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tools



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STRUCTURE

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INTRODUCTION

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INTRODUCTION

CONTEXT

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INTRODUCTION

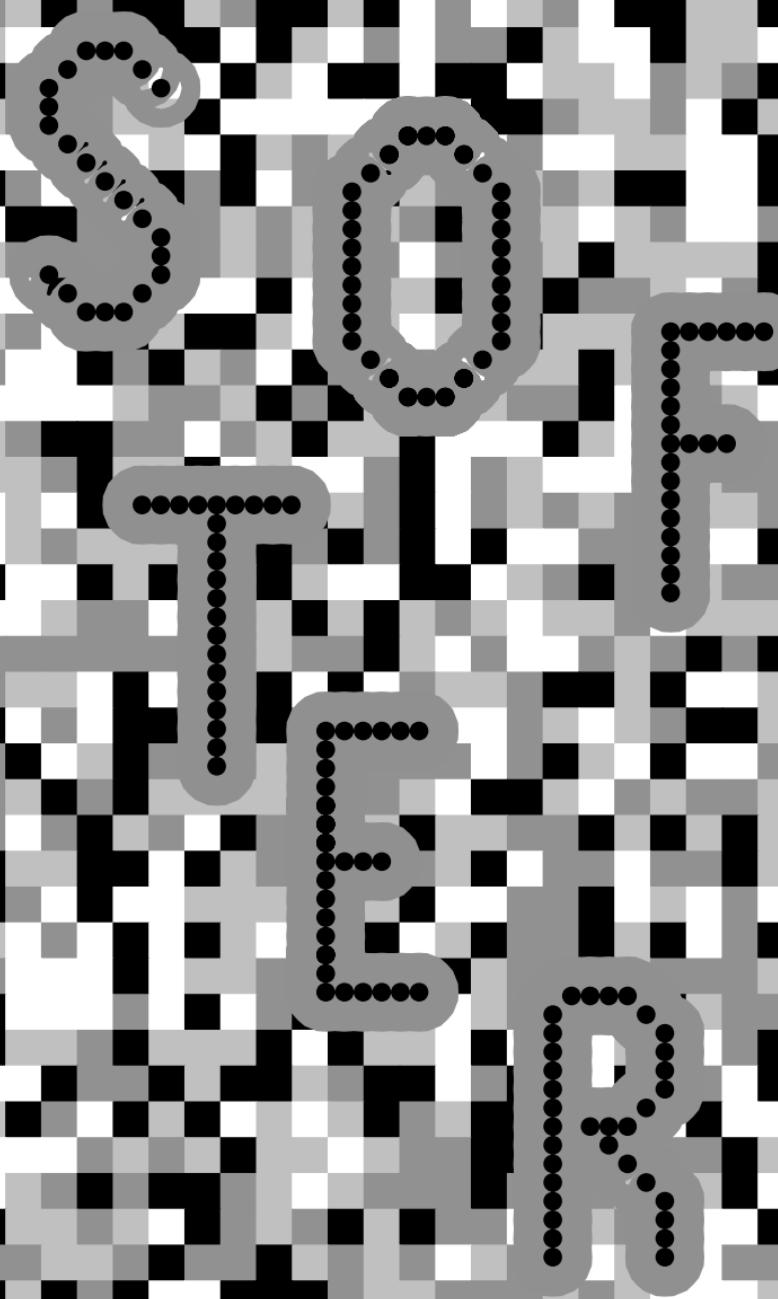
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INTRODUCTION

7

INTRODUCTION





tools

< Introduction >

< Letter from the creator >

As a creative and designer with interest in computation from Russia recent political events (though i'm not going to discuss the politics here) prompted me to reflect on current state of creative industry since most of the creatives couldn't access software due to political restrictions and therefore most of the creatives were forced to use alternatives options. Starting from the early beginning, Back at the childhood the creativity felt as a space of freedom and liberation, it was still early stages of web that wasn't fully commodified and dominated by big-corporate companies leaving some breathing space for PC users, I still remember long-time obsession with *Microsoft Paint* - free and simple raster graphics editor where I drew on a digital screen - something magical and unbelievable for 9 year old kid. It was a time when I in a sense felt truly connected to the technology, it seemed simple yet enchanting.

As time passed on, and my interest deepened in graphic design area and I entered academia in bachelors degree in Graphic Communication design. Before I shifted towards the Graphic Design field I was interested in illustration and mainly worked with drawing tools like *SAI* or *Procreate*, however, while developing the projects I've realised the urgent need of exploring the *Adobe Suite* - industry standard software design tools that allow creatives to create work digitally. I've been told multiple times by teaching stuff that to create professional-level work you have to use industry standard tools - it's a well-known convention within designers circles. Going back to these memories all I can recall is sleepless night of nightmares in order to understand what this tools out of other one millions tool requires you to do, how it affects the outcome I want to make. Often, it came down just to me manually and simply doing the same process but through more meticulous and witty designing process. And on top, all comes with a price.

You want to be professional creative?

You want to be able to create work on high level industry level?

That's why you have to buy our tools to create an excellent work.

The creativity - something that usually feels disconnected and untouched by capitalistic perspective never held a stronger grasp over the art and design industry. Why creativity comes with a subscription with a high price tag?

And even if you feel that you can find reasonable answers to this question the more valuable questions then will be how we shifted from free web and computer as an expression of a liberation to the tools that enslave not only our daily lives but creative thinking and determine our creative choices by imposing predefined workflows on our processes? Going back

to the beginning of the preword, the example of political sanctions shows toxicity of the online world and underscores its' dependance of external social structures.

Tools and technology become far more than just extensions of the body that operate on the world, they impose on us certain hidden agendas. Technology also means the social systems of labor, control, faith, philosophy, politics, reason, and science, and how all of these technological systems come back to bear on the workers who labor through them.

This publication is for designers and fellow creatives who felt the same way or ready to take on a new perspective. It explores the notions of

Dear designers, have you ever asked how we got there to the point where design industry is monopolised and controlled by big corp? How do we break this frictionless illusion?

softer computing, its future implications, its possible implementations, alternative options of softer computing as a way to break free from monopolised vision of creativity and proposes new angles on creative workflows. To envision futures we need to be radical and radical can start from our own relationships with technology and the way we mold it by creation of our own technologies and tools. It explores Softer Computing as a newly formed discourse that resists digital maximalism and embraces a slower approach to tech.

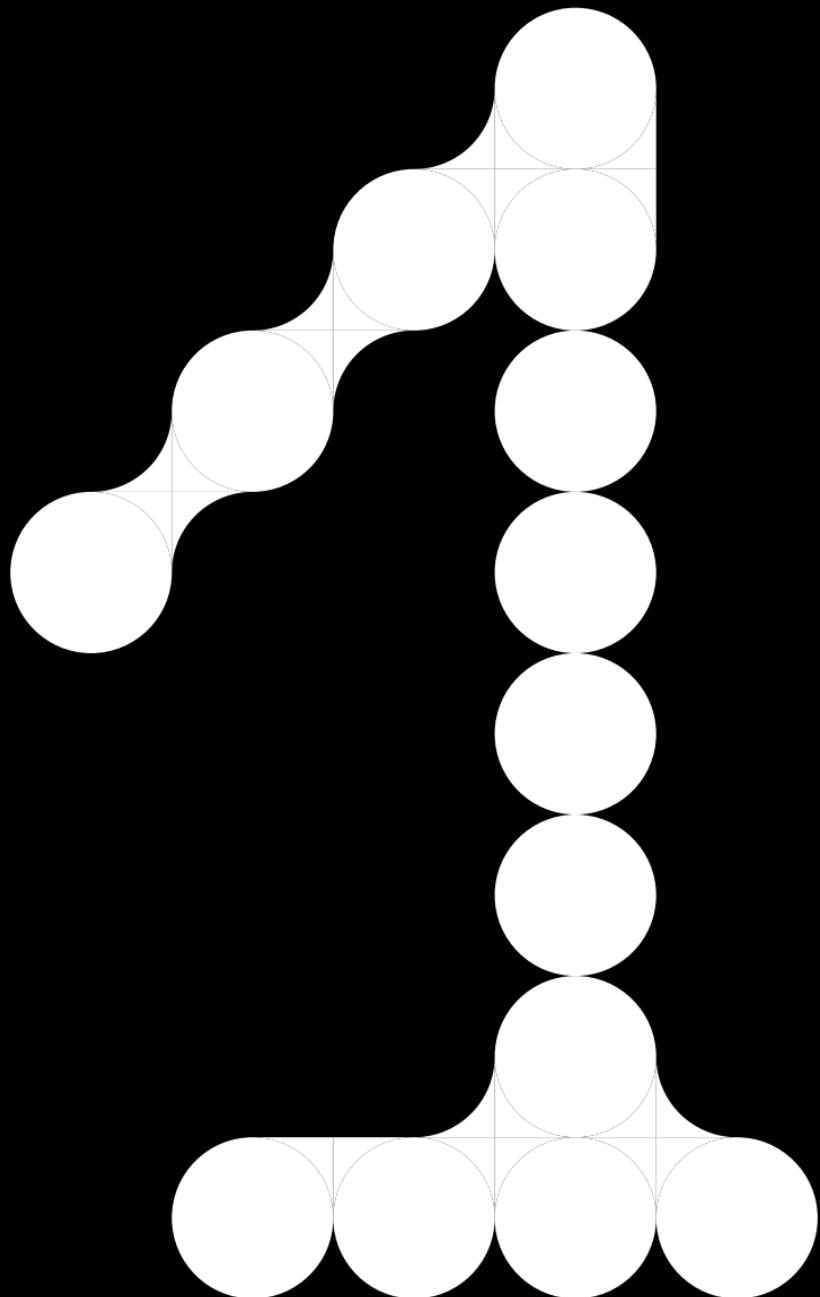
WHY

COM A TION

Valerie Kvon,
London, 2025

CREATIVITY COMES WITH SUBSCRIPTION?

Introduction



Chapter 1

11

A journey from the hands-on freedom of early web and clunky mobile magic to today's opaque, corporate-run platforms and design defaults that stifle creativity, underscoring our lost agency in a web we once built.

PERSONAL EXPERIENCE: THE WEB WE LOST

Marshal McLuhan, *The Medium is the Massage*, 1964

Reflecting on my own entry into digital culture, I am reminded of the early, almost awkward intimacy of technology in early 2000s. I watched as mobile phones rose—not as sleek objects of desire, but as clunky and unpredictable devices. These early phones, for all their quirks, facilitated new forms of connection and seemed to shrink distances, conjuring McLuhan's idea of a "global village" (McLuhan, 1964). I can vividly recall the sense of wonder the first time I loaded a webpage on a tiny Nokia screen: glitchy, barely legible, but magical in its promise. The experience was imperfect, but it invited exploration. The internet of this era felt radically open, unfinished, and full of potential.



Kyle Chayka, GIZMODO *The Great Web 1.0 Revival*, 2014

Although I wasn't born yet to participate in the so-called "free web" of the mid-1990s, I nevertheless encountered its traces: hand-coded personal sites, niche forums, and scattered remains of a DIY internet that carried an unmistakable sense of intimacy and slowness. There was a palpable feeling that one could still carve out a digital identity without being absorbed into the logic of centralized platforms. As Chayka (2014) observes in his meditation on Web 1.0, this period was marked by a quieter, safer, and more personal internet. The prevailing dream was that digital space might be a place for self-authorship — a hope that now feels distant.

↑ Found image of Nokia I used to own
→ www.heavensgate.com

Example of a Web 1.0 website that's still maintained



Whether Hale-Böpp has a "companion" or not is irrelevant from our perspective. However, its arrival is joyously very significant to us at "Heaven's Gate". The joy is that our Older Member in the Evolutionary Level Above Human (the "Kingdom of Heaven") has made it clear to us that Hale-Böpp's approach is the "marker" we've been waiting for -- the time for the arrival of the spacecraft from the Level Above Human to take us home to "Their World" -- in the literal Heavens. Our 22 years' of classroom here on planet Earth is finally coming to conclusion -- "graduation" from the Human Evolutionary Level. We are happily prepared to leave "this world" and go with TI's crew.

If you study the material on this website you will hopefully understand our joy and what our purpose here on Earth has been. You may even find your "boarding pass" to leave with us during this brief "window".

We are so very thankful that we have been recipients of this opportunity to prepare for membership in Their Kingdom, and to experience Their boundless Caring and Nurturing.

