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BRIDGIT DAO



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THE METAWEB

THE NEXT LEVEL OF THE INTERNET

Introduction

If we give up on building a better web now, then the web will not have failed us. We will have failed the web.

—Tim Berners-Lee

When we were growing up, people believed that we were only using a small fraction of our brains. We thought human intelligence could be increased by tapping into the unused portions. But advancements in brain imaging technology have debunked this notion.

If, however, intelligence reflects an understanding of our world and the ability to solve our problems, history demonstrates that we become smarter through the use of tools. We are smarter because of, for example, books, computers, the Web, mobile phones, and AI. We make tools, they make us smarter; we then build better tools. We make our tools and our tools make us.

Despite our ever-growing capabilities, this book contends that we are only scratching the surface of what's possible regarding humanity's collective intelligence and our most important tool—The Internet—which are inextricably intertwined.

This brings up several questions. What would it mean for humanity to be more collectively intelligent and wise? How can the Internet enable the development of humanity's collective intelligence and wisdom? What is humanity's destiny if we do not become more collectively intelligent or wise?

We see artifacts of collective intelligence and wisdom in our complex societies and civilizations, shared systems of communication such as language and writing, institutions like schools and libraries, and advancements in science and technology, all of which stem from collaboration and experimentation. Democratic systems of government, public health systems, international trade, and emergency response systems also reflect our collective intelligence.

Yet, our advanced society continues to face significant challenges in addressing our planetary challenges. Effective collaboration and coordination seem hard to find in places where they are most needed, such as in congresses and parliaments, among heads of state and corporate leaders, and in the digital town square.

How could this be? Humans are incredibly capable. Spending a short time on a streaming video app demonstrates our ability to accomplish almost anything we set our minds to. When, however, it comes to working together as a collective, we still have ample room for improvement, which could be necessary for a democratic future.

But there is hope! As it turns out, there is a way forward, but it would require us to see the Internet in an entirely new light. We currently see the Web as simply a flat and static space. That's only seeing a tiny bit of what's possible. If we acknowledge that space exists above the

webpage, the possibilities are endless. This would enable us to realize the Web's potential for collective computing and developing our collective intelligence and wisdom.

This book unveils the web of the future, a web that is more powerful, profound, and supportive than the Web we know today. The web of the future will enable us to transcend the problems that seem intractable today, such as privacy violations and the manipulation of public opinion. It will enable us to own and control our data, and to be rewarded for the value of our contributions. The web of the future will support free speech and privacy, and will help us to understand ourselves, each other, and the world around us.

The web of the future will enable us to become collectively intelligent and to develop our collective cognitive capabilities. It will connect people and information in unprecedented ways, allowing us to think, learn, and build knowledge together. The web of the future will enable us to connect and communicate across languages and cultures, and will help us to cooperate and collaborate at unprecedented levels.

The web of the future will utilize AI (artificial intelligence) for the betterment of humanity, enhancing safety, accountability, productivity, and collaboration, as well as improving the web experience. With the integration of AI assistants, mundane tasks and content generation will be handled with ease, freeing up more time for connecting in the real world (IRL). By 2030, experts project that AI assistants on cell phones will surpass the capabilities of the AI currently employed by today's largest companies. This AI-assisted web of the future promises to greatly enhance both human-to-computer and human-to-human connection, communication, and collaboration.

The web of the future will be a digital overlay for all realities, connecting the online, virtual, physical, and conceptual realms. Every location, whether online, physical, virtual, or conceptual, will be addressable and connected to a massive web of information and interactions. This web of connections will enable humanity to create a hyper-dimensional shared context, which we call the Metaweb.

The Metaweb is the space above the webpage, but it is also much more than that. It is a safe AI-enhanced environment that prioritizes privacy, accountability, and collaboration; a digital overlay online and IRL; and the connective tissue among the online, virtual, physical, and conceptual realms. In Metaweb theory, the webpage, the physical object or location, the virtual object or space, and the word or concept all become contextual footprints for interconnected worlds of information, interactions, transactions, and experiences that emanate from our attention. The Metaweb is the future of the web, and it will enable humanity to thrive and reach its full potential.

THE ANT ON THE PAGE

Visiting a webpage is like being an ant on a rectangular plate. The content of the plate is like the text and images on a webpage, and the ant is positioned on a specific pixel within a coordinate grid. The x and y coordinates of the ant correspond to its position on the horizontal and vertical axes of the grid. When the ant moves, its coordinates change, but it is constrained by the edges of the plate.

