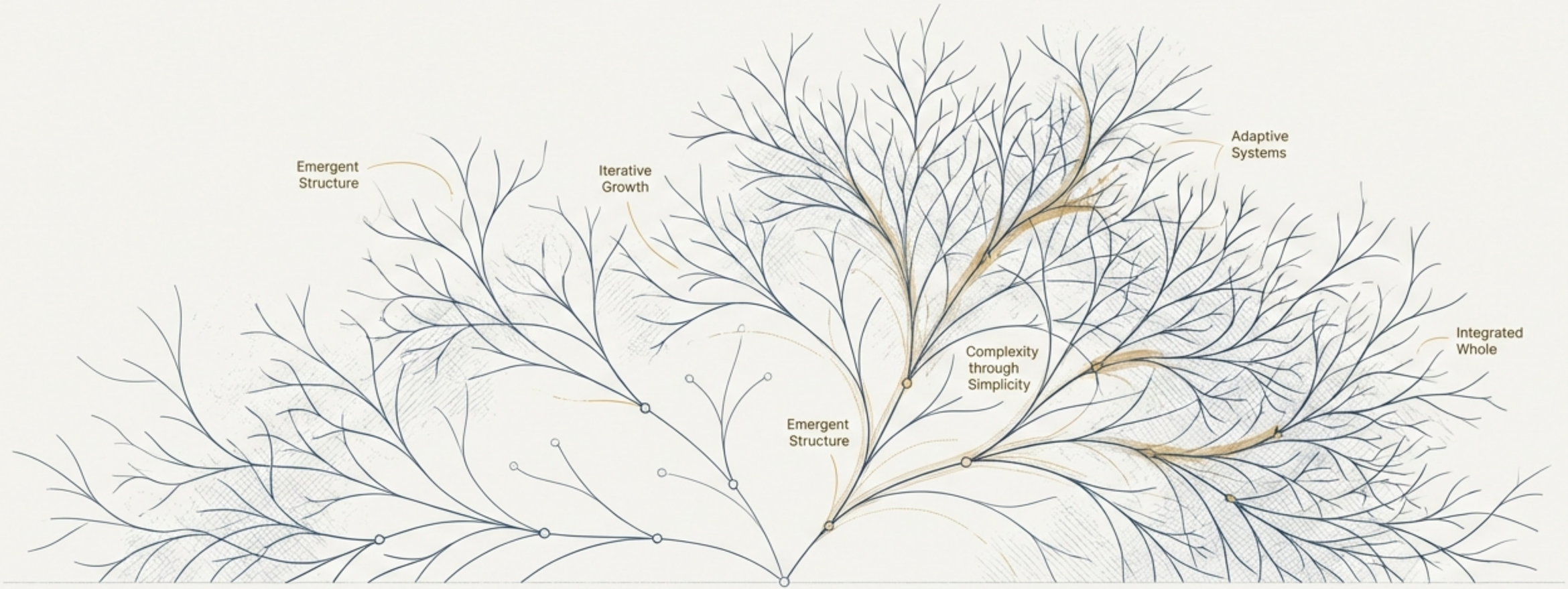
# Quality by Evolution

## How Great Software Design Emerges, Not Unfolds.

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# “Perfection is achieved not when there is nothing left to add, but when there is nothing left to take away.”

*— Antoine de Saint-Exupéry*

This introduces the core idea that true simplicity isn’t a starting point but a refined end-state. High-quality software achieves an elegant simplicity where every element serves a purpose. Simplicity emerges as the result of a relentless focus on quality and refinement.