Keys or Bookmarks to Vital Information on Our Website

- [Do's Intro: Our Purpose -- The Simple Bottom Line](#) (*an excerpt from our book HEAVEN'S GATE -- see below*)
- [Statement by an E.T. Presently Incarnate](#) (*excerpt from our book*)
- [Overview of Present Mission](#) (*excerpt from our book, a student paper*)
- [Last Chance To Advance Beyond Human](#) (*excerpt from our book*)
- [To Access Our Book Online in its Entirety:
How and When HEAVEN'S GATE May Be Entered](#)
- [Transcripts of Two Recent Videos](#)
- [Our Position Against Suicide](#)
- [How a Member of the Kingdom of Heaven Might Appear](#)
- [Earth Exit Statements by Students](#)
- [Exit Press Release:
"Away Team" Returns to Level Above Human](#)

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The following materials are available through TELAH Services:

2016

SUMMER

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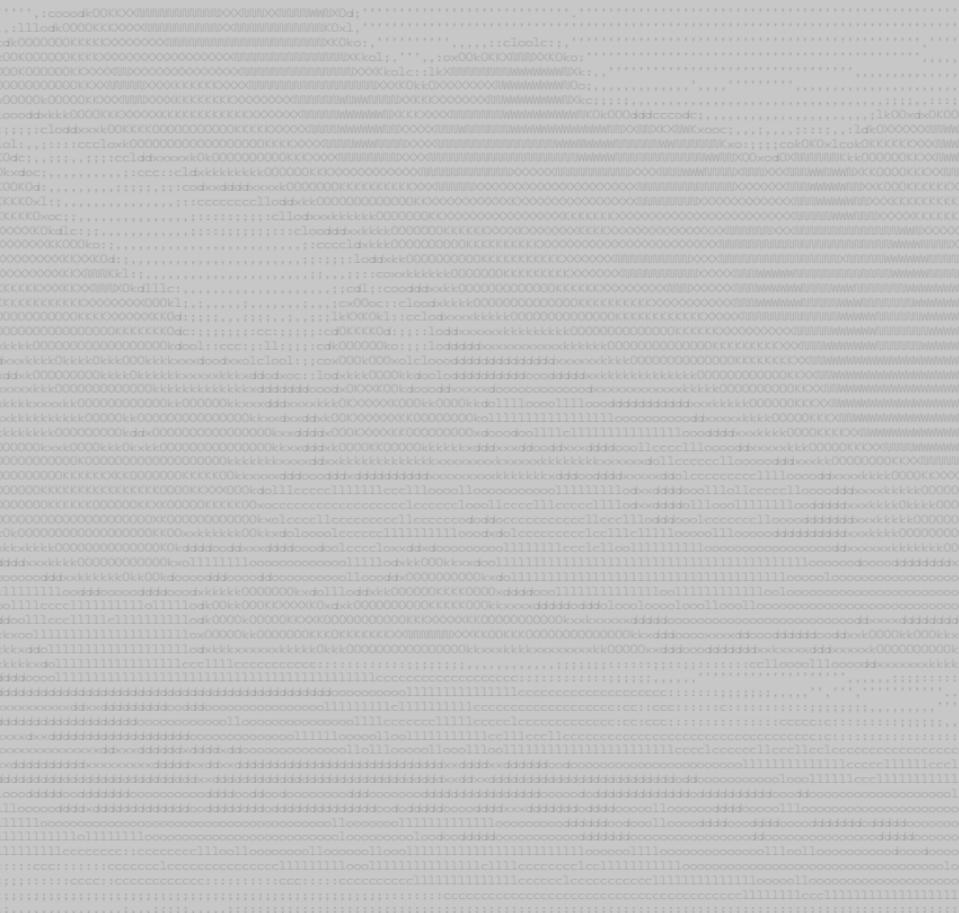
↑ Hito Steyerl, quote from *Too Much World Is the Internet Dead?*, 2013

PROBLEMS OF THE CURRENT DIGITAL LANDSCAPE

The landscape today could hardly be more different. Technology, once promising and participatory, now often feels remote and controlling. The contemporary internet is defined by what Powers (2011) call **digital maximalism** : an environment engineered for relentless consumption, not for creative exploration. Algorithms govern our feeds, shaping experience and taste, quietly relegating users to the role of spectators. Hito Steyerl (2013) describes the modern web as “sanitised, surveilled, and monopolized”—a system policed by corporations for the purposes of copyright, conformity,

Hito Steyerl, Too Much World, Is the Internet Dead?, 2013

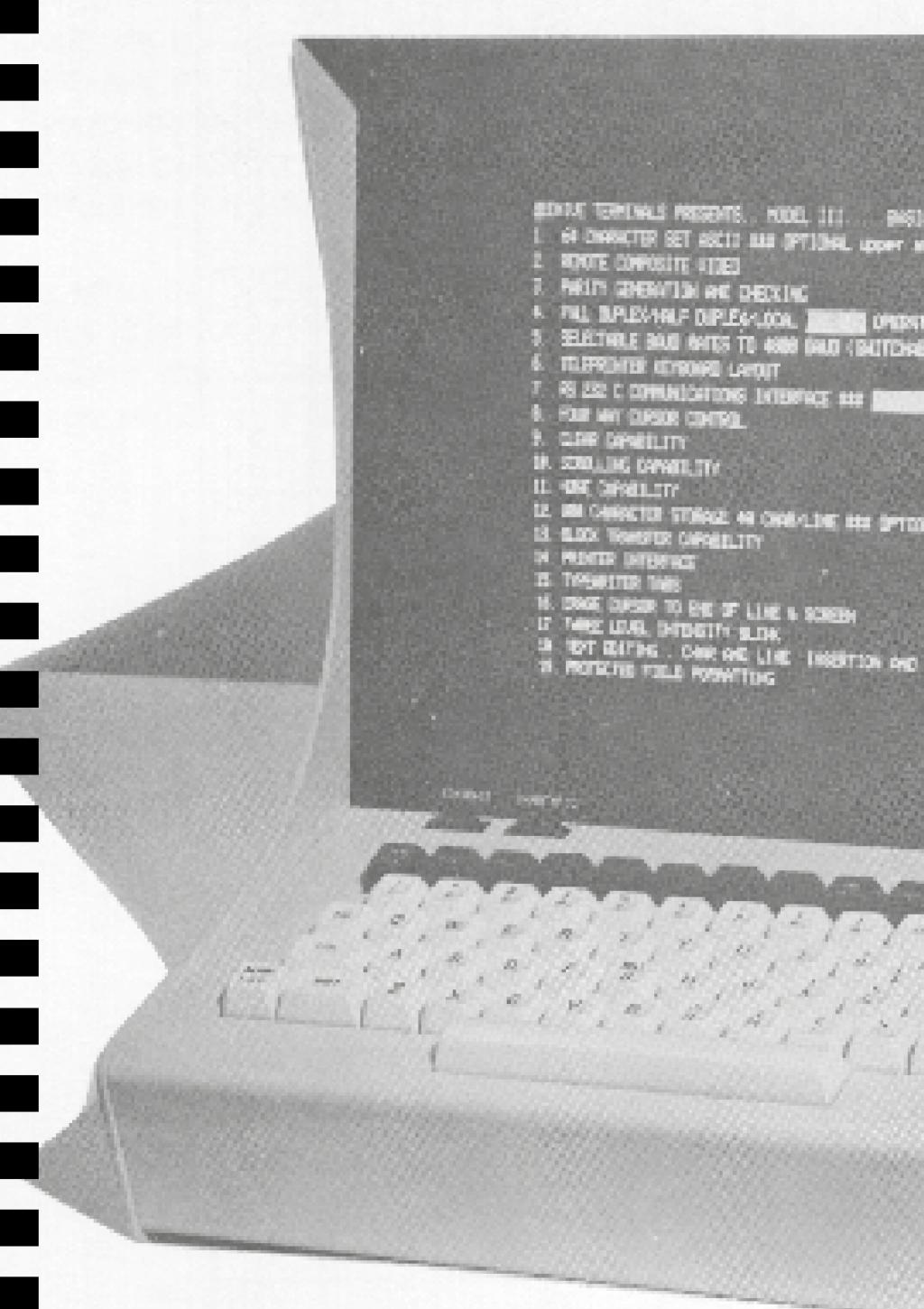
William Powers, Hamlet's BlackBerry, 2011



and profit. Chayka (2014) expands on this, suggesting that platforms now encourage users to act as curators, but only within pre-filtered, limited options. The promise of agency is often an illusion; choice is a performance enacted within tightly drawn boundaries.

This landscape of monopolistic platforms, ever-present surveillance, and the manufacture of disinformation produces a form of digital exhaustion. The simple act of “being online” is less joyful and less present. Tolentino (2019) points to the internet’s ability to “distend our sense of identity,” to foster the overvaluation of opinion, and ultimately to “destroy our sense of scale.” In this way, what was once a space of possibility has become, for many, a source of confusion, anxiety, and fatigue.

Kyle Chayka, GIZMODO, *The Great Web 1.0 Revival*, 2014



- SELECTED TERMINAL FEATURES - MODEL 311 - PAGE 1
- 1. 64 CHARACTER SET ASCII AND OPTIONAL UPPERCASE
 - 2. REMOTE COMPUTER MODE
 - 3. PARITY GENERATION AND CHECKING
 - 4. FULL DUPLEX/HALF DUPLEX LOCAL COMMUNICATIONS
 - 5. SELECTABLE BAUD RATES TO 4800 BAUD AUTOMATIC
 - 6. TELETYPE KEYBOARD LAYOUT
 - 7. RS 232 C COMMUNICATIONS INTERFACE SEE
 - 8. FOUR WAY CURSOR CONTROL
 - 9. CLEAR CAPABILITY
 - 10. SCROLLING CAPABILITY
 - 11. HOME CAPABILITY
 - 12. 256 CHARACTER STORAGE IN ON-LINE SEE OPTION
 - 13. BLOCK TRANSFER CAPABILITY
 - 14. PRINTER INTERFACE
 - 15. TRANSMITTER TIMER
 - 16. MOVE CURSOR TO END OF LINE & SCREEN
 - 17. THREE LEVEL INTENSITY BLOCK
 - 18. TEXT DRAFTING - CHAR AND LINE INSERTION AND DELETION
 - 19. PROTECTIVE FIELD FORMATTING

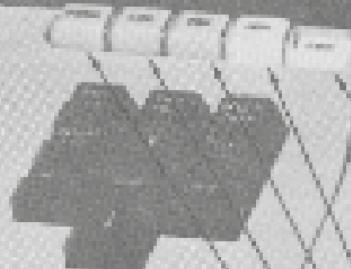
“oN-Line System” (NLS)

2 SPECIFICATIONS
and lower case display

30W
LED

40W 80 LED

3000K



Power
Switch

Invisibility

Mode
Select

THE NOTION OF INVISIBLE TECHNOLOGY AND THE INVISIBLE USER

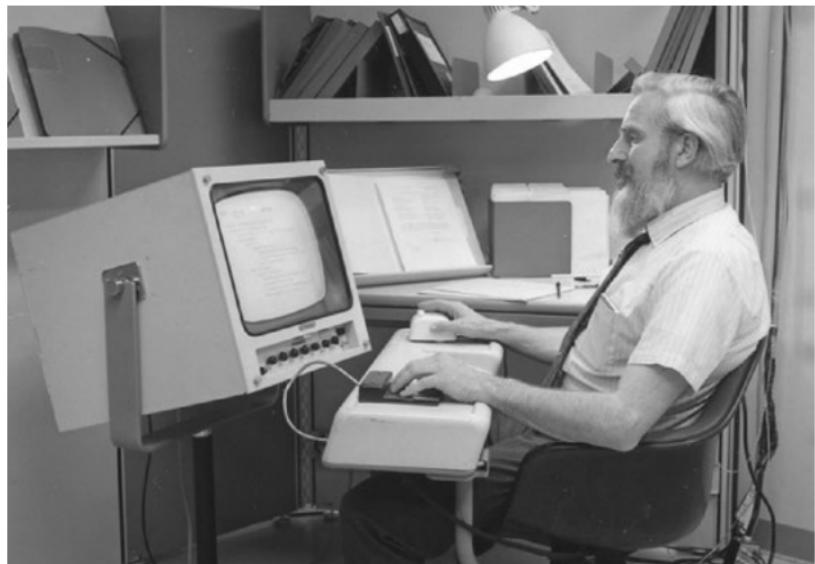
The alienation of users from their tools did not occur all at once. Early computing, with its physical, chunky machinery, required a deep, almost bodily engagement; programming was a process of direct confrontation with the limits of hardware, keeping the human “close to the metal” (Norton, 2019). This changed dramatically with Douglas Engelbart’s invention of the computer mouse in 1968, as part of his visionary “On-Line System” (NLS). The mouse created a new kind of intimacy with machines, transforming the computer into an extension of the user’s body. Yet, paradoxically, this innovation also marked the beginning of a gradual distancing: as interactions became smoother and more abstract, the workings of technology became increasingly hidden (Real Life, 2020).