Many plates, or webpages, exist, each with its own constraints and limitations on what can be done. Some webpages allow commenting, while others only allow reading and following links if they exist. On social media webpages, the ant, or user, has more opportunities for expression, but these are still limited. For example, on Twitter, the ant can write 280 characters, on Facebook it can update its status, and on Instagram, it can post pictures.

One day, some ant friends come along and want more freedom. As ants, they use a mechanism of indirect coordination, through the environment, called stigmergy, whereby ants leave traces in the environment that stimulate future actions. Stigmergy enables the ants

to work together and accomplish tasks without direct communication. Ants receive positive fitness benefits when they respond to traces in the environment, reinforcing the likelihood of these behaviors becoming fixed within a population over time. This is how a colony of ants can become a highly organized and efficient unit.

To enable their stigmergic ambitions, the ants build a meta-layer on top of the content plates. This transparent layer allows the ants to leave signals about the content below and to create linkages to other transparent plates. The meta-layer gives the ants more freedom and control over their experience on the plates.

Like a solitary ant, we are constrained by the two-dimensional grid of the Web and have limited opportunities for expression. As with the ants, a meta-layer—the Metaweb—can provide us with enhanced freedom and control over our experience on the Web. It can enable us to escape the cognitive constraints of the Attention Economy and develop our collective cognitive capabilities. The Metaweb is a step towards a hyper-dimensional web that will allow us to think and communicate in new and powerful ways.

Before we dive in, let's deal with a couple of housekeeping tasks.

First, the Metaweb is a concept that aims to expand how we think about the online world and its connection to the physical and virtual realms. It presents the possibility of a re-imagined Web that can help bring the world back into balance by protecting and restoring the ecosystems that support life on the planet. The Metaweb can enable humanity to become more collectively intelligent and wise, helping us to ascend to a higher level of consciousness.

To provide a concrete example of the Metaweb, Bridgit DAO has partnered with 4th Ave to catalyze the Overweb. The Overweb is a safe digital space for humans, organized into purpose-aligned meta-communities and digital entities. It is accessible through the Presence browser overlay, which is available as a browser extension, SDK, and mobile browser extension. The Overweb aims to be the first safe, pervasive, and decentralized public space anywhere.

The Overweb is built on the principles of privacy, data sovereignty, fair value exchange, accountability, and safety. It is intended to be a space where humanity can build the future we want to live in. The author of this book is a decentralized autonomous organization (DAO), making it one of the first technology books.

Second, this book aims to catalyze the creation of a new social contract implemented through technology, which enables us to use digital overlays safely and productively to create the physical and virtual realities we want to live in. This new reality, which we call the New Earth, builds upon a next-level web that is unlimited yet easy to navigate, safe yet exciting and illuminating, and a continual learning experience. The eventual outcome of this new web is a renewed humanity that has ascended to a higher level of consciousness and a renewed individual who actively takes part in this transition.

Third, to accurately describe this new paradigm, we have introduced new language and terminology. The Web's next level is hyper-dimensional, and previous terms were not sufficient to accurately describe this innovation. We believe that these new terms will be useful in the foreseeable future. Additionally, on the Overweb, we do not refer to individuals as "users." We believe that this term is disrespectful and reflects outdated thinking. It implies that people are simply consumers and should remain passive. Instead, we refer to individuals as participants, creators, and people on the Overweb, recognizing their active role in shaping and contributing to the community.

THE WEB CAKE

In this book, we present major problems with Today's Web, including scams, cyberbullying, trolling, hate speech that incites violence, and false information that is damaging to

individuals, the human collective, and our trust in the Web. We also touch upon features of the Attention Economy, such as polarization, censorship, lack of privacy, and data exploitation that harm us and limit our cognitive freedom. We also identify structural aspects of the Web that prevent us from using the Web to address humanity's existential threats.

Unbeknownst to many, the Web has a BIG missing feature. Famed browser builder and venture capitalist Marc Andreessen made this eminently clear in 2012 when his firm purchased the annotation firm Rap Genius. But the business community ignored this aspect of the investment. Building upon the big missing feature, the Metaweb enables knowledge, computation, and people to have a presence above the webpage. We will explore the possibilities of the Metaweb and how it can mitigate if not solve the Web's intractable problems. We also explore an emerging zone in the Metaweb—the Overweb—that provides a level of safety from bad actors, data security and sovereignty, context for online information, and fair value exchange impossible on Today's Web.

