PLANETARY
INTELLIGENCE

A Theory of Change for Pi Studio

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Sustainability, for all the noise that surrounds it, is at heart **a decision problem**. Not a communications exercise. Not a reporting obligation. A decision problem. Every organisation, public or private, is being asked to make choices that have material environmental, financial and social implications, often simultaneously. And yet the actual decision environments inside organisations remain—if we are honest—poorly suited to the task.

Information is scattered. Evidence is inconsistent. Tools are disconnected. Assumptions are rarely made explicit. Institutional memory leaks continuously. And although digital systems produce more data than ever before, very little of it is organised into forms that support real reasoning.

Pi Studio exists because we believe these conditions can be improved. Not by generation of ever more dashboards, nor by more voluminous reports, nor by ungrounded uses of AI, but by creating an environment where people can think

more clearly, interrogate evidence more critically, and build defensible transition strategies with the confidence that their logic is transparent.

This piece sets out our ***Theory of Change***: our view of how sustainability decisions fail today, what must shift for them to succeed, and how Pi Studio is designed—cautiously, deliberately—to enable that shift. It is not a promise of transformation. It is a hypothesis, grounded in experience and open to being proven wrong. Our intention is not to over-state what software can achieve, but to articulate the reasoning behind what we have chosen to build.

1. The problem: sustainability work collapses under its own complexity

Most sustainability challenges share a common feature: they are multi-factor, multi-stakeholder, and multi-timescale. Carbon, cost, compliance, risk, infrastructure, public perception, operational constraints, scientific uncertainty—all intersect. And while this complexity is widely acknowledged, its implications for decision-making are often underestimated.

Inside most organisations, sustainability decisions are formed within what we might charitably call *fragmented cognitive architectures*.

Teams work with:

- reports in PDF,
- data in spreadsheets,
- assumptions in slide decks,
- expert knowledge locked in individuals' heads, and
- AI tools that perform well at the surface but lack the ability to reason over the organisation's specific constraints.

The result is predictable:

Slow decisions. Shallow analysis. Weak defensibility. Repeated work. And, at the extreme, plans that look plausible on paper but collapse under scrutiny. The result - what we hear more often than anything else - an inability to win the invest argument and get the budget to make change happen

We are not criticising practitioners; they are doing the best they can with the tools provided. The criticism, if any, is directed at the environment in which they work—a system that actively impedes the quality of decisions.

This is the starting point for Pi Studio: not "AI will solve sustainability", but "decision-making requires better infrastructure".

2. Why data and dashboards are not enough

There is a well-intentioned belief that if an organisation simply had more data, or better dashboards, or a more compliant reporting stack, then sustainability decisions would improve. Unfortunately, the evidence suggests otherwise.

Most organisations already have more data than they can use. They have access to more external data and insight than ever before. What they lack is the ability to *interpret* it—consistently, rigorously, transparently.

Dashboards help with monitoring. They almost never help with choosing.

Decision-making requires:

- the ability to frame a question clearly;
- the ability to understand how different variables influence outcomes;
- the ability to explore alternative pathways;
- the ability to surface assumptions and test them; and
- the ability to connect the reasoning to financial, operational and environmental realities.

This is not what traditional BI or ESG tools are designed for. They answer "what is happening", not "what should we do".

The law of unintended consequences applies strongly in sustainability. Decisions made in isolation—without adequate modelling of constraints, interdependencies and trade-offs—tend to produce surprising outcomes, often at significant cost.

This is why Pi Studio is built as a reasoning environment, not a reporting platform.

3. Our insight: sustainable transitions depend on a better cognitive architecture

After working with sustainability teams, analysts, strategists and technologists, we've come to a simple conclusion:

> **The quality of sustainability decisions is limited not by the ability of the people involved, but by the structure of the environment in which they reason.**

Good analysts can only do so much when forced to reconstruct evidence from fragments each time they work. Good strategists cannot compare scenarios properly without shared assumptions. Good teams cannot operate effectively when organisational knowledge dissolves between projects.

Pi Studio is our attempt to provide a better "thinking environment" with three deliberate characteristics:

1. Contextual

It incorporates the organisation's own knowledge—its reports, assumptions, operational constraints—because generic intelligence is insufficient.