Emma R. Norton, Close to the Metal, 2019
Don Norman, “Why Interfaces Don’t Work”, in: Brenda Laurel (Ed.), *The Art of Human-Computer Interface Design*, 1990
Emma R. Norton, Close to the Metal, 2019
Olia Laiiba, Turing Complete User, 2012



This concept of “invisible computing” was championed by Don Norman, who in his influential essay *Why Interfaces Don’t Work* (1990) proposed that, “The real problem with the interface is that it is an interface. The computer of the future should be invisible!” (Norman, 1990). The tech industry quickly adopted this principle. Apple, for example, declared in a 2012 campaign that “*Technology is best when invisible.*” While this promise of seamlessness might seem elegant, it also detaches users from the systems they rely on, making questioning and understanding almost impossible. As Brenda Laurel famously remarked, computers became “*doors without doorknobs*”—perfectly smooth, yet fundamentally inaccessible (Laurel, cited in Lialina, 2015).

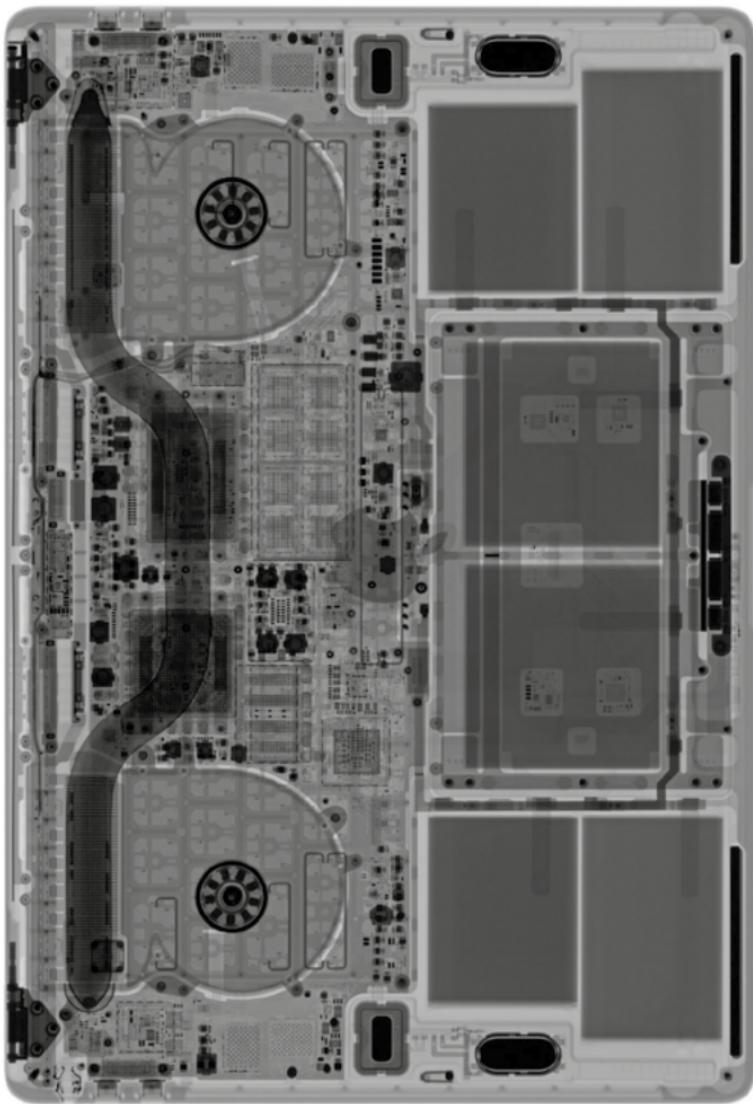
Olia Lialina identifies this as a core reason for the transition from interface design to what is now called experience design. The aim is not simply to make technology easy to use, but to erase awareness of technology altogether—leaving only the user’s emotions, goals, and tasks. The price of this comfort, however, is a deep alienation: users become not just operators, but invisible presences within systems they can no longer interrogate or change.



↑ Image courtesy of the Doug Engelbart Institute

Invisible Technology

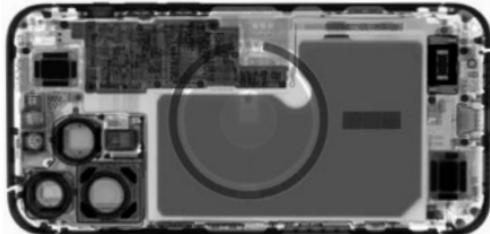
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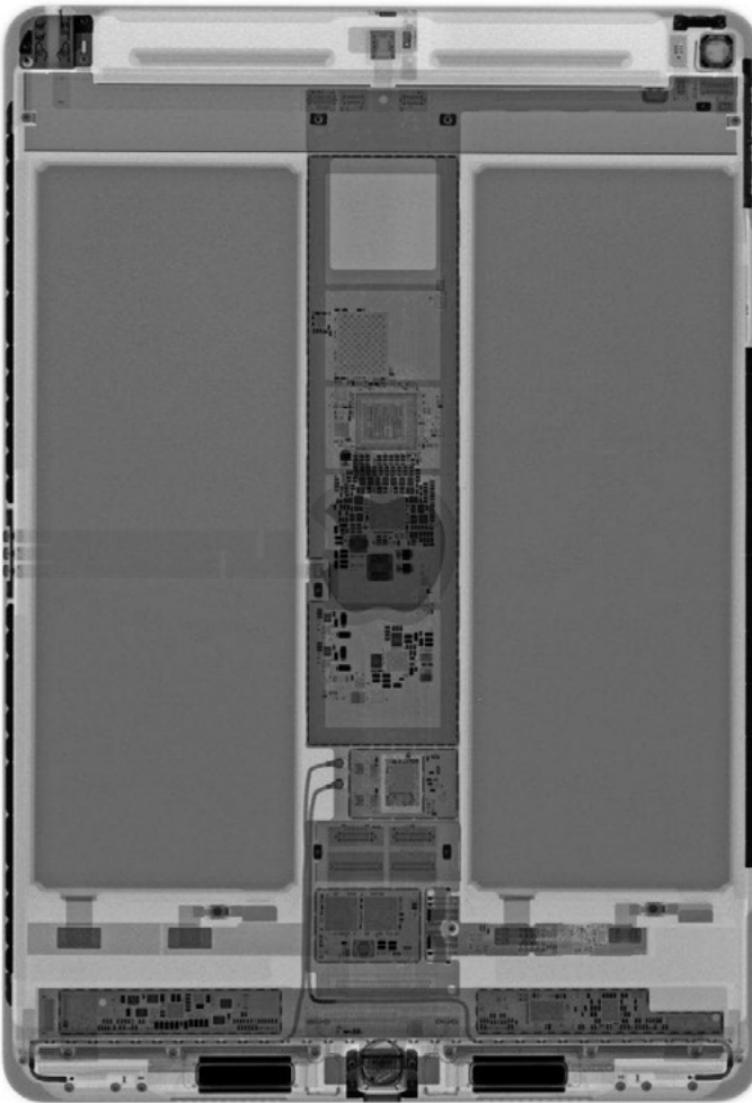
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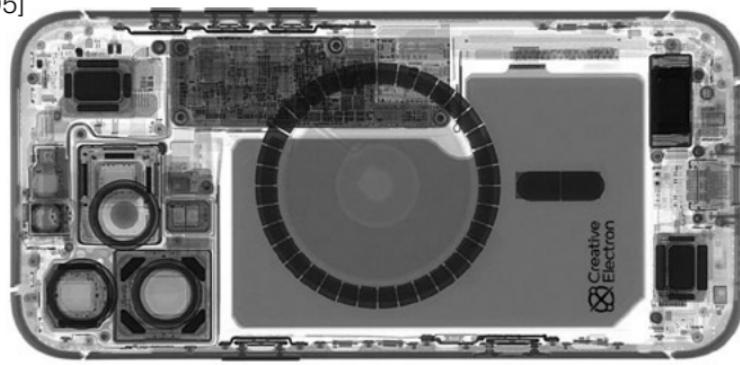
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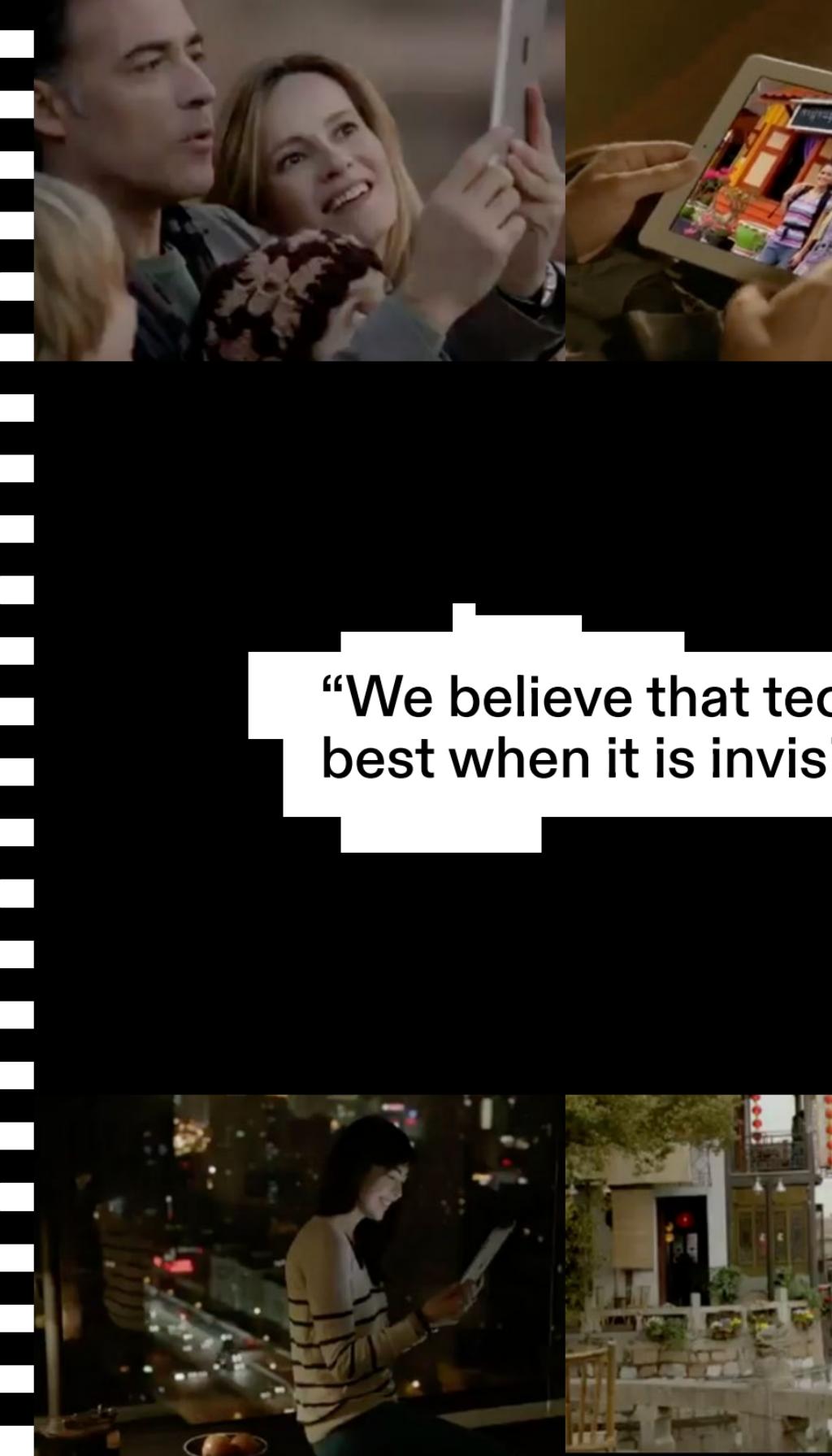


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**"We believe that tec
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technology is at its very
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The New iPad (iPad 3) Official Introduction Video,
Youtube, 2012