The debilitating problem is that the Web is flat and static. Because of happenstance and limited thinking, we have not taken full advantage of our existing technological capabilities regarding creating safe decentralized public spaces for people to connect, meet, and collaborate. Few people think above the webpage, so it's difficult for them to imagine a meta-layer. But we assure you, this book will help you see the possibilities of a hyper-dimensional web.

Today's flat and static web is like the early 1800s for cake. Until then, cakes were one layer. In fact, you wouldn't even think of it as a layer; the cake was a monolith, uniform and indivisible ... except with a knife. But in the mid-1800s, someone made a multi-layered cake, changing the paradigm around what a cake was. It was now possible to have many layers on a cake, inspiring a whole new category of cakes called layer cakes and, later, wedding cakes. Bakers could then imagine a world of possibilities for layers to enhance taste, texture, and display.

Today's Web is like the bottom of a multi-layered cake—the web cake (Figure 0.1). The next level of the web cake is the Metaweb, comprising three layers.

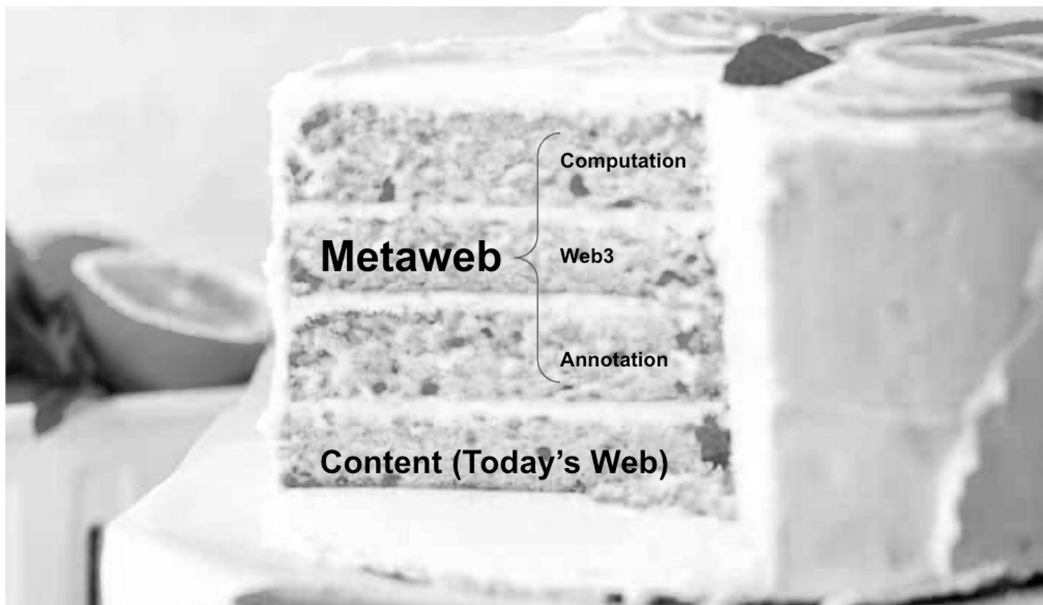


Figure 0.1 The four-layer web cake.

To help you better visualize the concept of a four-layer web cake, imagine a cake that has the same aspect ratio and orientation as a laptop screen.

The first layer of the cake represents Today's Web, with page content and any embedded ads or pop-ups.

The second layer, which is mostly transparent, represents annotations, or notes attached to pieces of text that are displayed as an overlay when the viewer's cursor comes near them.

The third layer represents Web3, which overlays a decentralized wallet protected by cryptography on a webpage, allowing users to authorize or sign smart contracts and make purchases without the need for a middleman.

The fourth and top layer is a transparent layer that places code above related content on webpages, enabling computations that present information and options to participants, handle their interactions, and present the results. This layer allows real people, information, interactions, and even meta-communities to have a presence above the webpage.

But What Do Layers on the Web Look Like?

You already know what multiple layers look like. You just don't realize it.

Drum roll ... It looks like Today's Web!

Internet platforms and applications use your attention (e.g., the location of your cursor or touch) to trigger the display of contextually relevant information and interactions without reloading the page. You have seen this with pop-up videos, web applications like YouTube, and tool tips. Anything new that appears over web content is a new layer. We call this attention triggering.

Attention-triggered elements on the web page change their behavior—appearing or moving—in response to the user's attention. On a laptop or desktop, attention is represented by the cursor; on mobile, it's touch; in virtual reality, it's line of sight.