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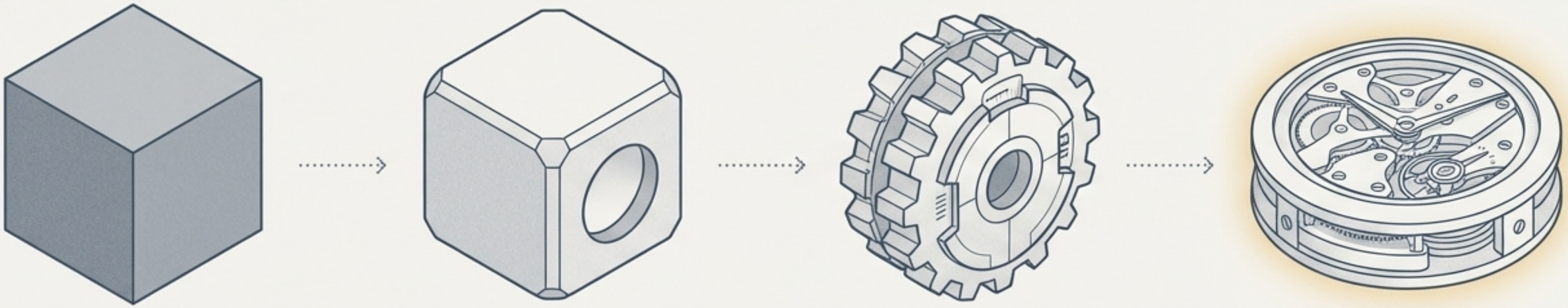
# Great design isn’t built in one go. It emerges.

Explain that quality in complex systems like software is an emergent property that evolves over time.

The best architectures are not created from a perfect blueprint; they emerge from self-organising teams that start with a workable solution and continuously refine it.

This is supported by agile principles: “The best architectures, requirements, and designs emerge from self-organizing teams.”



Initial Idea

Workable Solution

Iterative Refinement

Evolved Design

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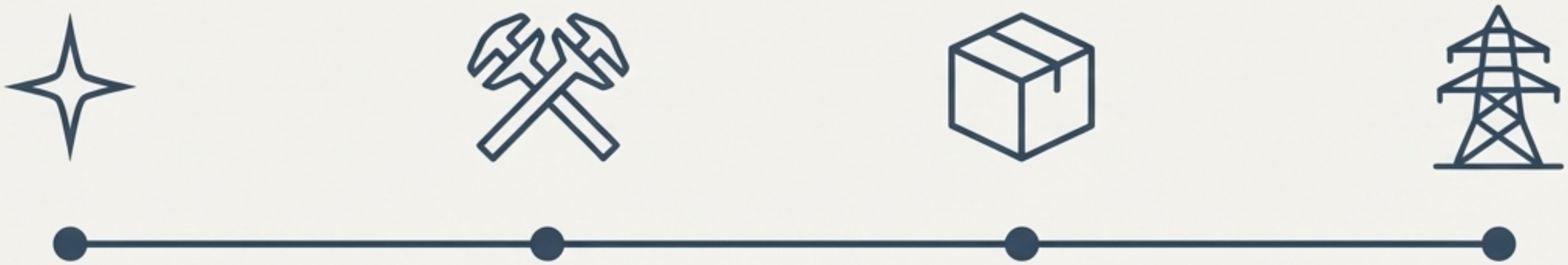
# Every piece of software is on an evolutionary journey.