2. Evidence-linked

Every claim, recommendation or inference is tied back to sources, data or solution pathways, so that decisions can withstand scrutiny.

3. Structured

It guides users to articulate objectives, dependencies, actors, trade-offs and uncertainties in a way that supports rigorous decision-making.

To be clear: this is not magic. It is the application of familiar decision-science principles to the messy reality of sustainability work, supported by AI where appropriate and constrained deliberately by evidence where necessary.

4. The mechanism: a shared intelligence layer

The core mechanism behind Pi Studio—our “change engine”, if you like—is something we call the shared intelligence layer.

It rests on three components.

(a) Private knowledge structured into reusable form

Organisational intelligence is usually buried in documents and people. Pi Studio surfaces and structures it—converting scattered material into cards that can be connected, mapped and reused.

(b) Curated sustainability intelligence

We maintain a growing domain graph of solutions, evidence links, regulatory drivers and scientific references—not to replace judgement, but to provide a baseline of verified material practitioners can build on.

(c) Decision scaffolding

We provide modelling structures that help users frame problems, test scenarios, explore assumptions and quantify trade-offs. Not as a rigid methodology but as a support system that reduces cognitive load.

Around this we use AI selectively: not as a source of truth, but as a tool for extraction, synthesis, and accelerating analysis—always constrained by the available evidence and always open to inspection.

The Theory of Change, put plainly, is this:

> **If teams have access to a shared environment that combines their internal context with curated sustainability intelligence, and if the reasoning process is made explicit, traceable and testable, then the quality and defensibility of sustainability decisions will improve.**

We believe this is directionally correct. We are also open to discovering its limitations.

5. The expected outcomes: what improves, and why

If Pi Studio works as intended, several things should change inside an organisation.

Short-term improvements

- Decisions accelerate because information retrieval is no longer a bottleneck.
- Recommendations strengthen because assumptions and evidence are explicit.
- Teams align faster because they are looking at the same structure.
- Scenarios become comparable because they share consistent framing.

Medium-term outcomes

- Knowledge stops evaporating between projects; instead, it accumulates.
- Organisations begin to develop reusable decision patterns.
- Boards receive clearer, more defensible documentation.
- Regulatory and audit processes become easier because evidence chains are transparent.

Long-term impact

If the above holds, organisations should be able to:

- design transition pathways that are financially credible,
- reduce the cost of discovering viable solutions,
- avoid dead-ends caused by untested assumptions, and
- make decisions that align better with scientific, operational and financial constraints.

We are cautious about claiming more. Software does not decarbonise a supply chain or transform an industry. People do. Our ambition is simply to equip those people with an environment that does not fight against them.

6. Why we are stating this publicly

A Theory of Change is not something typically expected from a software company. Most shy away from revealing their reasoning. We have chosen the opposite.

There are three reasons.

1. Intellectual honesty

We want to be transparent about how Pi Studio intends to create value—and equally, where it may fail. Stating our assumptions publicly forces us to keep them tight and testable.

2. Epistemic accountability

Our users operate in domains where evidence matters. We should hold ourselves to the same standard.

3. A commitment to build tools that respect complexity

Sustainability is rife with over-simplification and unearned confidence. So is the software industry - especially AI. We are sceptical of “one-click solutions”, sceptical of metrics without context, and absolutely sceptical of AI tools that hallucinate

coherence where none exists. Stating our Theory of Change is a way of signalling that we do not subscribe to those tendencies.

7. Closing reflection

Pi Studio is not an oracle and does not pretend to be. It is an attempt to provide the conditions under which human reasoning about sustainability can improve: a coherent workspace, a shared memory, curated evidence, and explicit scaffolding for decisions.

Whether this is sufficient—whether it genuinely shifts organisational outcomes—remains to be tested in partnership with users. We welcome that scrutiny. We expect to adjust our thinking as we observe how real organisations use (and misuse) the tools.

But if we are serious about sustainability, and serious about decisions that will be audited, contested, funded and lived with over years, then we must invest in the cognitive infrastructure that supports those decisions. Pi Studio is our contribution to that infrastructure.

It is not a promise of transformation. It is an attempt to make better decisions possible.

Send us an email if you would like to try Pi Studio: beta @ fpi.earth