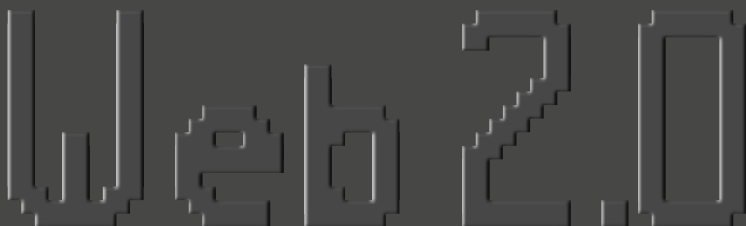The concept of decentralised futures has become a touchstone in contemporary design and technology discourse—but what does this actually mean for practitioners on the ground? To move beyond buzzwords, we must understand how digital cultures and infrastructures have evolved, and why this history matters for shaping creative resistance today.

(early 1990s–early 2000s)

Web1.0 was the period most fondly recalled by practitioners like Olia Lialina. It was characterized by open protocols and standards, with the radical notion that anyone could publish and access information. The era of personal homepages and hand-coded experiments felt genuinely partici-patory; the web was shaped by its users, not just corporate interests. Even as commercial uses emerged, the spirit of openness and DIY creativity persisted.

(mid-2000s onward)

Web2.0 introduced a new paradigm with social media giants like Facebook, YouTube, and Twitter. Initially, these platforms promised empowerment - everyone could "create content." But this supposed freedom quickly proved illusory: the cost of "free" platforms was the systematic extraction of user data, surveillance, and the consolidation of control in the hands of a few corporations. Ownership over one's digital self became ambiguous; users were both product and consumer, and the participatory web was gradually fenced in by profit models.

Ursula Franklin, The Real World of Technology, 1980

The internet's development can be understood in three broad phases, each marked by distinct philosophies and technological frameworks.

Web3.0

(ongoing)

Web3.0, sometimes called the "Semantic Web," is now positioned as a corrective to the centralisation and corporate control of Web2. In theory, Web3 promises a decentralised internet, built on blockchain, distributed ledgers, and peer-to-peer protocols that return control from large corporations to individuals and communities. Unlike Web2, where centralised servers own your content and audience, Web3 aspires to give users true ownership of their data and online identities. Practical examples include distributed publishing platforms and collective governance systems, where value and decision-making are managed by the network rather than a single authority.

However, while Web3 advocates promise radical autonomy and community governance, many so-called *"decentralised" platforms* still reproduce old power dynamics: they are governed by hidden elites or rely on complex protocols that remain inaccessible to most users. The significant environmental costs of blockchain technologies, along with the exclusion of those lacking technical expertise, further complicate any narrative of decentralisation as purely liberatory. Thus, the current implementation of Web3 is uneven, and often entangled with hype and contradiction. Still, its very direction points to a persistent human desire for autonomy and self-determination in the face of technological centralisation (Schumacher, 1973).

Ernst Friedrich Schumacher, Appropriate Technology, 1973

DECENTRALISATION AS APPROPRIATE TECHNOLOGY: ROOTS AND RENEWAL

For me, the promise of decentralisation is not about technology alone, but about returning control, understanding, and meaningful participation to users. Softer computing borrows this desire for autonomy, but insists that the tools themselves must also remain transparent, repairable, and designed for local, contextual needs - not just distributed for distribution's sake.

