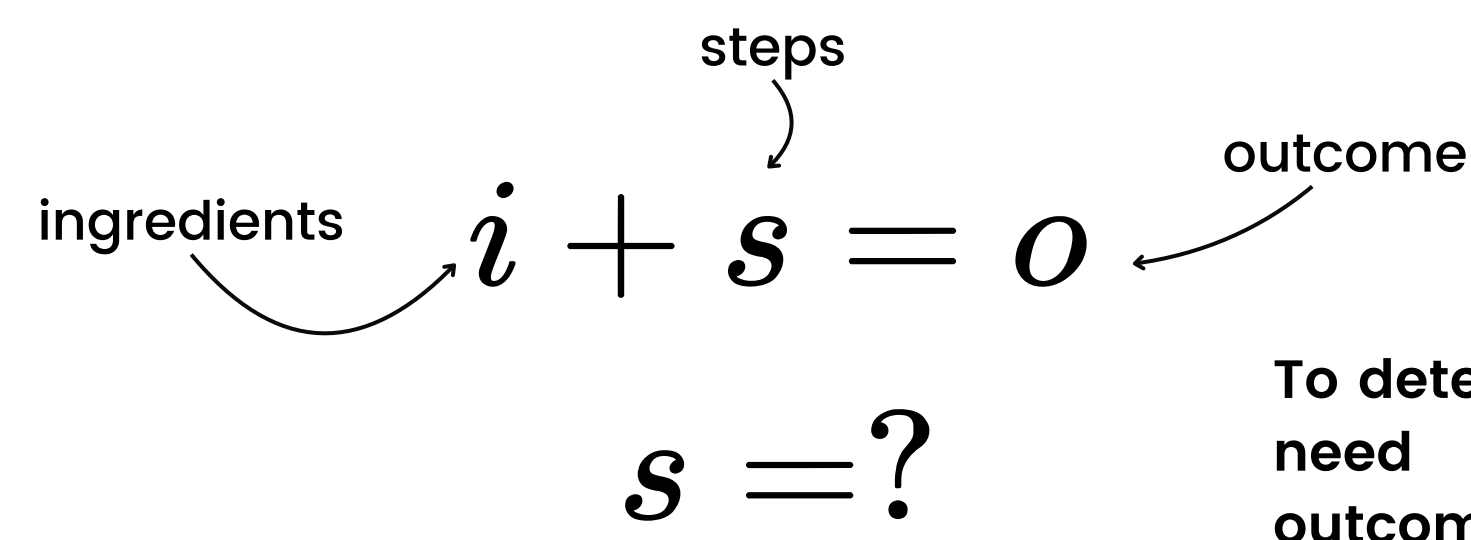
To determine the steps, we need to solve for the outcome.

02 Examples

The Operations Room of **Project Cybersyn** is a future vision encoded into 70s technology. The designers used materials to mimic modern-day big data dashboards, graphical interfaces, and real-time analytics, bringing the future closer.

An artistic interest at **ART + COM** forced the creation of sophisticated algorithms to process data at scale. Years later, billions use the technology to navigate the world through products such as Google Maps.