HOW METAPHORIZATON OF THE WEB DISTANCES US FROM TECHNOLOGY

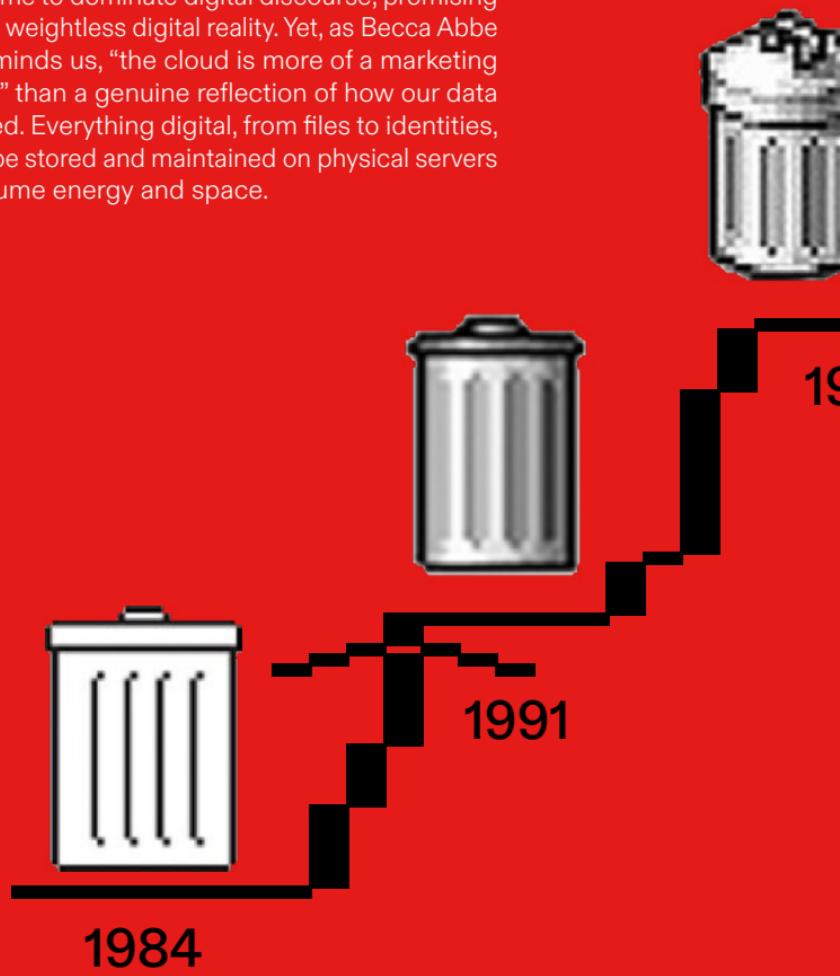
One of the most persistent forces alienating users from technology is the human tendency to cloak the digital world in layers of metaphor and abstraction. Rather than revealing, these metaphors obscure, turning technology into something mystical at once familiar and fundamentally unknowable. This process distances us, the so-called “users,” from the technical realities underpinning our digital environments.

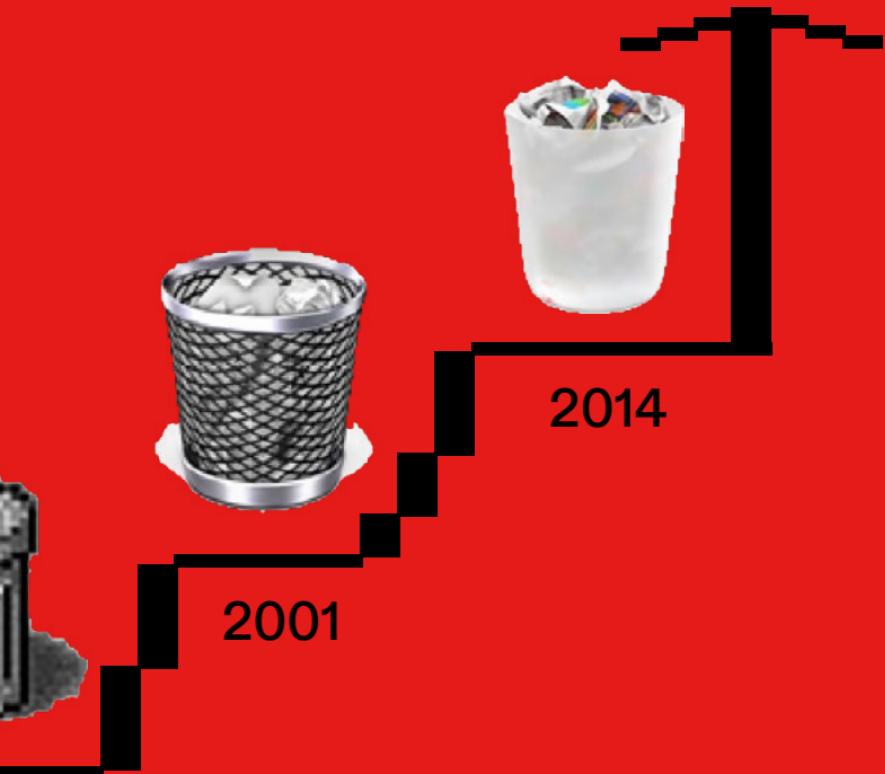


Graphical user interfaces (GUIs) themselves have become “an abstracted representation of a person’s relationship to a machine”—and it is precisely this abstraction that prevents users from seeing or questioning the technical and political realities at play (Ecologies, 2024). These metaphors, once meant to make technology approachable, now render it distant and unchallengeable, reinforcing the illusion of seamlessness and disguising the power structures beneath.

The invention of the computer mouse, for instance, brought us closer to virtual space by introducing a new form of embodied navigation, demanding at least some physical effort from the user. However, the subsequent rise of handheld devices like smartphones and tablets has pushed us further from meaningful engagement with the inner structures of software. Where once we could tinker, explore, and understand, now we are encouraged to scroll, swipe, and passively consume information. As Lori Emerson (2014) notes, “The iPad works because users can’t know how it works”, the mechanics and logic are hidden behind glass.

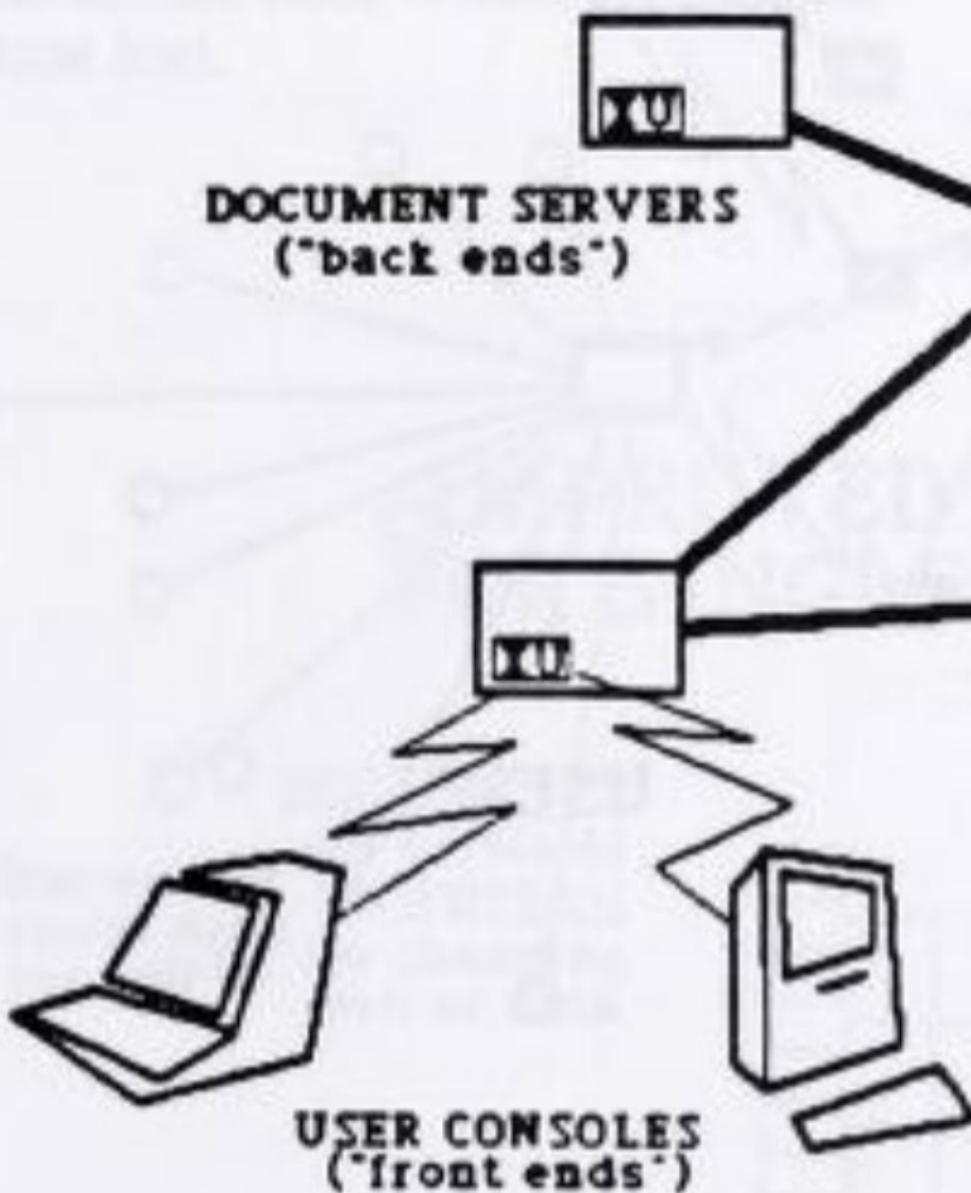
A similar abstraction is evident in the evolution of interface icons. The attached image shows how design has shifted from pixelated, almost diagrammatic representations to highly polished, lifelike metaphors. Early icons bore traces of technological limitation; their pixel grids gave users a sense of the computer’s underlying logic. Today’s icons, by contrast, are seamless, inviting users to ignore the complexity behind them and accept a mediated, “magic” experience. The abstraction is further amplified by language. By the 2010s, terms like “cloud” came to dominate digital discourse, promising a limitless, weightless digital reality. Yet, as Becca Abbe (2024) reminds us, “the cloud is more of a marketing buzzword” than a genuine reflection of how our data is managed. Everything digital, from files to identities, must still be stored and maintained on physical servers that consume energy and space.



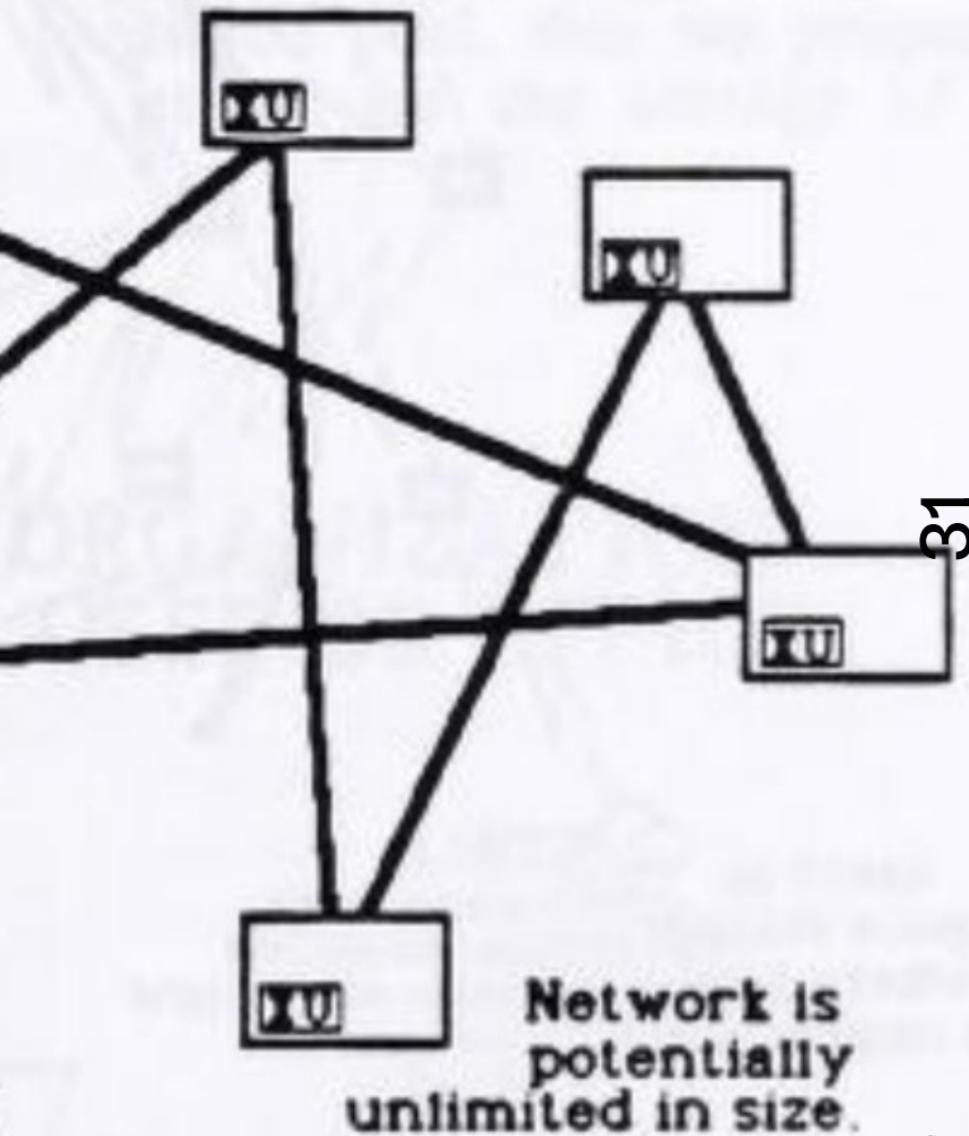


Emerson, Lori, *Reading Writing Interfaces: From the Digital to the Bookbound*, 2014
Becca Abbe, *The Internet's Back-to-the-Land Movement*, 2019

A SINGLE PROGRAM RUNNING THROUGH



M, HOUT A NETWORK



ADOBÉ AND DESIGN SOFTWARE MONOPOLIES: DEFAULTISM, TEMPLATES, AND INDUSTRY STANDARDIZATION

This culture of abstraction and detachment finds its most potent expression in the world of design software. As Rob Giampietro has argued, “The computer has changed design, but it has also changed our process of thinking and making” (Giampietro, 2014). Tools like Adobe Creative Suite, with their intricate ecosystems of defaults, templates, and automated features, shape not only how we work but how we think about what design is and could be.