The roots of decentralised thinking run much deeper than blockchain or today's digital trends. Economist E.F. Schumacher's Small Is Beautiful (1973) is especially influential here, introducing the idea of "*appropriate technology*" - solutions deliberately designed for human needs and local contexts, rather than for efficiency or profit alone (Schumacher, 1973). Schumacher warned against what he called the "*idolatry of gigantism*," instead championing the principle of "*enoughness*": the belief that technology should be
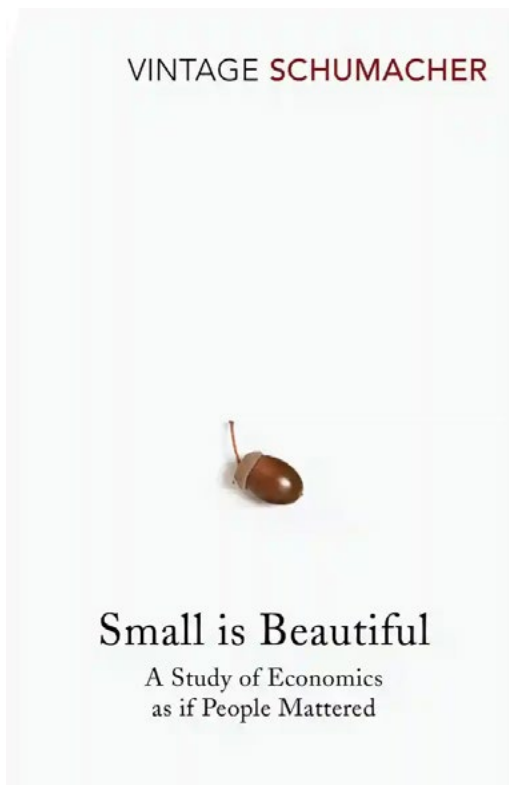
"small, simple, and manageable,"

not overwhelmingly complex or alienating. As he wrote, "Any intelligent fool can make things bigger, more complex, and more violent. It takes a touch of genius - and a lot of courage - to move in the opposite direction."

Though Schumacher's philosophy was originally formulated in response to the challenges of industrial economies, it speaks powerfully to the conditions of the contemporary digital world. As the web has evolved into the backbone of both social life and the digital economy, the call for small-scale, community-controlled, and sustainable solutions has only grown more relevant. Movements like open-source software, maker culture, and collaborative design all inherit aspects of Schumacher's vision, framing technology as a tool for liberation rather than a mechanism of control.

Ezio Manzini updates this philosophy for the networked age, describing the emergence of "SLOC" systems - those that are small, local, open, and connected. Manzini writes: "*...a distributed production and consumption system in which the global is a network of locals—a mesh of connected local systems, the small scale of which makes them comprehensible and controllable by individuals and communities*" (Manzini, 2011).

Here, "small" is not merely a question of physical scale but signifies a

Manzini, Ezio, The New Way of the Future: Small, Local, Open and Connected, 2011
Small Is Beautiful, E. F. Schumacher, 1973

VINTAGE **SCHUMACHER**

Small is Beautiful

A Study of Economics
as if People Mattered

qualitative shift in our approach to technology: valuing human needs, individual agency, and the intrinsic worth of meaningful, situated work.

Ultimately, the decentralised vision is not about chasing techno-logical utopia for its own sake.

Instead, it is about designing tools, platforms, and infrastructures that prioritise agency, transparency, and local relevance.

It is a commitment to breaking free from the "default" of top-down, maximalist systems, and instead nurturing technological cultures where people retain meaningful control over the systems that shape their lives and creative practices.

## DECENTRALISATION AS APPROPRIATE TECHNOLOGY: ROOTS AND RENEWAL

Understanding this economic and historical context is essential because it reveals why platforms have become so powerful and what is at stake when we accept their defaults. But what if things could be different?

Technology is, at its core, a tool. To regain control over our digital lives, we need to demystify these tools and understand how they work beneath the surface.

As creative coder and educator Tim Rodenbröker emphasizes, "*We have to understand how these systems work, otherwise we are completely powerless.*" His experience shows that when we move away from standardized, corporate ecosystems - "*as soon as you start to work with limited operating systems, there is no Adobe. You have to build your own processes, workflows, and that interestingly creates new kinds of aesthetics.*" By stepping outside of mainstream, all-in-one solutions, we are forced to invent, adapt, and experiment. This is where creativity flourishes.

The idea of "*low tech*" and local, custom-built solutions is intimately connected to this vision. In the highly monopolized world of graphic design, low-tech or self-built alternatives do not aim to replace every function of expensive commercial software, but instead make creative practices more accessible, personal, and open-ended. By bypassing the rigidity and conformity of predefined features, designers discover new forms of making that are often more responsive to their own needs and communities.
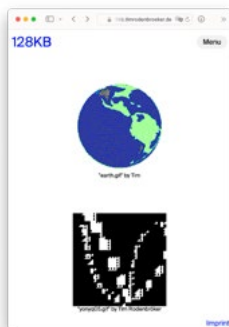

Tim Rodenbroeker, 128 KB challenge

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TOOL-MAKING

One of the most effective ways to resist the problems of today's digital landscape and to challenge the direction technology is headed is simply to start making your own tools, however small, amateur, or experimental. These acts of creation, even if they are strange or unfinished, contribute to a broader community of like-minded practitioners. They help demystify technology and invite others to overcome their fear of code, fostering a culture where people are empowered rather than intimidated.