Complex software systems hinder the innovation and adaptability of organizations worldwide.
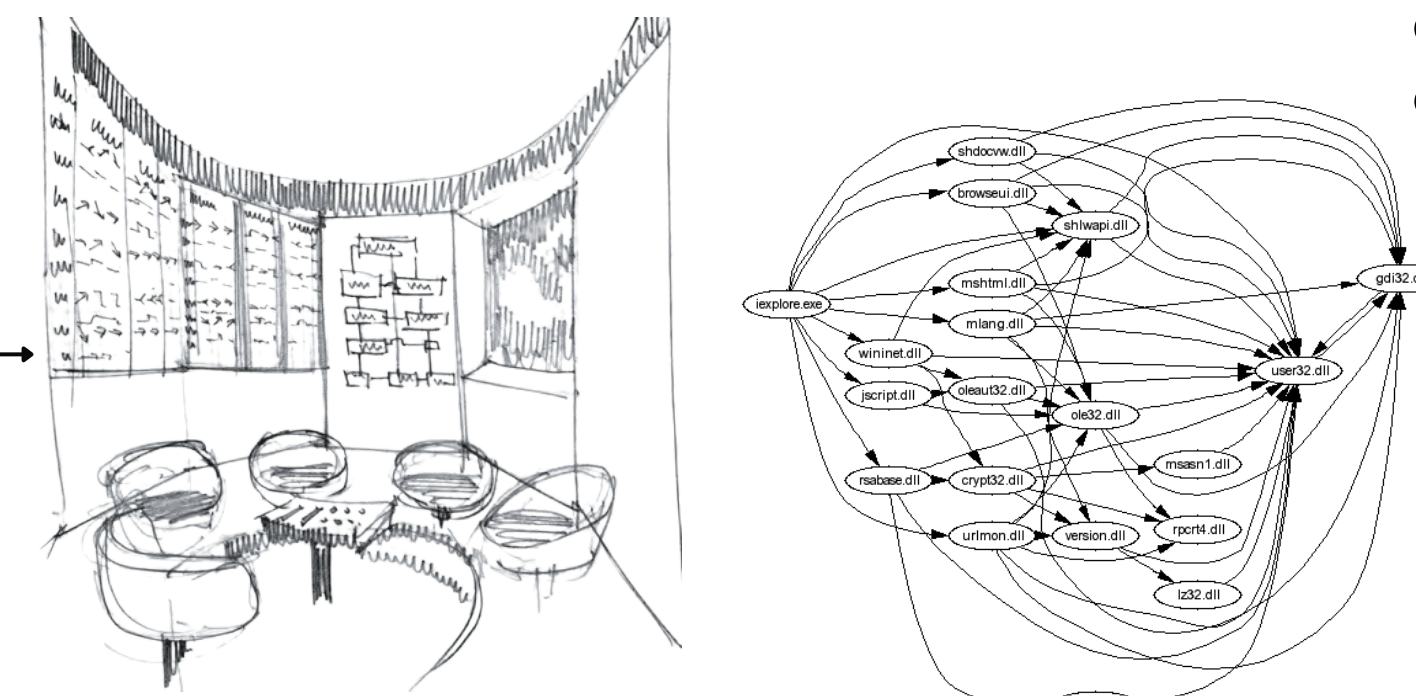
Brutalist architecture in Britain in the 1980s showed the dehumanizing cultural