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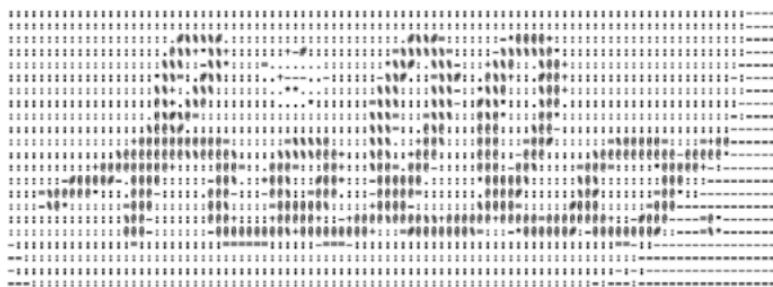
AND
DEFAULTISM

This phenomenon extends beyond mere hardware. The introduction of the Macintosh computer, for instance, coincided with the decline of the Swiss International Style and the rise of a more automatic, industrialized approach to graphic design. “Default systems are machines for design creation,” Giampietro writes, describing a shift toward design practices that align with capitalist values—speed, replication, and efficiency over craft, and critical engagement (Giampietro, 2003).

Default settings, far from being neutral, actively sculpt creative outcomes. They make design more accessible to the masses, but also risk flattening difference and dehumanizing the creative process. The designer is gradually replaced by the software; what once required intentional choice and authorship is now accomplished through the path of least resistance, the click of a button. Even the notion of “ugly design,” as Giampietro discusses, is bound up with these same systems—driven by a mix of democratic impulse and algorithmic convenience.



The first Apple Macintosh was introduced on January 24, 1984, by Steve Jobs.



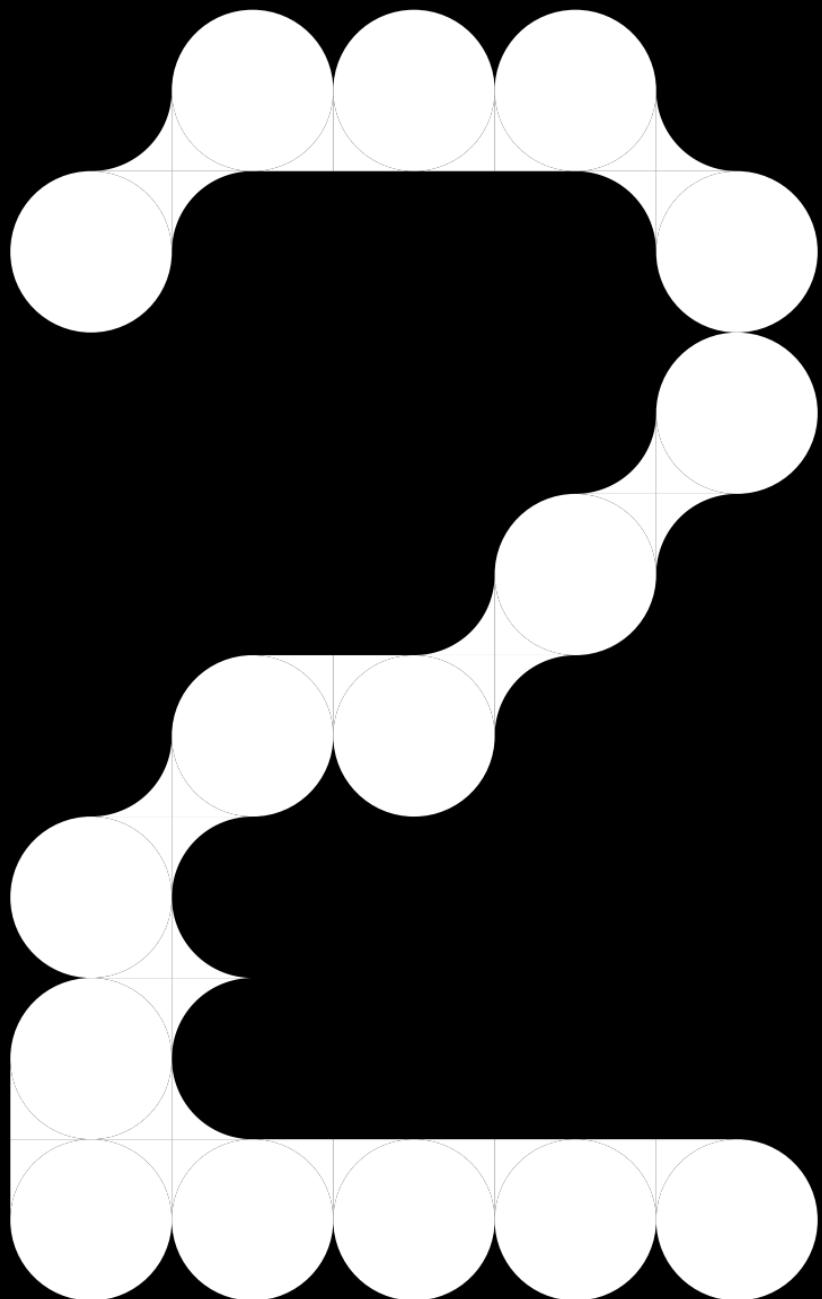
For me, this resonates with Olia Lialina's critique of Adobe's marketing: campaigns that claim, "I have more time to do what I like most—being creative," while actually encouraging designers to distance themselves from code, links, and the deeper workings of the web. The message is clear: the less you understand about the technology, the more creative you supposedly are (Lialina, 2015).

Adobe, in particular, monopolizes the "creativity" market, setting the standards for what is considered "good design" and influencing aesthetic norms across the field (Giampietro, 2003). The deeper issue is that default systems are designed to be invisible. Their norms, once established, become silent truths—rarely questioned, yet powerfully shaping the direction of an entire industry. As Pipkin (2019) observes, "To live a life within human society is to live a life inside of technologies, including many that have become so standardised and widespread that they are the default lens through which we view the world."

Olia Lialina, Turing Complete User, 2015

Rob Giampietro, Default Systems in Graphic Design, 2003

Everest Pipkin, essay The House that Technology Built , 2022

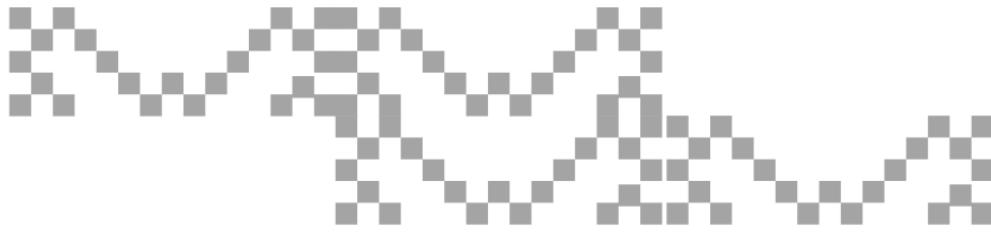
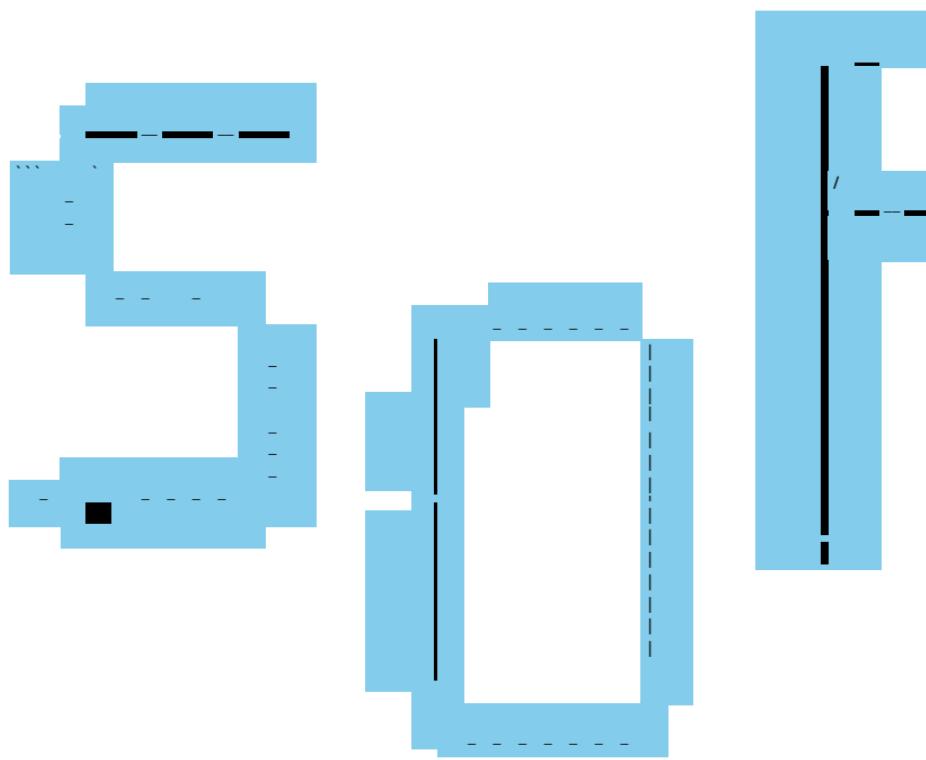