By learning to code, or even just by tinkering and modifying existing tools, individuals gain the ability to understand, shape, and critically question the digital systems they rely on. This transformation from passive consumer to literate, responsible creator is at the heart of softer computing.

All of this context, historical, economic, and cultural, frames my argument for tool-making as a radical act of resistance. *Softer computing* is not just a style or an aesthetic; it is a deliberate set of choices about scale, control, friction, and community. In the next section, I explore how the tools we use, and the ways we build and adapt them, can become sites of creative defiance against high-tech, maximalist, and default-driven design culture.

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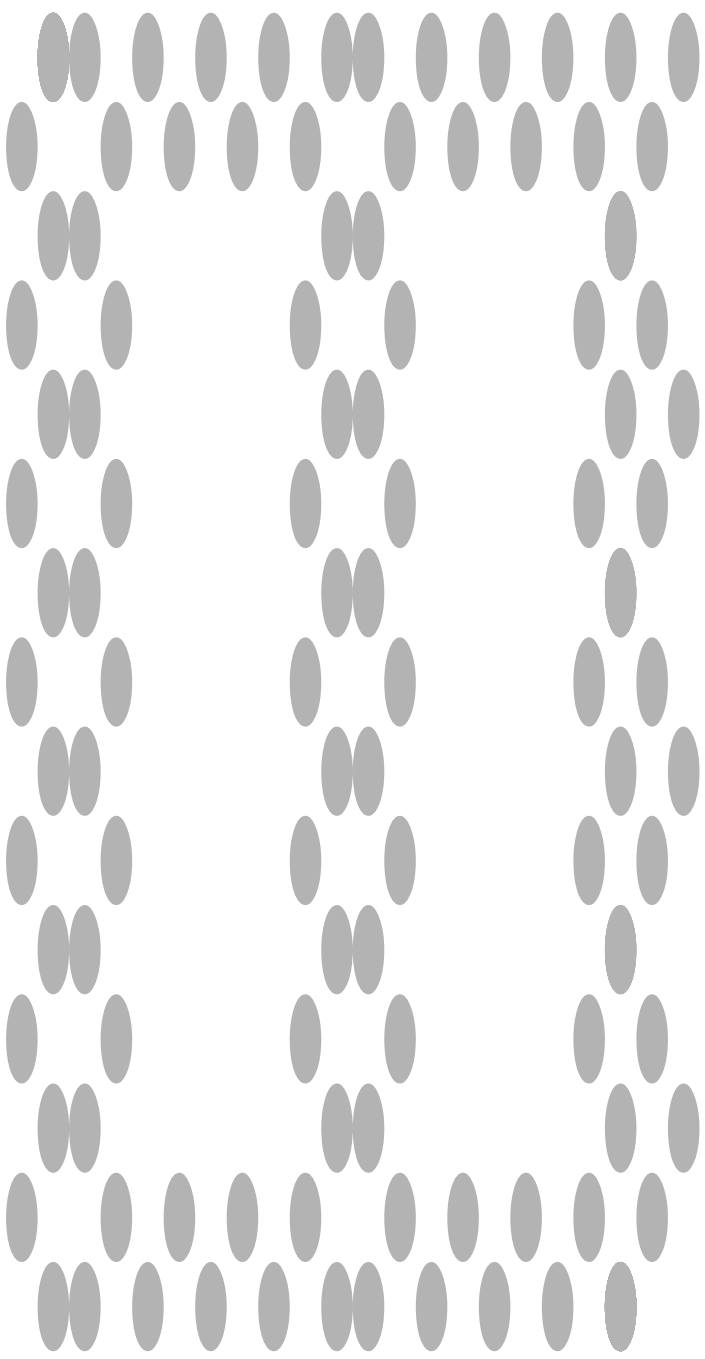
TOOL-MAKING:
TOOLS AS RESISTANCE TO HIGH-TECH APPROACHES

To fully grasp the significance of tool-making in contemporary design and technology, it is helpful to turn to Ursula Franklin's foundational work, The Real World of Technology (Franklin, 1990). Franklin's analysis goes beyond the functionality of devices, probing the social impact of technology on everyday life and exposing the limitations of today's increasingly prescriptive technological landscape.