tendencies of the time and the lack of exciting future-looking alternatives.
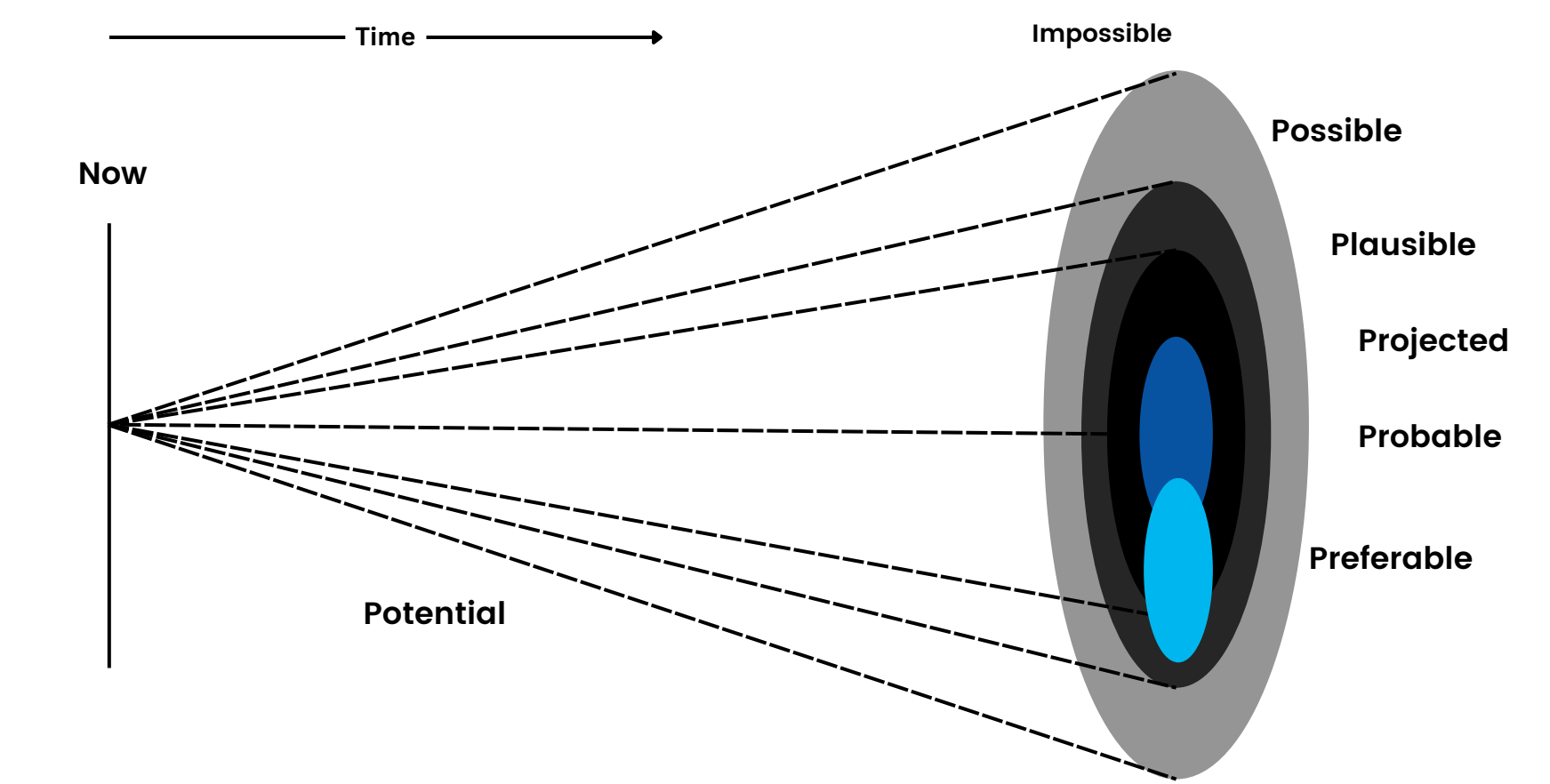
The Plug-in City (Peter Cook, Archigram)
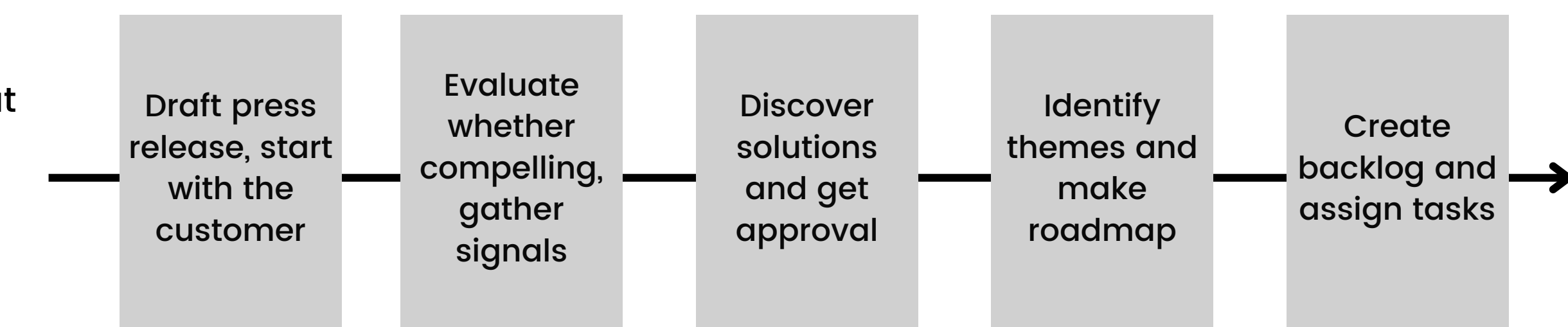
03 Solution methods