Chapter 2

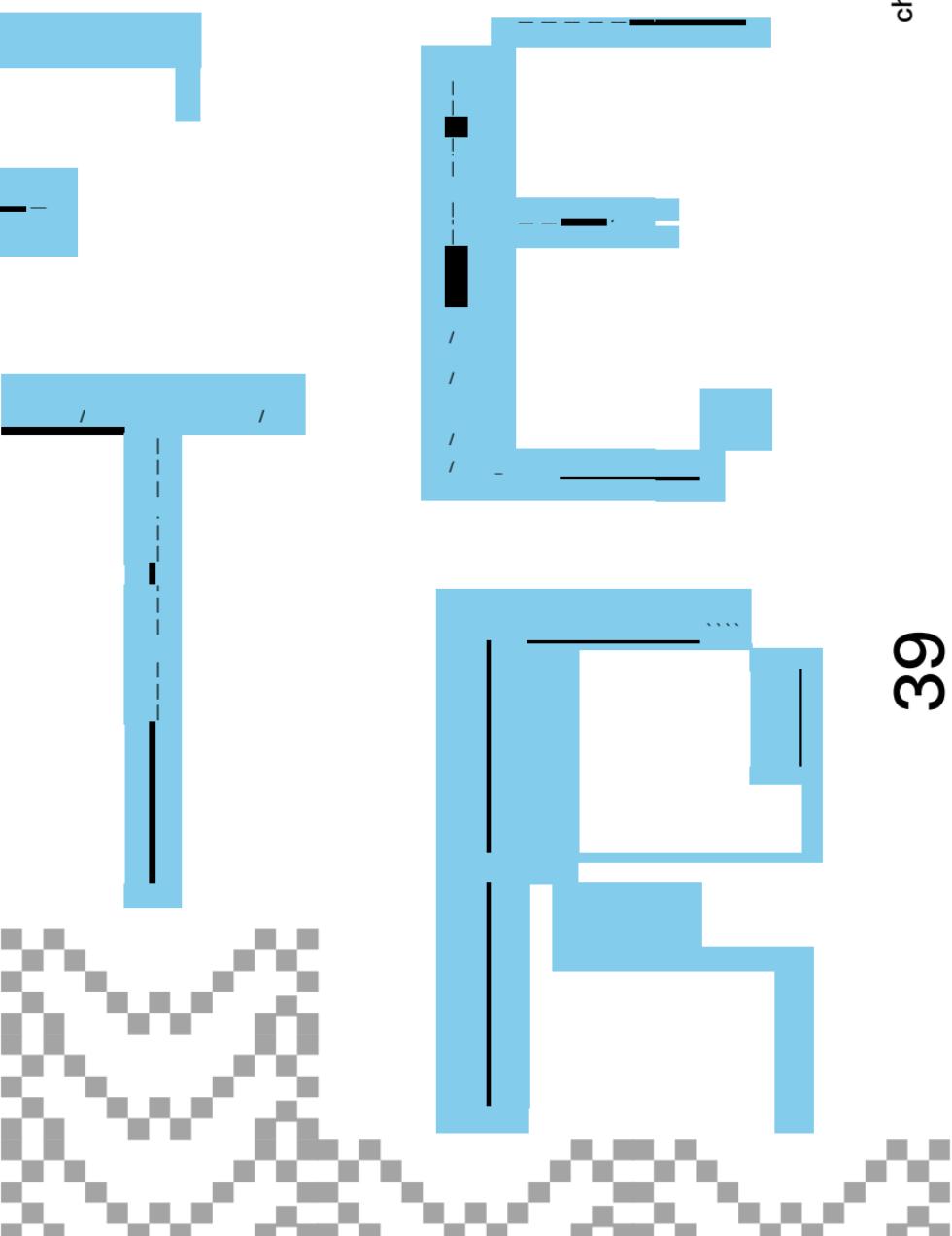
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Softer computing is a design attitude and practice that values friction, care, and participatory agency over seamlessness, automation, and invisible control. Unlike open source or DIY, which often focus on technical transparency or independence, softer computing is fundamentally about relational engagement—between maker, tool, and context.

INTRODUCING SOFTER COMPUTING



Softer computing is not a system, nor is it a fixed set of techniques. Rather, it is an attitude—a critical, relational approach to design and technology. At its core, softer computing resists the dominant logics of efficiency, flattening, and automation that underpin today's digital landscape. It proposes an alternative value system: one that prioritizes friction, transparency, constraint, modularity, and the concept of “*slow time*” over seamlessness, opacity, and relentless acceleration.



COMPUTING

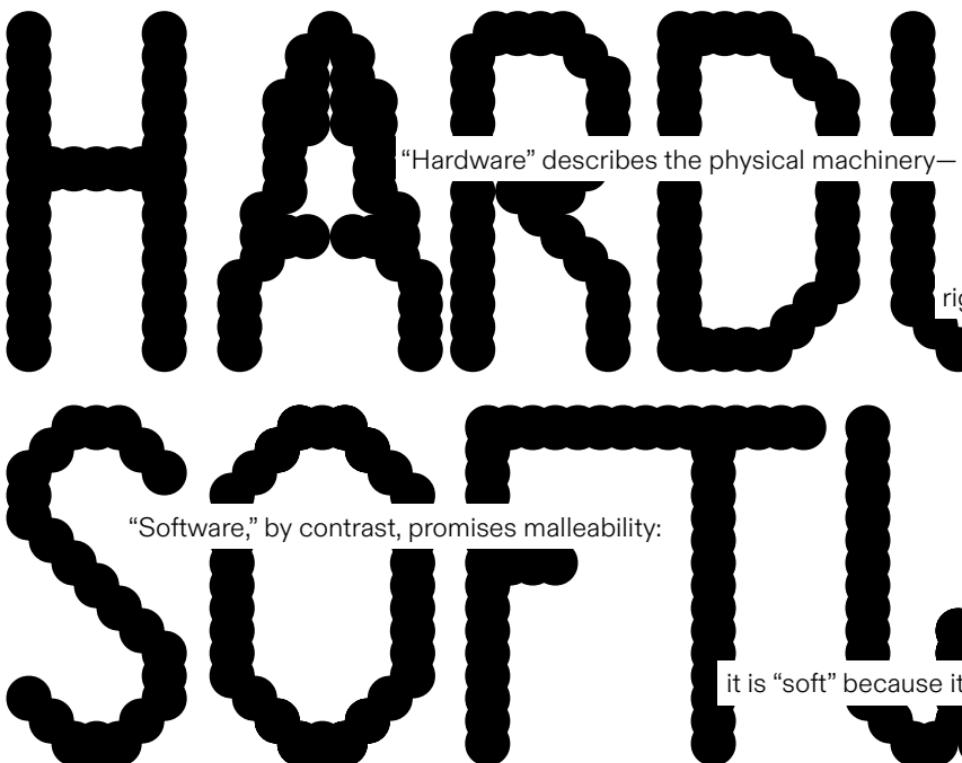
WHY NOW? SOFTER COMPUTING AS A RESPONSE TO DIGITAL MAXIMALISM

William Powers, Hamlet's BlackBerry, 2011

The need for a softer approach has never felt more urgent. The rapid proliferation of generative AI, the dominance of algorithmic curation, and the “*digital maximalism*” that Powers (2011) critiques have together created a climate of design overload. The culture of tech, shaped by capitalist imperatives of constant growth and efficiency, increasingly demands that designers and users alike submit to automated workflows, default templates, and invisible infrastructures. In response, a growing movement for “*degrowth computing*” has emerged, seeking to decouple digital technology from the “growth-focused imperatives of capitalist societies” (Neil, 2022).

Neil, What might degrowth computing look like?, 2022

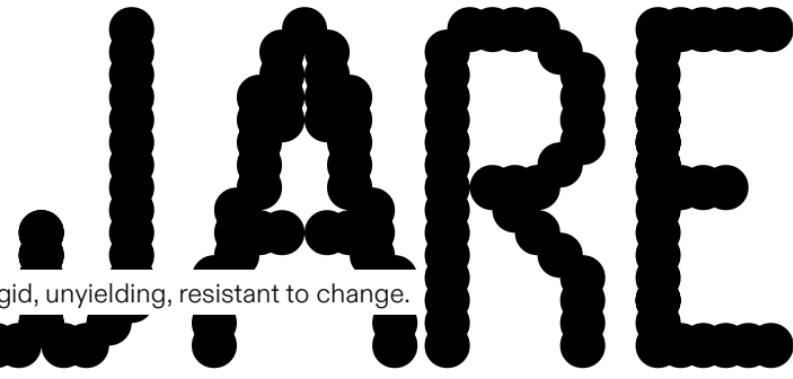
For me, the very idea of “softer” computing comes from reflecting on the language of technology itself.



Yet this is a misleading comfort. In practice, contemporary software has become so complex, so deeply layered with proprietary code and abstracted interfaces, that even developers find it difficult to intervene. Far from soft, today's software is often rigid, inaccessible, and resistant to meaningful modification.

As a result, the notion that digital environments are open to intervention by ordinary users has become largely illusory. The smooth, seamless structures of modern interfaces conceal the underlying code, hiding opportunities for agency and making it easy to mistake constraint for choice. The GUI—a “graphical user interface”—may feel approachable, but it often functions as a form of abstraction that distances us from the real workings of technology (Emerson, 2014).

Emerson, Lori, *Reading Writing Interfaces: From the Digital to the Bookbound*, 2014

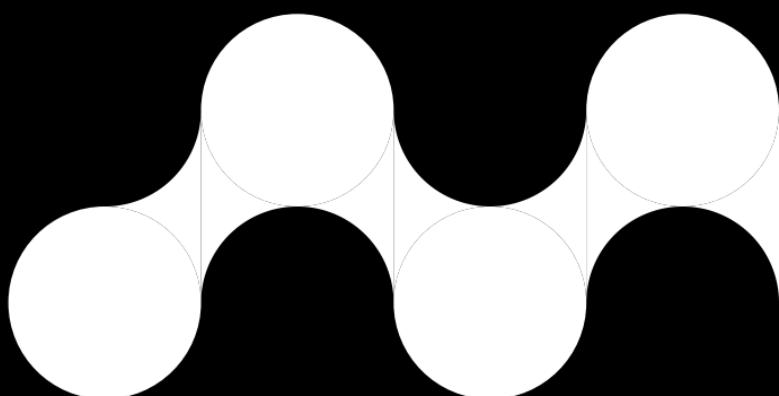


rigid, unyielding, resistant to change.



is supposed to be easy to change, update, and adapt.

HARDWARE

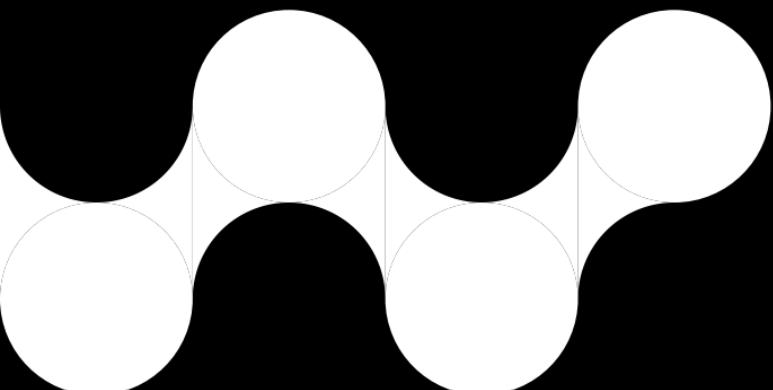


Wikipedia

Computer hardware includes the physical parts of a computer, such as the central processing unit (CPU), random-access memory (RAM), motherboard, computer data storage, graphics card, sound card, and computer case. It includes external devices such as a monitor, mouse, keyboard, and speakers.

SOFTWARE

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Wikipedia

Software consists of computer programs that instruct the execution of a computer. Software also includes design documents and specifications.

Software can generally be categorized into two main types: operating systems, which manage hardware resources and provide 1. services for applications 2. application software, which performs specific tasks for users

THE DECEPTIVE PROMISE OF “SOFTNESS”

The characterization of software as “soft” obscures the reality of contemporary computing. Most people today interact with technology through platforms designed for immediate clarity and efficiency.

We are discouraged from “wasting time” on things that do not offer instant, frictionless communication. This dynamic is especially pronounced in the design of websites, which have become so streamlined and standardized that the development process itself mirrors software production: modular, automated, and largely uncustomizable for the average user. The web is no longer “soft”; it has become, as Zhang (2019) writes, a built environment and a social space that is monopolized, commodified, and colonized by corporate interests.

Gary Zhexi Zhang, *Reenvisioning the Internet: Create Tools that Reveal its Ideological Infrastructures*, 2019

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softness?

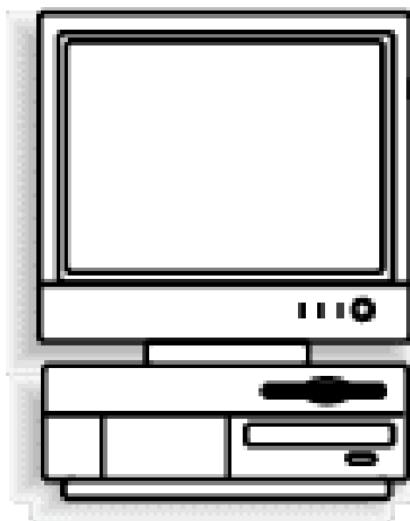
VERNACULAR WEBS AND LOST FREEDOM

Gary Zhixi Zhang, Reenvisioning the Internet: Create Tools that Reveal its Ideological Infrastructures, 2019

Looking back, the amateur web of the mid-1990s, as described by Olia Lialina (2015), offers a powerful contrast to the present. This was a time when the web was unregulated, personal, and always “under construction.” The web, in Lialina’s terms, was communal: every page was an act of care, each contribution a unique addition to a shared space. Lialina calls this the “vernacular web,” a term that may seem strange now but precisely captures the ethos of the era—a web made by its users, not just for them.