Franklin draws a critical distinction between *holistic technologies and prescriptive technologies*. In her view, computers, and by extension most modern digital tools, are quintessential examples of prescriptive technology - systems designed for control, predictability, and the enforcement of standards.

Ursula Franklin, The Real World of Technology, 1980
Willa Köerner & Tommy Martinez, Software for Artists Book #2: Untethering The Web, 2022

"When successful, prescriptive technologies do yield predictable results. They yield products in numbers and qualities that can be set beforehand, and so technology itself becomes an agent of ordering and structuring."

Franklin, 1990

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Yet, as Willa Köerner and Tommy Martinez (2022) observe, there are still moments when computers allow for holistic relationships with technology: when makers can shape or modify their tools, rather than merely execute someone else's pre-set instructions. This echoes Franklin's ethos of the holistic technology - a mode of making where creators maintain direct, situational control over the entire process. In the digital domain, this might mean writing code by hand, building custom tools, or engaging in experimental design, rather than relying on automated systems or software defaults.

Holistic technologies evoke the world of craft, where artisans—whether potters, typographers, or digital designers—draw on their own skills, experience, and judgment. Each project becomes singular, shaped by the maker's lived involvement rather than by abstract, standardised processes. As Vita Sackville-West famously wrote,

"All craftsmen share a knowledge... Control is theirs."

In this spirit, the act of tool-making in softer computing is not merely about efficiency or output, but about sustaining creative agency and responsibility. In resisting the drift toward passivity and sameness imposed by automated or prescriptive systems, the promotion of holistic technologies within digital practice becomes a radical gesture. It asks us to see technology not as something that happens to us, but as something that can be consciously shaped, questioned, and reimagined. Franklin's holistic approach further invites us to consider technology as a set of social practice - deeply embedded in questions of value, power, and collective agency. It encourages designers and technologists to critically interrogate not just what tools do, but whose interests they serve, and how they might be reclaimed as instruments of care, plurality, and liberation.

Ursula Franklin, The Real World of Technology, 1980
Willa Köerner & Tommy Martinez, Software for Artists Book #2: Untethering The Web, 2022

Holistic technologies

WHAT IS A SOFTER TOOL?
## TOOL AS RESISTANCE TO HIGH-TECH APPROACHES

A *softer tool* is not simply a device or piece of software, but an approach to technology that is intentionally shaped by values of agency, reflection, and ethical interaction. Where traditional "hard" or prescriptive tools demand that users adapt themselves to rigid, invisible processes, a softer tool is designed for adaptability, transparency, and care. This kind of tool resists the prevailing drive for frictionless speed and efficiency, instead nurturing a more mindful, participatory relationship between people and technology.

the values of softer tools

1

Slowness

Softer tools allow for thoughtful engagement rather than the hurried, automated responses common in contemporary systems. Slowness here is not inefficiency, but an invitation to pause, reflect, and make choices that matter. The design encourages users to dwell in their process, to develop a sense of craft and understanding rather than simply to "get things done."

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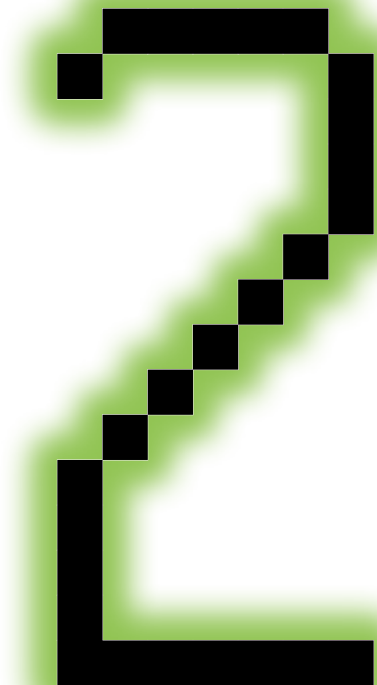
Transparency

These tools make their inner workings visible. Users can see how their actions shape outcomes, building trust and supporting informed decisions. Transparency also means the design process is open to critique and modification being key for learning and empowerment.