## Genesis

Novel, chaotic, the unexplored territory of new ideas

## Custom-Built

Bespoke solutions that are beginning to solidify

## Product

Standardised, off-the-shelf components or services

## Commodity

Stable, industrialised utilities that are taken for granted

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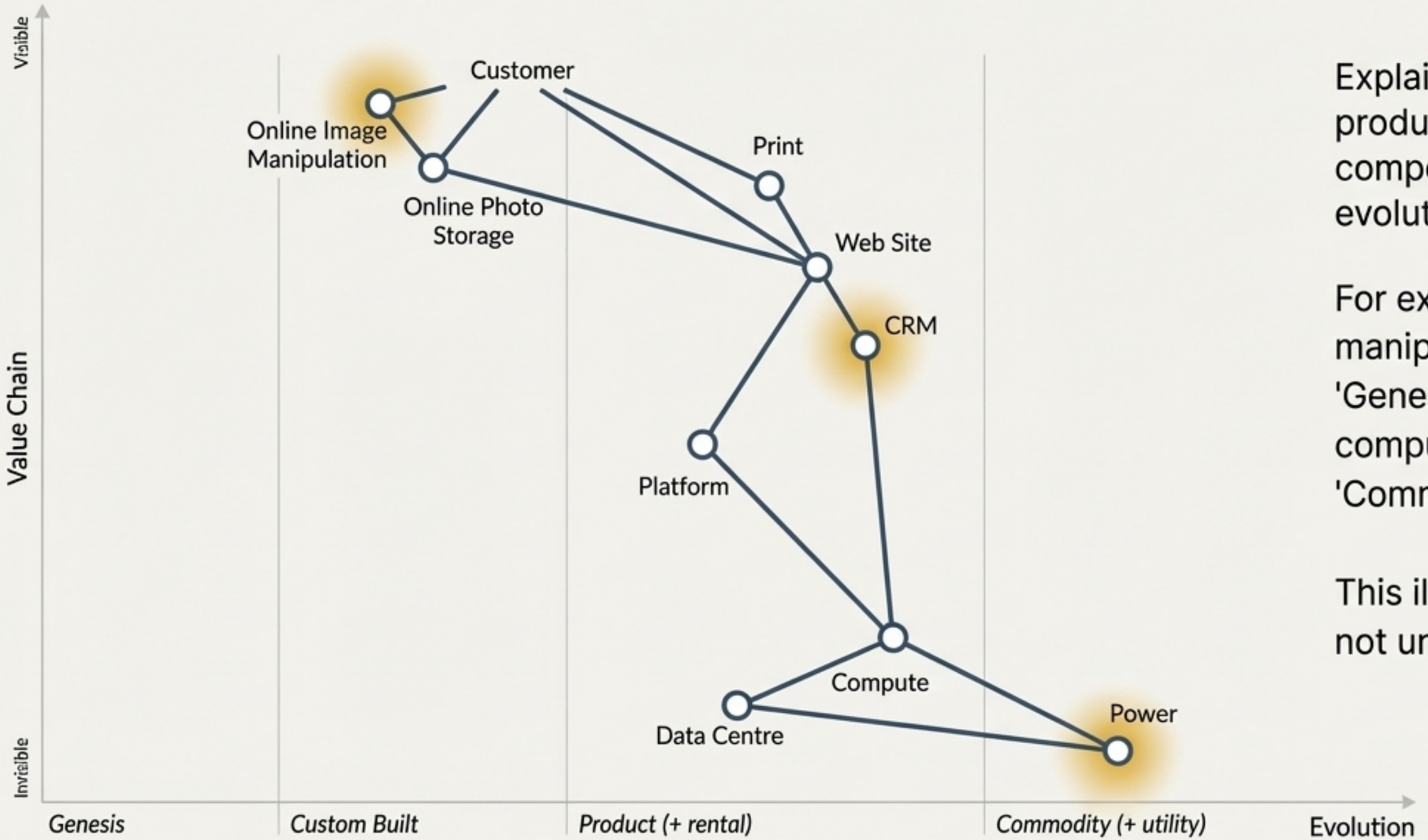
# A system evolves at different speeds.




Explain that a single software product is a composite of components at different evolutionary stages.

For example, a new image manipulation feature might be in 'Genesis', while the underlying compute power it relies on is a 'Commodity'.

This illustrates that evolution is not uniform across a system.

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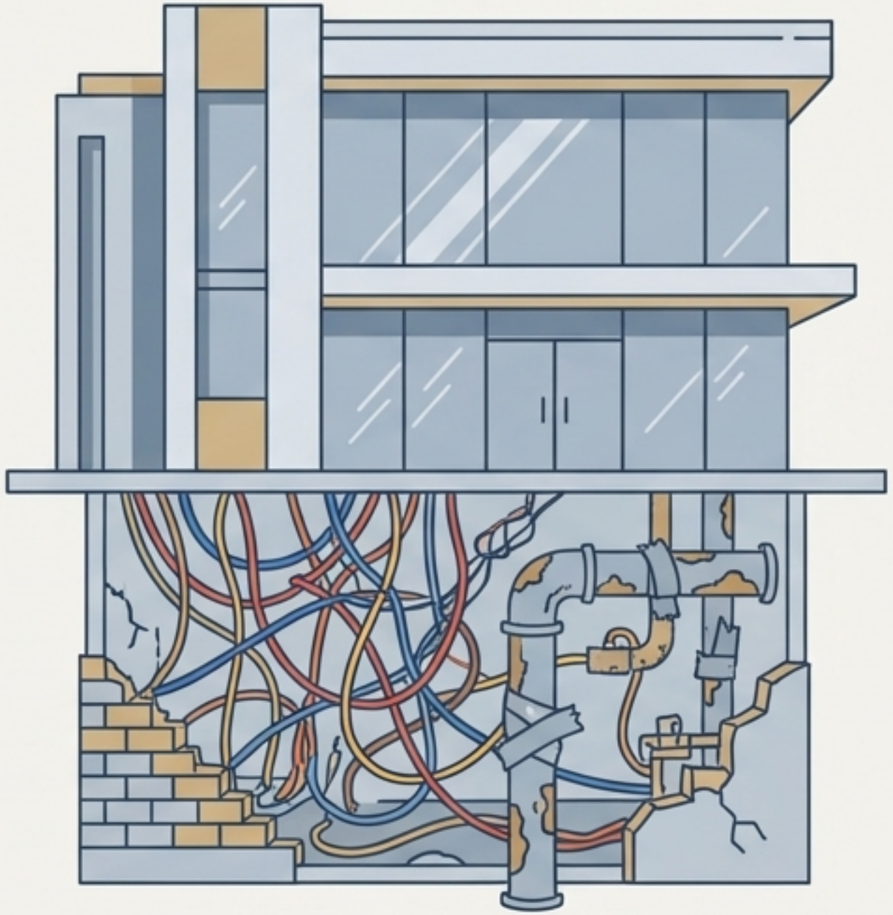
# The most dangerous software is the prototype that pretends it’s a product.