Let's try it out. Navigate to YouTube and start a video. At the moment, you cannot see mechanisms for controlling your video experience. E.g., you cannot pause it or raise the volume.

In YouTube, the controls of the video player display when you focus your attention on them. Move your attention away and they are gone. Attention-triggered controls display when you need them, so as not to be a distraction in your visual field.

Move your attention (e.g., cursor or touch) to the video. Notice that the control bar appears. You can now pause the video, change the volume, add subtitles, and more.

Now move your attention to the timeline. The thumbnail associated with the specific time appears above the timeline and, assuming sufficient data exists, a graph showing how much each moment has been replayed appears directly above the timeline. Moving along the timeline displays different thumbnails for each moment in time.

As web users, we are accustomed to using our attention to signal interest. We don't even think about it.

Unlike siloed web applications like YouTube, the Metaweb is active above every webpage. This enables the Metaweb to decentralize what's possible on webpages, giving participants control over their web experience. On YouTube, you use the controls they provide; their video player controls are embedded in the source code of the webpage.

On the Metaweb, any participant can add interactions and metadata to web content in a layer above any webpage. This is like being able to add your own controls to YouTube's video player. In this way, the Metaweb decentralizes the space above the web page.

The top three layers of the web cake (annotations, Web3, and computations) support both synchronous and asynchronous interactions. Asynchronous interactions include indirect coordination through stigmergy, where users leave traces of metadata and interactions for others to interact with. This allows for collaboration and information sharing on the web without the need for direct communication. Synchronous interactions, on the other hand, include real-time presence and interactions. This allows for real-time communication and collaboration on the web.

This book has three major parts.

Part 1, *Today's Web*, comprises Chapters 1–5, which establishes where we are with Today's Web, how we got here, and frames its very real and seemingly intractable problems. Chapter 1 examines the realities of the current user experience on Today's Web and provides a glimpse of what the future could look like. Chapter 2 explains how the Web has evolved over the past 30 years, describing the three major generations of the web: Web 1.0, Web 2.0, and Web 3.0, as well as the blockchain-centric Web3 movement that is unfolding now and the metaverse.

Chapter 3 exposes the astounding levels of scams and theft of data; delves into the disturbing levels of harassment, cyberbullying, and hate speech; children having unfettered access to pornography and other inappropriate online content; and describes the growing problem of false information, all on Today's Web. Chapter 4 introduces the Attention Economy and its attendant features such as polarization, censorship, and data exploitation which undermine trust and harm communities. Chapter 5 explains how search and social media diminish our cognitive freedom.

Part 2, *What We Need*, includes Chapters 6 and 7, which explores what the world needs now. Chapter 6 speaks to exponential technology, the UN sustainability goals, struggles with regulation, and the splintering of the web. Chapter 7 discusses how technology drives transformational change and a model for change in emergent systems.

Part 3, *The Metaweb*, comprises Chapters 8–16, which describes the Metaweb's emergence and its initial instantiation—the Overweb, its nascent wholeness, and some ideas for engaging in the space above the webpage. Chapter 8 talks about the big missing feature of the web. Chapter 9 is about the emergence of the Metaweb concept and presents first principles for the next level web. Chapter 10 presents cairns along the path to the Metaweb. Chapter 11 compares the Metaweb's foundational element—the bridge—with the hyperlink. Chapter 12 introduces the Overweb, the first instantiation of the Metaweb, and its pattern and building blocks. Chapter 13 explains how the Metaweb fixes the major problems of Today's Web. Chapter 14 shows how the Metaweb connects realities. Chapter 15 explains what becomes possible with the Metaweb. Chapter 16 talks about how you can continue your exploration of the Metaweb.

A crucial contribution the Metaweb will make to society is a real-time context and fact-checking engine—making the Web a veritable truth machine. Today's Internet provides very little context for web content because commercial sites avoid using links. The Metaweb unlocks deep layers of context, which supports a shared contextual view, collective sense-making, and safety while navigating the web. The Metaweb also advocates for content creators—individuals and organizations—to put their works on the blockchain, and can display metadata that establishes the provenance for any type of content, online and IRL. These help mitigate false information (a multi-billion dollar market itself), scams, and abusive behavior.