A)

Futures thinking allows us to think about scenarios of different probabilities when we look forward.

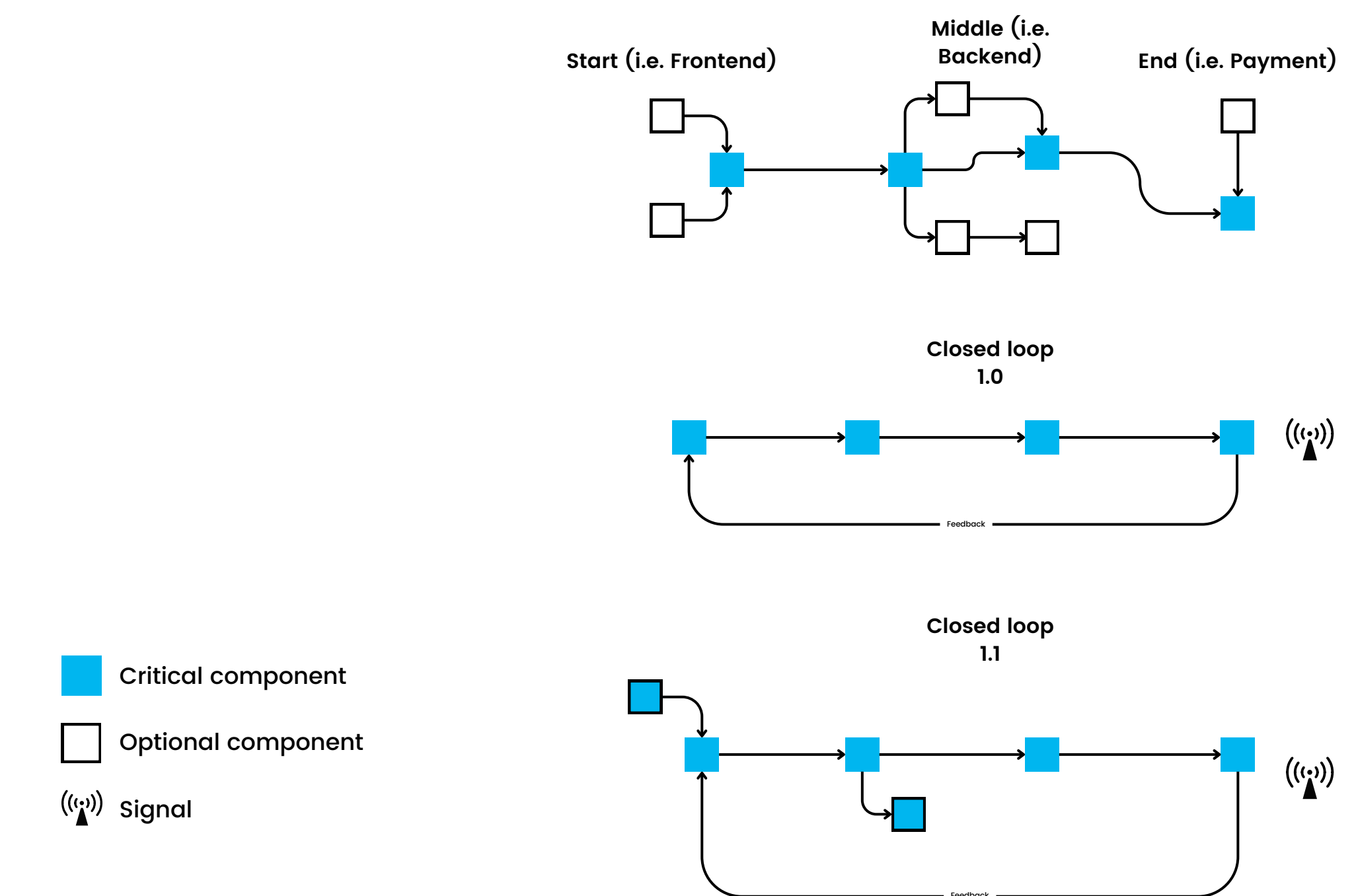We can use this to define a future we want and focus our efforts to make it more probable.