A system in the 'Genesis' stage, with its fragile internals and high technical debt, can be given a polished UI that makes it appear like a stable 'Commodity'.

This creates a ‘permanent prototype.’

Quote from Foote & Yoder: ‘Sometimes this strategy is too successful — the client, rather than funding the next phase of the project, may slate the prototype itself for release.’

This leads to the classic ‘Big Ball of Mud.’

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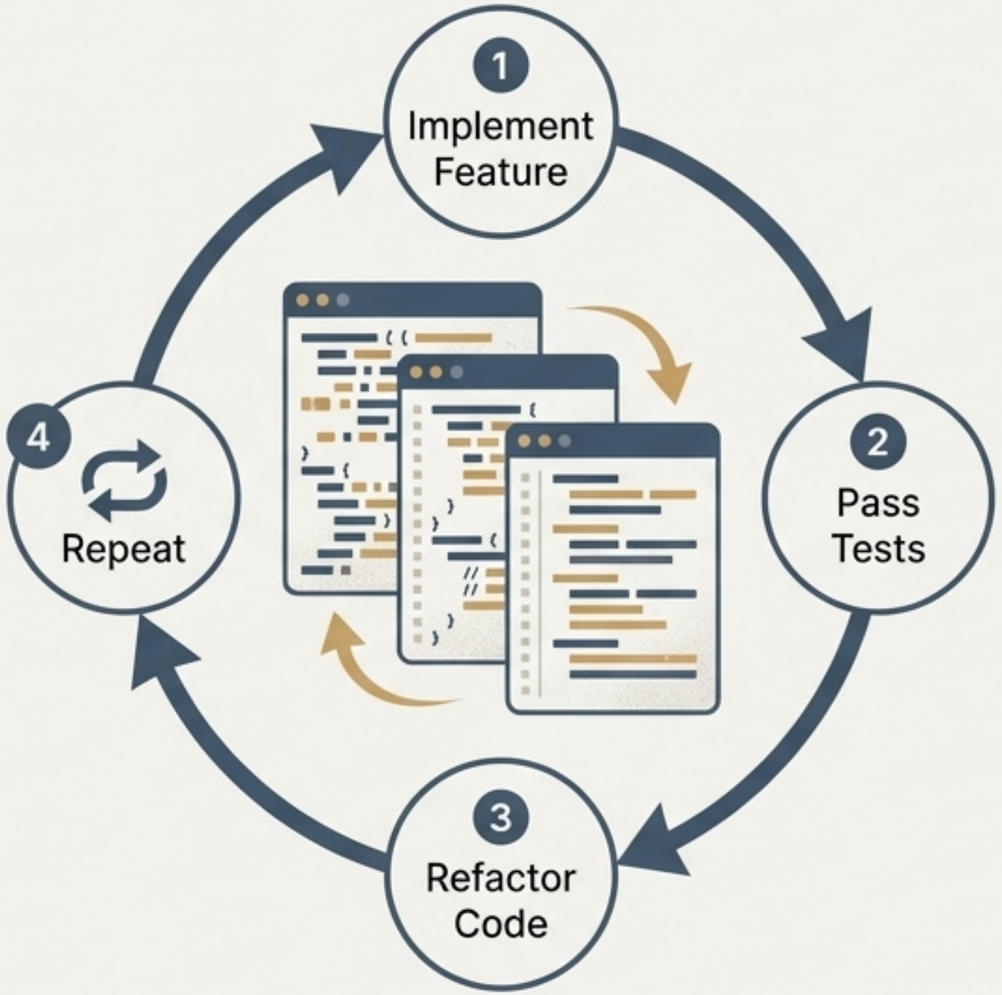
# Evolution is powered by relentless refinement.