GeoCities, founded in 1994, stands as a testament to this spirit of digital amateurism. At its peak, it hosted 38 million personal websites—spaces for self-representation and connection, unpolished but fiercely individual. While GeoCities is now gone, this ethos survives in platforms like Neocities, which archives and extends the legacy of amateur web-building. In just the last few years, Neocities has grown to host nearly a million sites, providing free space for people to make the web their own once again.

Simple Net Art



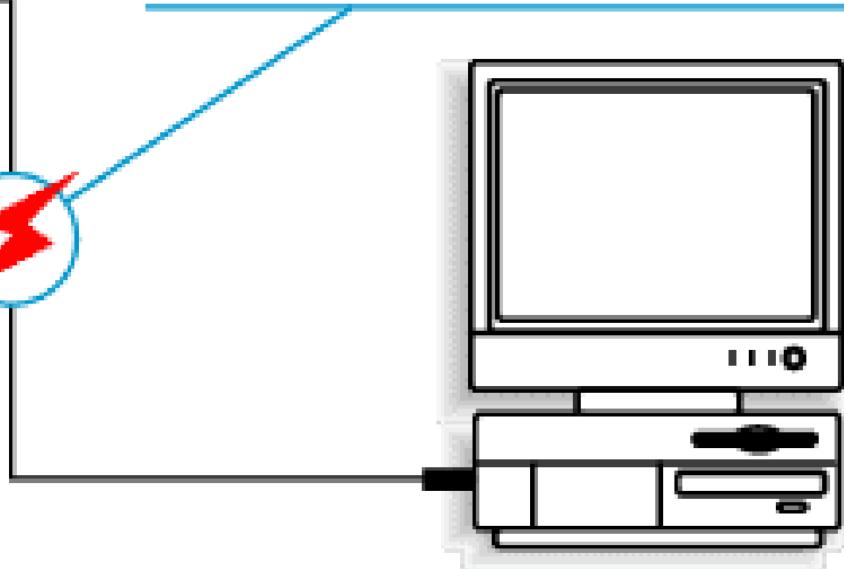
MTAA ca. 1997

MTAA, Simple Net Art Diagram

**"Art as an active site, open to the world.
Information as a stance, oppositional.
Participation as the norm, inclusive.
Time as a fluid state, now to be experienced."**

Art Diagram

The art happens here



gram, ca. 1997. Animated GIF.

those who care
tion in the air.
ision across the board.
ignored”

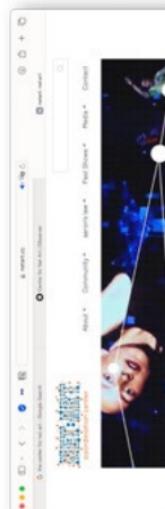
—MTAA

The broader culture of net art, community coding, and decentralization continues to thrive in projects like Rhizome, the Center for Net Art, and the School for Poetic Computation, as well as decentralization initiatives such as DWeb and the Internet Archive. These efforts work to actualize a more distributed, collectively-owned internet—one that foregrounds communal stewardship, creative experimentation, and the possibility of self-determination.

Rhizome



the Center for Net Art



the School for Poetic Computation

The School for Poetic Computation is an experimental school in New York City and online supporting interdisciplinary study in art, code, hardware and critical theory. Applications have closed for our Summer 2025 online classes, but you can still sign up for our Weekend Intensives in July in-person in NYC. Click below to learn more.

Becoming HyperText
with Chia Hsiao
Sat-Sun July 12-13 In-Person (NYC)
Sign-ups open (no application necessary)

Consensual Hacking
with Melanie Boit
Sat-Sun July 26-27 In-Person (NYC)
Sign-ups open (no application necessary)



SO WHAT IS SOFTER COMPUTING?

To me, “*softer computing*” signals a holistic new approach to technology—one grounded in care, criticality, and the ongoing struggle to reclaim agency over the tools that shape our world. It means acknowledging the power structures embedded in our technological systems, and refusing to accept their values as neutral or inevitable. Mindy Seu (2022) poses the dilemma starkly:

‘DO WE SHAPE THE FUTURE BY CREATING THE TOOLS AND TECHNOLOGIES NECESSARY TO ACHIEVE OUR GOALS, OR DO THE TECHNOLOGIES CREATED AND IMPOSED ON US BY TECH GIANTS LIKE META BUILD THE FUTURE ON OUR BEHALF?’

The practice of *softer computing*, as I define it, sides firmly with the former. It is a call to take part in the making of futures, not simply to inherit those imposed by others.

Softer computing is not a rejection of technology but a refusal of its commodification and instrumentalization—a resistance to computational maximalism. It is about creating space for friction, ambiguity, and the “slow time” needed for genuine reflection. The mainstream tech industry’s endless pursuit of frictionlessness, efficiency, and hyper-automation leaves little room for difference or dissent. Softer computing intentionally interrupts this logic, insisting on the value of discomfort, uncertainty, and the human hand.

Ursula K. Le Guin’s Carrier Bag Theory of Fiction (1986) inspires my understanding of this approach. She argues that technology, rather than a tool of conquest or domination, can be reimagined as a “*cultural vessel*”—a container for stories, relationships, and possibilities. Similarly, Luna Maurer (n.d.) calls for “*friction*” in digital design, arguing that meaningful connection emerges from encountering, rather than erasing, obstacles. Maurer observes that “*transactions with machines are now smoother than interactions with fellow humans*,” a fact that reveals how the pursuit of seamlessness has become a form of social alienation.



Ursula K. Le Guin’s Carrier Bag Theory of Fiction, 1986
Luna Maurer, Designing Friction, n. d.

Miriam Rasch, Friction, 2020

Luna Maurer, Designing Friction,
n. d.

Friction, then, is not merely an inconvenience—it is a necessary condition for agency, awareness, and connection. Philosopher Miriam Rasch (2020) contends that the removal of friction produces passivity, leaving users “absorbing” technology rather than questioning or reshaping it. Maurer echoes this: *“Friction perceived as an obstacle might, in fact, be a possibility for connection.”* In this way, designing with and for friction means exploring the boundaries of our tools, inviting creative error and imperfection, and pushing against the uniformity imposed by platforms.

Softer computing is fundamentally about computing with limits—embracing constraint, transparency, and modularity as positive values. It resists the fantasy of endless technological expansion and instead prioritizes care, attention, and situated knowledge. This perspective resonates with the “Computing within Limits” research community, which advocates for ecological awareness and ethical responsibility in digital development.

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Spencer Chang, essay We're All
(Folk) Programmers, 2024

Practically, this stance transforms how we approach both design and code. I see programming as a radical act—akin to *“writing a story”* (Chang, 2024)—not because it is about building entirely new systems, but because it makes space for small-scale invention and participation. Softer computing supports the emergence of alternative tools, platforms, and methods that foreground collective creation and reframe what “human-centered” design should mean. For me, a true human-centered practice is not merely anthropocentric; it is a form of care that recognizes the interdependence of people, communities, and environments.

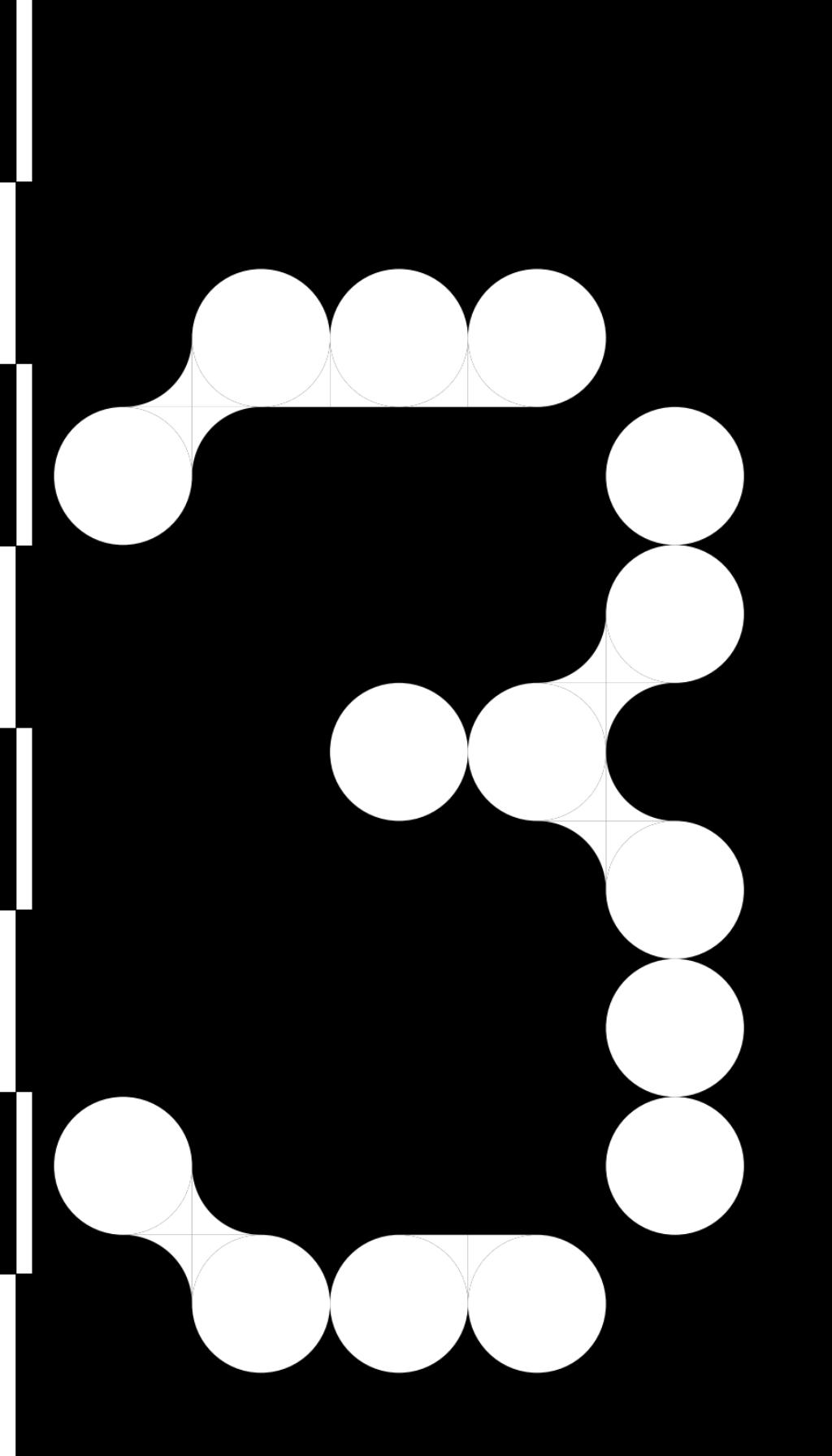
Importantly, embracing softness does not mean designing technology to be intentionally flawed or less usable. Rather, it means rethinking what perfection even is—leaving room for serendipity, error, and user agency. It is about decentralizing technology so that even small actions—tinkering, hacking, remaking—matter in the larger discourse. In the hands of practitioners, this philosophy is realized in communities like the School for Poetic Computation, or in projects like ‘Computing within Limits’, where technical and ecological boundaries are sources of innovation rather than constraints to be eliminated. Franklin (1999) argued,

In a moment when digital infrastructures are increasingly proprietary, predatory, and insular, the softer approach seeks out poetic and defiant forms of making. Softer computing, I believe, has the potential to reshape graphic communication design—not only by decentralizing and diversifying existing structures but by radically reimagining human-computer interaction as a field of autonomy, creativity, and alternative futures.

While many creative communities embrace DIY or open-source approaches, softer computing is distinct in its embrace of *imperfection, smallness, and slowness*. It resists the logic that everything must scale, be universally accessible, or optimized for productivity at all costs. However, this approach has limits: too much friction can hinder access, and too much smallness can isolate. Softer computing aims to balance these tensions by remaining open to re-evaluation and critique.

“Technology is not the sum of the artifacts, of the wheels and gears, of the rails and electronic transmitters.

Technology is a system... Technology involves organization, procedures, symbols, new words, equations, and, most of all, a mindset.”



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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.

A LITTLE HISTORY: FROM WEB1 TO WEB3 AND BEYOND



(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 participatory; 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.

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



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; Appropriate Technology, n.d.).

Schumacher, 1973; Appropriate Technology, n.d.).

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

VINTAGE SCHUMACHER

**Small is Beautiful**

A Study of Economics
as if People Mattered

Schumacher, 1973; Appropriate Technology, n.d.).

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 technological 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

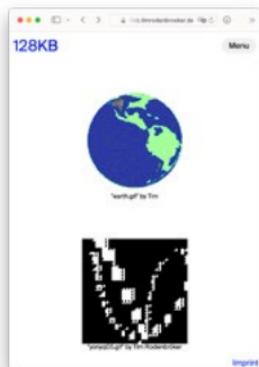
Understanding this economic and historical context is essential because it reveals why platforms have become so powerful and what is at stake when we accept their defaults.