And this is but one example of what's possible. As shown in Figure 0.2, the space above the webpage is wide open. The Metaweb will provide untold opportunities for commerce as

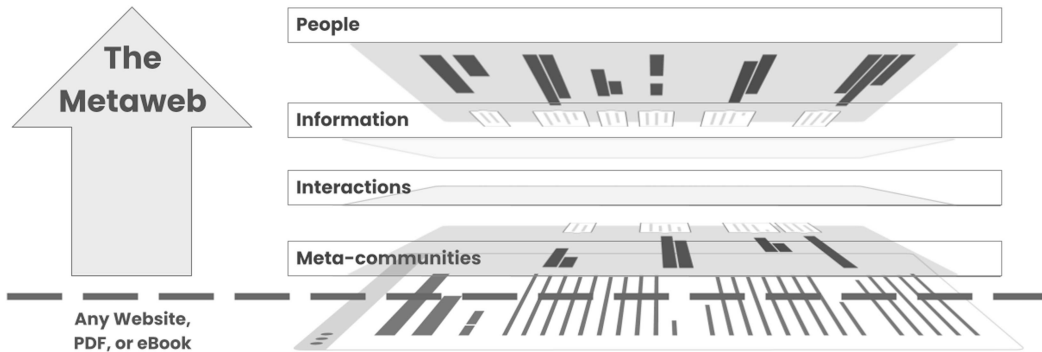


Figure 0.2 The Metaweb is the space above the webpage (adapted from Hypothes.is Overweb deck).

well as the connection, communication, and collaboration necessary to enhance our lives and shift humanity towards a regenerative future.

To provide a sense of urgency, we invite you to ponder the question of how nature sees us. Look at the animals running for their lives in Figure 0.3 and ask yourself:

If nature could see us in our entirety and complexity, what would we want it to see?

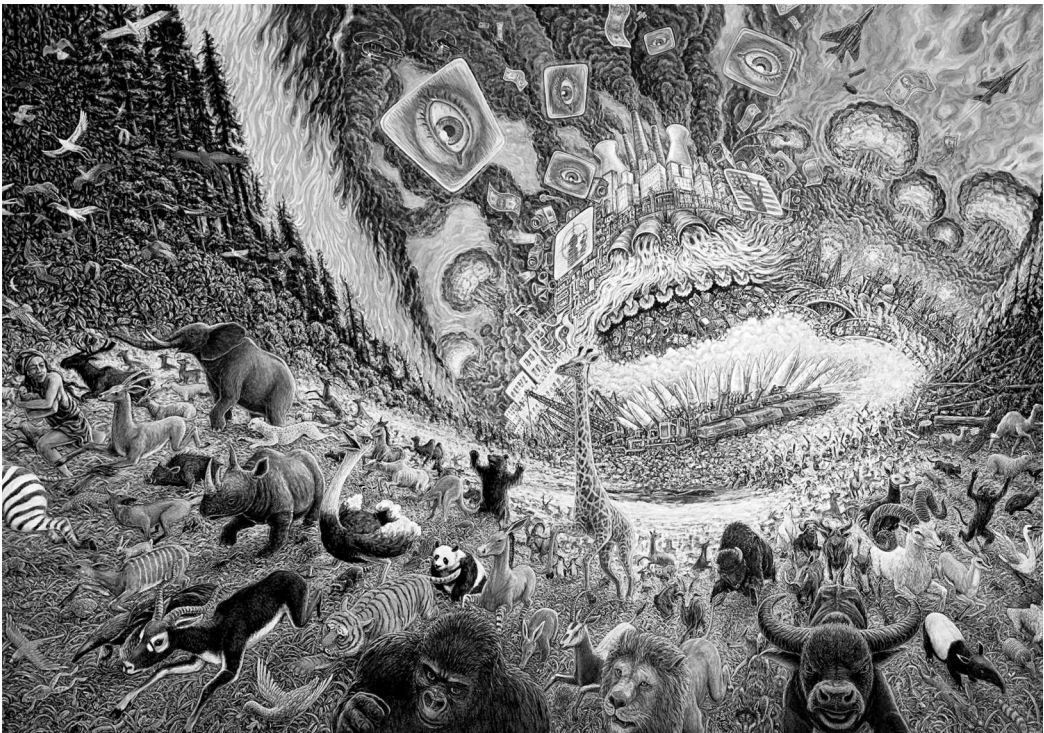


Figure 0.3 The March of Progress¹

Viva la Renaissance!²

NOTES

- 1 Mark Henson is visionary artist. The March of Progress is one of his most popular pieces. <https://permanent.link/to/the-metaweb/march-of-progress>
- 2 The Regenaissance is a portmanteau of the words regeneration and renaissance that signifies the planetary renewal movement to regenerate the Earth's ecosystems and create the New Earth.