Introduce continuous refactoring as the engine of emergent design.

High-quality code starts messy and becomes clean through relentless refinement.

Quote Martin Fowler: “Any fool can write code a computer can understand. Good programmers write code that humans can understand.”

Refactoring is the process that turns the former into the latter.

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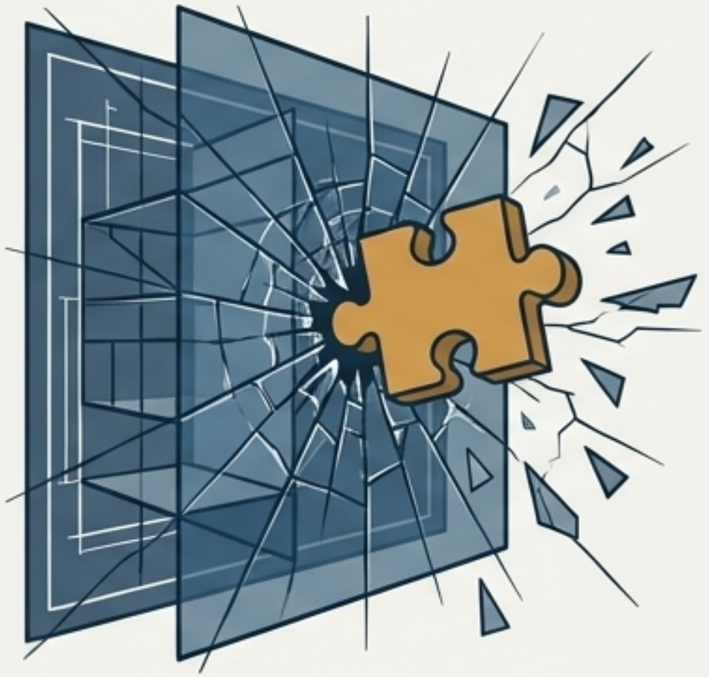
# Emergent design isn’t ‘no design.’ It’s continuous design.

Path A: Rigid Blueprint



Path B: Organic Growth

Explain that this approach is not an absence of architecture; it's the idea that the best architecture unfolds through constant adaptation. It is guided by principles like YAGNI (“You Ain’t Gonna Need It”). The design grows organically rather than being built from a perfect, rigid blueprint. Quote Kent Beck: “...you won’t have built a framework—you’ll have evolved one.”