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 Rodenbroker 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.

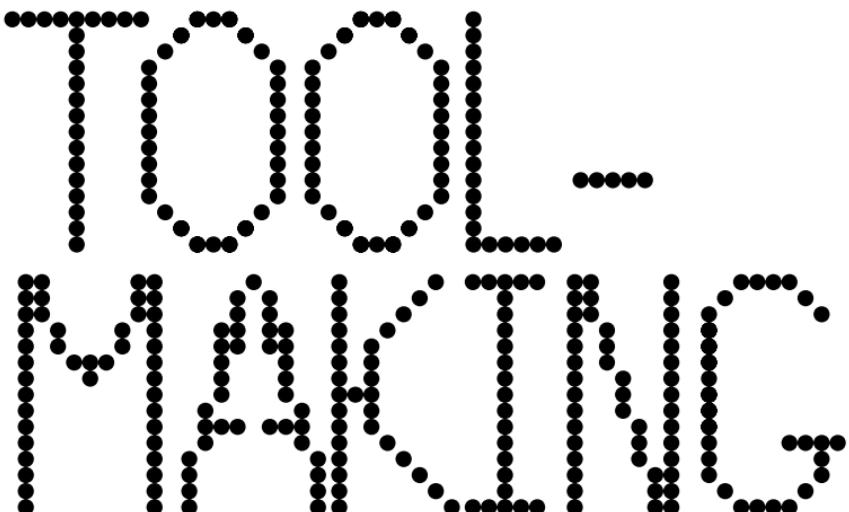
The idea of “*low tech*” and local, custom-built solutions is intimately connected to this vision. In the highly monopolized world of graphic design, low-tech or self-built alternatives do not aim to replace every function of expensive commercial software, but instead make creative practices more accessible, 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 Rodenbroker, 128 KB challenge



"...I have to understand how systems work, otherwise I am completely useless."

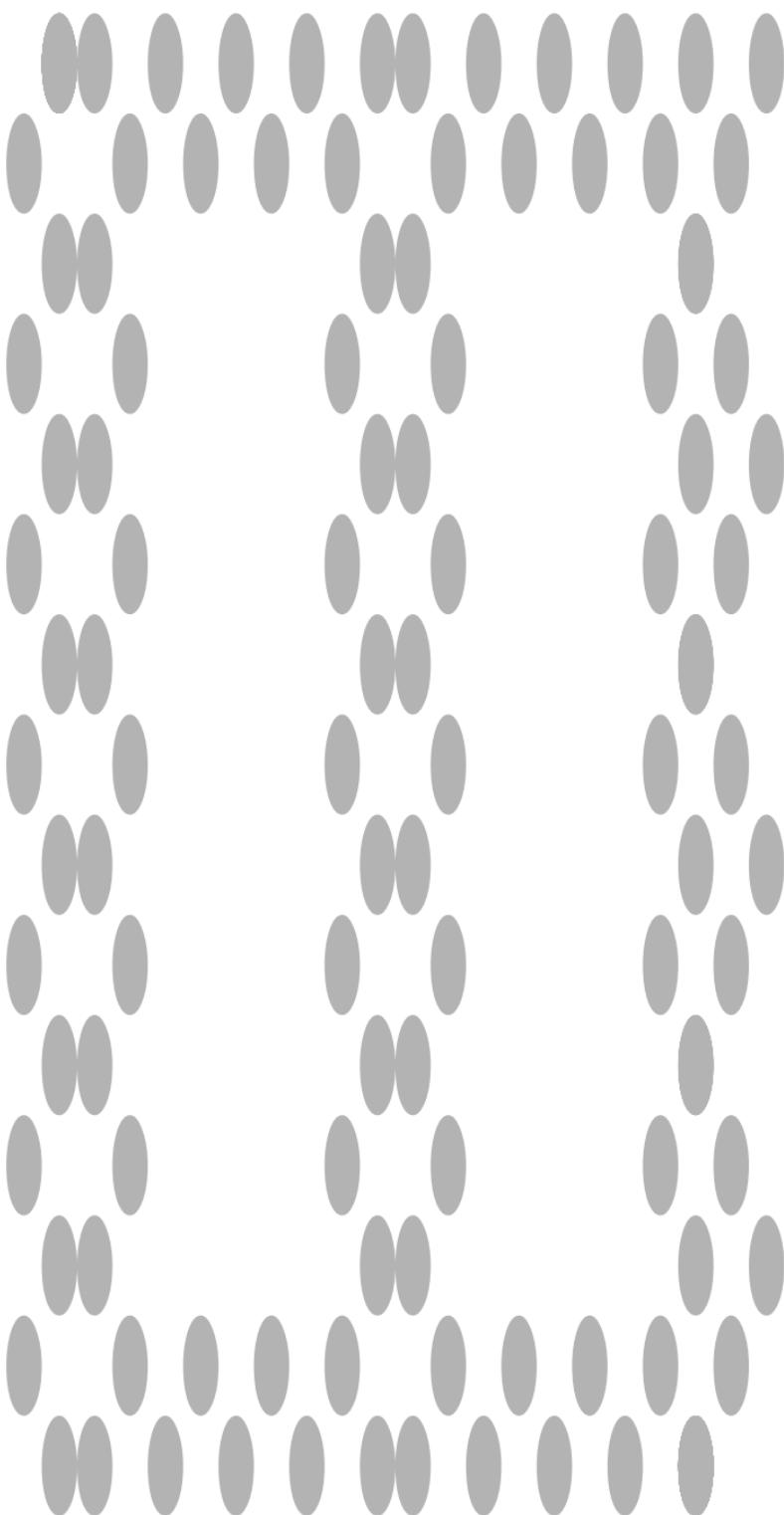


TOOL MAKING

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.

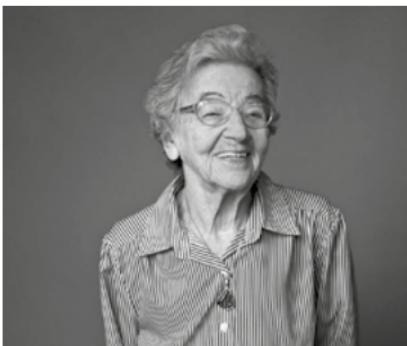
By learning to code, or even just by tinkering and modifying existing tools, individuals gain the ability to understand, shape, and critically question the digital systems they rely on. This transformation from passive consumer to literate, responsible creator is at the heart of softer computing.

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.



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.

“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

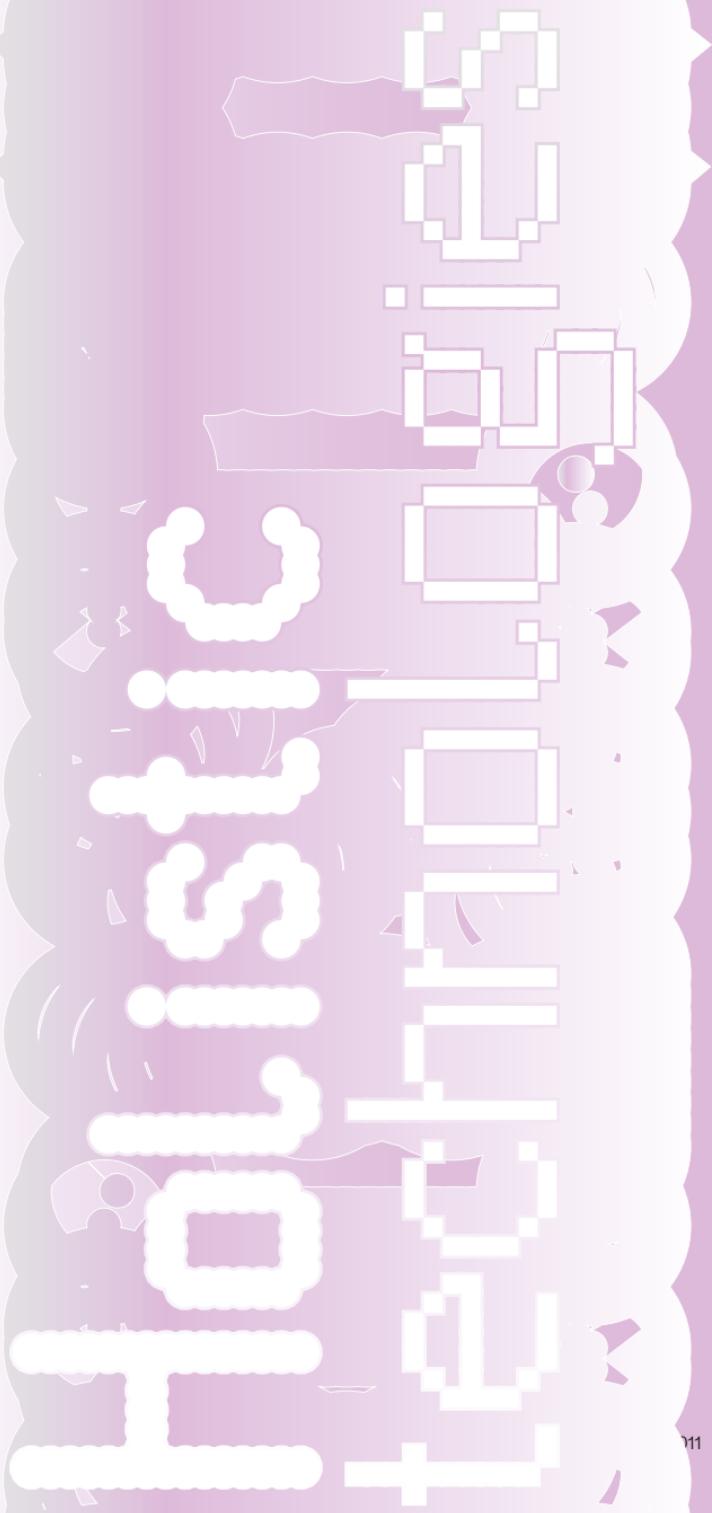
Yet, as Willa Köerner and Tommy Martinez (2022) observe, there are still moments when computers allow for holistic relationships with technology: when makers can shape or modify their tools, rather than merely execute someone else's pre-set instructions. This echoes Franklin's ethos of the holistic technology—a 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 practices—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.



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.

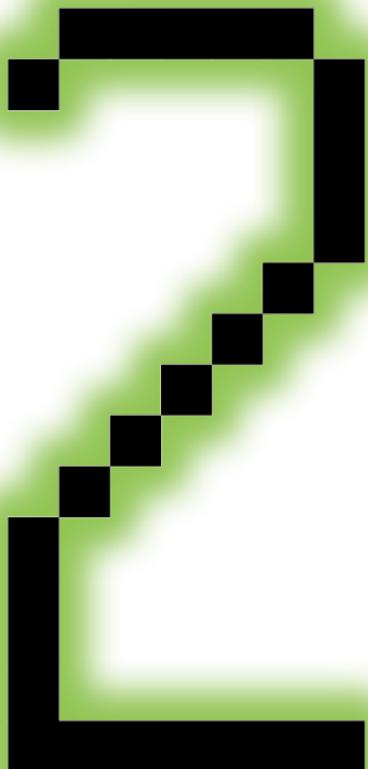
A softer tool, then, is more than the sum of its technical parts: it is an attitude toward design that foregrounds well-being, awareness, and autonomy. It reflects a commitment to users as agents and collaborators, rather than as passive operators.

the values of softer tools



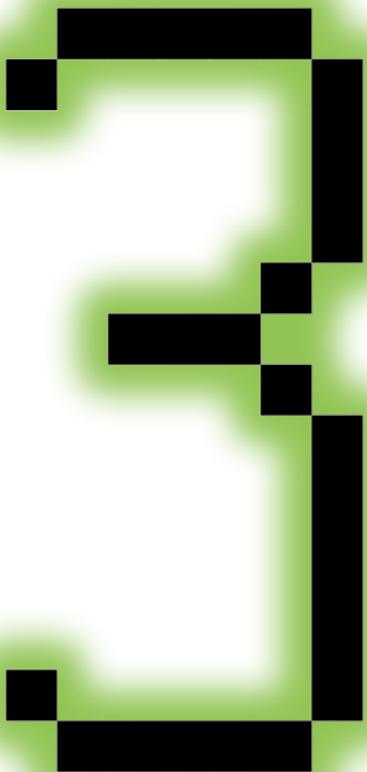
Slowness

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.”



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.



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.

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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.

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.

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chapter3

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.