3

Friction

Far from being a flaw, friction is deliberately designed into softer tools as a way to prompt awareness and intention. By introducing small moments of resistance, these tools create space for questioning, experimentation, and creative divergence. As Luna Maurer has written, friction can become a "possibility for connection," allowing technology to act as a site of dialogue rather than simple execution.

4

Modularity

Softer tools are built to be understood, adapted, repaired, and extended in parts. This not only makes them more sustainable, but supports resilience and ongoing learning - tools can be remade to suit changing needs, and users are empowered to intervene.

A softer tool, then, is more than the sum of its technical parts:

it is an attitude toward design that foregrounds well-being, awareness, and autonomy. It reflects a commitment to users as agents and collaborators, rather than as passive operators.

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BEYOND CODING: FOLK PROGRAMMING AND EMERGENT PRACTICES

Importantly, softer approaches do not demand that every user becomes a programmer. Agency over technology is not contingent on formal coding skills. Often, people "misuse" or repurpose technology in ways that reflect their actual needs, desires, or cultural practices. This phenomenon, described as folk programming - is the "(re)programming we learn through our active use of the Internet and software," as Spencer Chang and others have described (JoinReboot, 2023). Folk programming emerges from the collective, everyday improvisations of users who "hack" or repurpose systems to solve problems, collaborate, or simply make technology their own.

The ethos of folk programming parallels the communal, iterative spirit of open-source software and vernacular art. Like folklore, it develops organically from lived experience, spreading person to person, rather than descending as a fixed, universal standard. Sherry Turkle (1984), in her early studies of children programming, observed that there are multiple styles of computational mastery. "Hard" mastery is structured and linear, seeking control over the machine - echoing prescriptive tools. "*Soft*" mastery, by contrast, is interactive, relational, and dialogic. It treats computing not as a set of rigid rules, but as a flexible language for communication and negotiation. Despite the dominance of "*hard mastery*" as the ideal in computing culture, Turkle argued that soft mastery offers alternative, creative approaches that are often undervalued but crucial for more inclusive, human-centered design.

By co-opting technological mediums outside of their intended ends, folk programming often works in spite of those intended ends or its platform's aims.
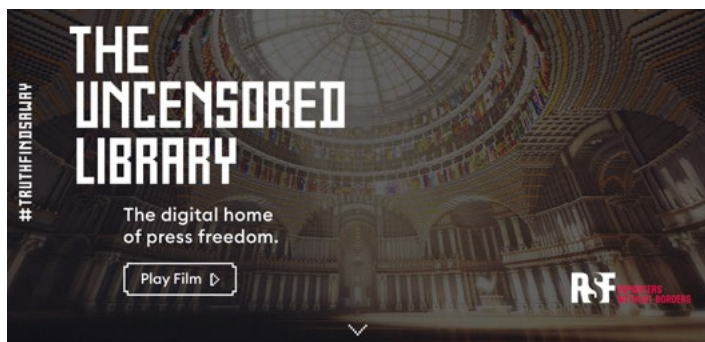
Quote from Judy Wajcman, Feminism Confronts Technology, 1991

RADICAL ACTS, SMALL-SCALE SOLUTIONS

The act of making, even in small ways, becomes radical in a landscape dominated by high-tech, top-down solutions. To build, adapt, or simply "tinker" with tools is to assert autonomy, to open up possibilities for new ways of working and relating. Softer tools do not require the user to have mastery over code or infrastructure. They begin wherever people are willing to question, remix, or subvert the "defaults" - be it through folk programming, collaborative making, or simply refusing the logic of efficiency at all costs.

In sum, the softer tool is both a design object and a political statement. It insists on the value of slow time, transparency, and communal participation, and it imagines technology not as a monolith to be obeyed, but as a set of resources to be reshaped, reinterpreted, and shared.

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