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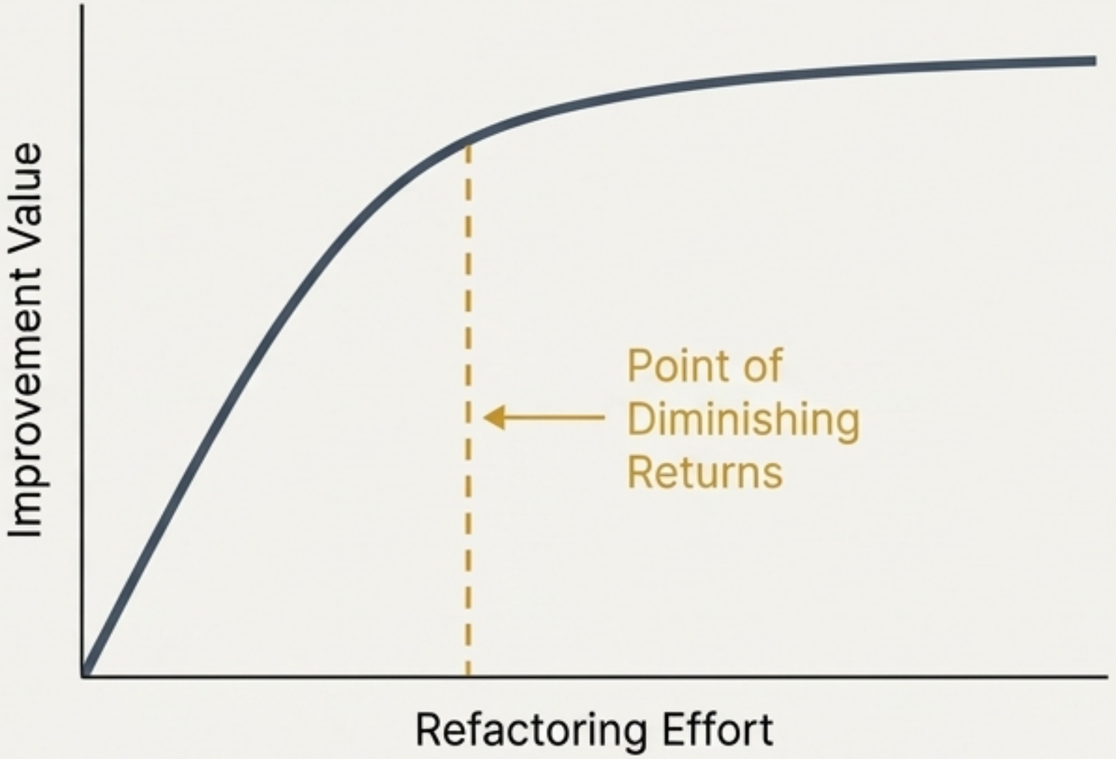
# Refactor where it matters. Stop when you hit diminishing returns.

Explain that refactoring must be pragmatic. Focus on areas of the codebase you are actively working in. Avoid speculative cleanups on code that is rarely touched. Quote the principle: “If you were in charge of a city budget, you wouldn’t fix roads nobody uses.” The goal is sustainable improvement, not theoretical perfection.

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# The best design is invisible. It just works.


Visible Frustration

Invisible Flow

When quality emerges,  the user experience becomes seamless and intuitive. Users don’t notice the design because it doesn’t get in their way; it feels natural. In contrast, poor design is highly visible through the frustration it causes. As the source notes, “Good design is invisible — when done right, users don’t notice it because everything feels natural, intuitive, and easy.”

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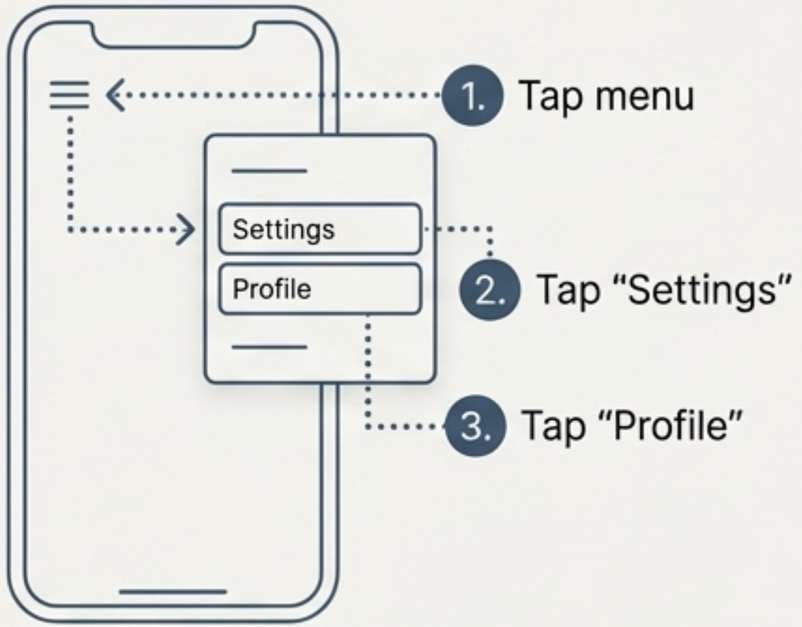
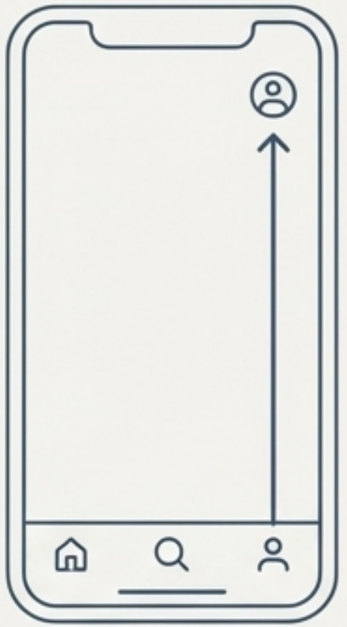
# Don’t confuse a clean interface with a simple experience.