Time — Now — Impossible, Possible, Plausible, Projected, Probable, Preferable — Potential

B)

Working backward ensures that we build only what is desired. This pre-work is essential to overcoming the software's complexity and focusing on user-requested features.

| Draft press release, start with the customer | Evaluate whether compelling, gather signals | Discover solutions and get approval | Identify themes and make roadmap | Create backlog and assign tasks |

C)

Closing the loop is a method that breaks down a complex product into a critical end-to-end flow.

Building this first makes our progress measurable, validates the product hypothesis faster, and enables feedback adjustments.

Start (i.e. Frontend) — Middle (i.e. Backend) — End (i.e. Payment)

Closed loop 1.0

Closed loop 1.1

- Critical component
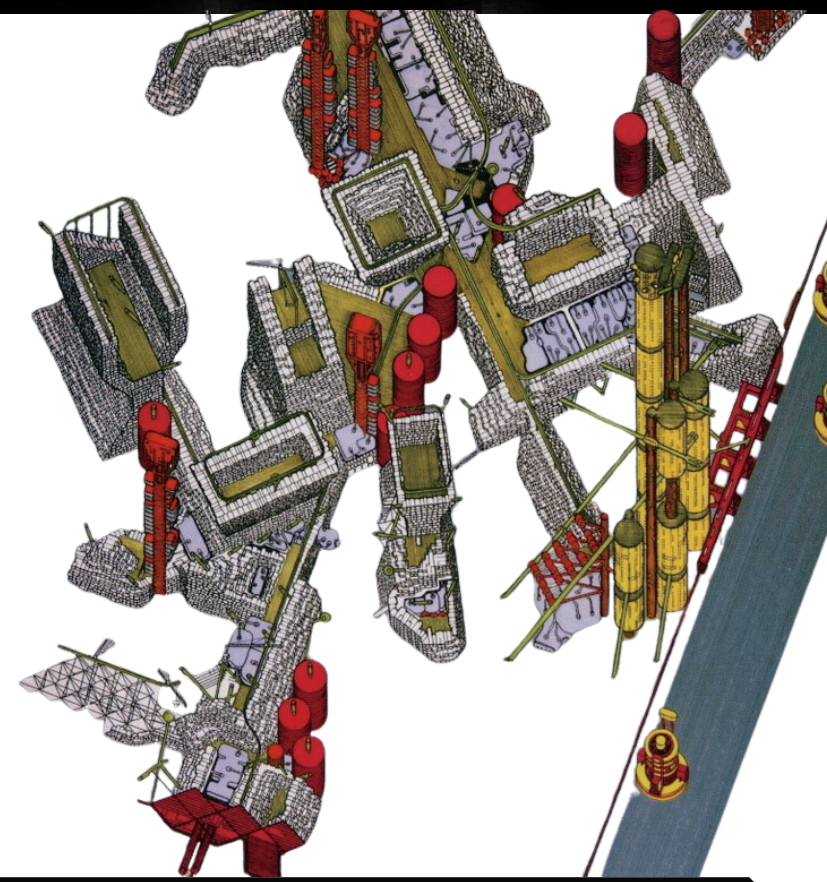- Optional component
- Signal

04 Perspectives

Using such methods allows us to:

- Derive the steps required for a complex solution
- Force us to think about users/citizens
- Focus on desirable and ambitious products
- Ensure the impact is measurable
- Ensure implementers have a **holistic understanding** and **motivation**

05 Take home message

- Start with the end
- Close the implementation loop early and iterate
- Implement signal collection
- Estimate future probabilities

$$o = s + i$$

outcome, steps, ingredients

To **CREATE** a desirable future we need to **IMAGINE** it first

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Literature

Fisher, Mark. Ghosts Of My Life: Writings on depression, hauntology and lost futures. John Hunt Publishing, 2014
Medina, Eden. Cybernetic Revolutionaries: technology and politics in Allende's Chile. MIT Press, 2011.
Balagtas, Phil. Making Futures Work. O'Reilly Media, 2024
Beer, Stafford. Designing Freedom. House of Anansi, 1993.

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