**False Simplicity**
3 Clicks to Goal ✕



**True Simplicity**
1 Click to Goal ✓

Address the trap of ‘False Simplicity.” Hiding essential functions behind a single hamburger menu to achieve a minimalist look can harm usability by making features hard to discover. True simplicity is about clarity, intuition, and flow, not just the number of visible elements. User feedback is the only reliable compass to navigate this.

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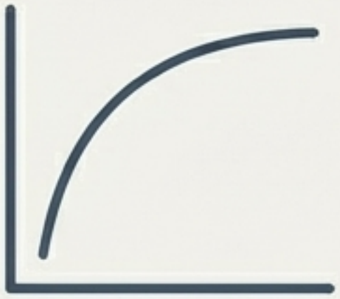
# High quality has a stable gravity.



## 1. Diminishing Returns

Further changes yield little user or technical benefit.

## 2. User Delight

Users adapt quickly and would hate to go back to the old way.

## 3. Stable Architecture

The code is clear, modular, and easy to extend without breaking things.

## 4. Fit for Purpose

It meets all constraints (performance, budget) without over-engineering.

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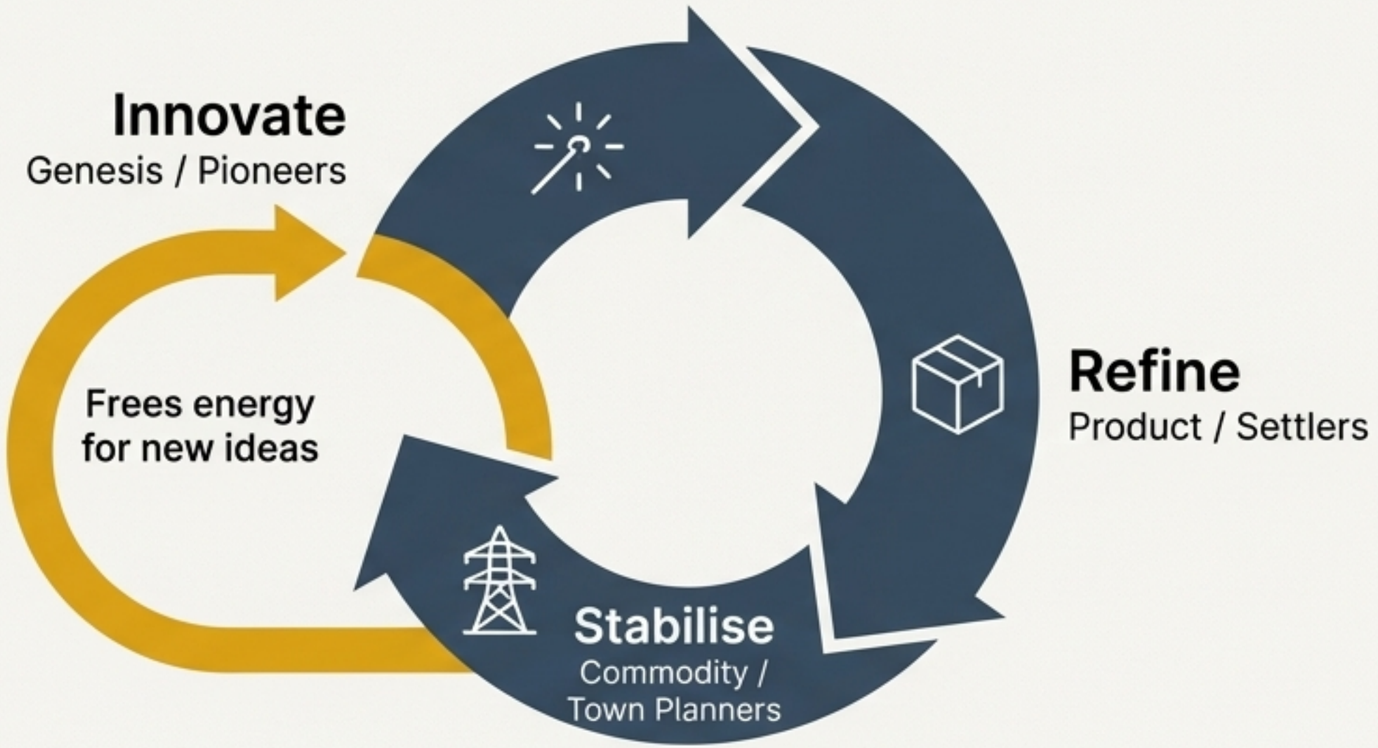
# Quality is a journey, not a destination.




Summarise the core message. Quality emerges from a **virtuous cycle** of building, refining, and listening. **By commoditising** existing components (making them stable and reliable), we free up **creative energy** to **innovate on the next 'Genesis' idea.** This connects to the Wardley personas: Pioneers exploring new ideas, Settlers refining them into products, and Town Planners stabilising them into commodities.

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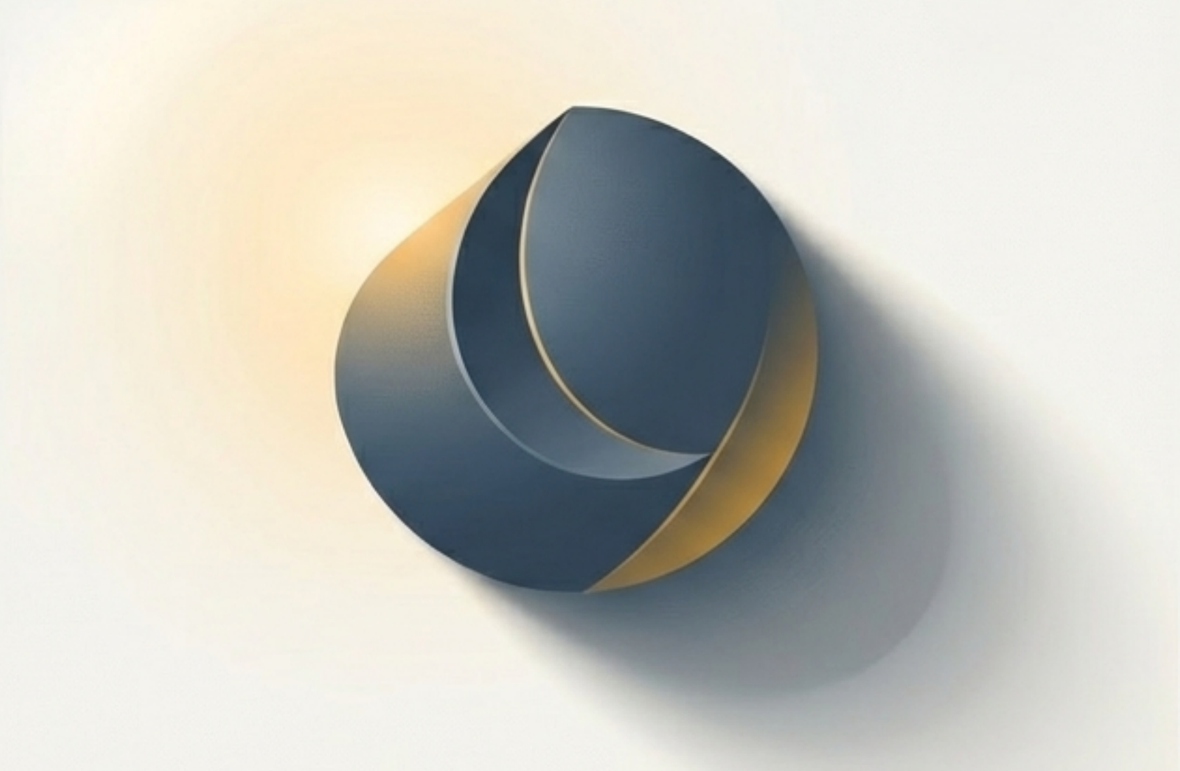
The pursuit of quality creates simplicity.
The pursuit of simplicity reveals quality.



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