# [H1] Theoretical Structures of ONLINE CONTENT

## [H2] Sam Sullivan

# Theoretical > Structures of ONLINE CONTENT <

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A DIGITAL + THEORETICAL Book

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# Early Visions

In the post-war world, legendary engineer Vannevar Bush conceived of a device called *the memex*.

The memex was a microfilm-based apparatus, highly mechanized, containing a recorded store of all books, communications, articles, and files a searcher could ever look for. It was to be built like a desk, work with lightning speed, and have tremendous retrieval for almost any recorded human media. Part private file, part library, and influenced by the structure of the human brain and our memory recall abilities. Bush expounded at length on his idea in a highly influential article called *As We May Think*, published in July 1945.

World War II had been an information war as much as a physical one. Nazis had burned books to suppress ideas hostile to the regime. Library exclusions and censorship of fiction and non-fiction alike had been the norm in many western nations even before the war, and were ramped up to promote the unified home fronts for many engaged countries.

Decoding signals and transmissions, vast waves of radio and print propaganda, newsreels, new weapons (including the atomic bomb), and enemy disinformation were all part and parcel to winning a globe-spanning conflict. No less than Robert Graves wrote about the necessity of good communication for the war effort in *The Reader Over Your Shoulder*.

Born: 1895
Died: 1985
English writer, critic
Also wrote: *I, Claudius*

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After World War II, the rebuilt globe became fascinated with turning those weapons used for death into engines of creativity, exploration, and convenience.

Mechanized devices could be the model for human interaction (cybernetics was also born from this milieu). With the creation of ARPA and the eventual evolution of [ARPANET](), which expanded into academic institutions before the HTTP system invented by Sir Tim Berners-Lee made its ubiquity possible in homes around the world, humans were more connected than at any time in their history.

Stewart Brand famously declared that information wants to be free; John Perry Barlow [declared the independence of cyberspace]() in 1996. The vision of the Internet in the 1990s was a utopian collective paradise, an agora of free speech, open communication, and the dissolution of national borders that had proven so strict and authoritarian over the twentieth century.

The collapse of the Soviet Union only hammered home the opening of the world, and the way democratic ideas could flourish if left to the people they were designed to protect. People demanded freedom of information and a free space for their ideas, unencumbered with the prejudicial past. Pioneers and [homesteaders of cyberspace]() expanded into new territory gleefully, using slow, dial-up connections to interact with others all over the world.

Manifestos, tracts, and triumphant screeds declared the digital world one of untrammeled possibility and freedoms.

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# The Platform

In 2006, Nicholas Carr (author of *The Shallows*) [made a bet](#) with Yochai Benkler (*The Wealth of Networks*).

Carr argued that in five years' time—2011—the Internet would be dominated by conventional business, for-profit ventures like traditional broadcasting and publishing companies. You paid for content, content was delivered, people subscribed and consumed that content (think Netflix).

Benkler argued the opposite: commons-based peer production (CBPP), or content made by volunteers and users, would enable common platforms to monetize transactions and networks rather than created content (i.e. Wikipedia or Airbnb).

A decade on from the end of the wager (in which [both Carr and Benkler have claimed victory](#)), we can see that the massive growth in platforms and the networked sharing economy have tipped the wager in Benkler's favor, although on the streaming side an argument can certainly be made that the Internet favors conventional monetizing schemes. No matter the revenue model, the tactic is the same: bring us people. Growth hacking, demand generation, multi-sided economics, and numerous other trades exist to massively grow platforms quickly, enabling network effects to take over and generate true brand powerhouses of connectivity.

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Commons-based peer production includes open source software (OSS) such as Linux.

Modern platforms—services that connect buyers, sellers, users, lurkers, or any other definitions—are multi-sided markets of exponential value.

One only has to look at the extreme growth of companies like Facebook, Google, Twitter, Amazon, Uber, and Airbnb to see that the modern economics of online activity have shifted toward monetizing users and their activities rather than paying them directly for the content they produce. A great Daily Active User (DAU) metric is worth its weight in investor gold. Uber can post hundreds of millions in losses each year provided the user count continues to go up (and the [exit deals are sweet enough](#)).

The largest platform, of course, would have to be Facebook—but this comes with caveats. While Facebook describes themselves as a platform, in this case a digital service enabling communication and distribution of information between users, [others have argued](#) Facebook is in fact a publisher: they curate and distribute information, like a traditional news outlet. The differences can be stark: a platform is an agora of users sharing information, free speech, open market, the whole lot. A publisher is responsible for what they publish, and what they promote.

Multi-sided platforms always face a few hurdles in their creation. They have a chicken and egg problem: who comes first, the buyer or the seller? Platforms are most successful when they enable transactions that are otherwise hard or impossible to do without the platform. The market in a platform is non-linear, and each side, seller and buyer, interacts directly with the platform as the intermediary.

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# Brand Communities<superscript>[H1]</superscript>

Sometimes the Next Big Thing is actually one of the oldest things in the book.

Many businesses today make the mistake of pumping out ads or content that appeal to a tiny section (or even smaller subsection) of their audience. They plaster social media with graphics, updates, pictures, and they tweet about their business while checking marketing boxes tailored to their budgets. They might utilize SEO or PPC ads; they might even do testing for their UX experience or hire a *demand expert* to ensure customer acquisition and retention.

But many don't go deeper. In fact, it's likely most don't.

Getting beyond the numbers on the page, the facts in the chart, and the various broad marketing and brand penetration reports takes a more dedicated approach that simultaneously cedes some control. I'll explain what I mean in more detail below. But what I'm referring to here is called community, specifically a *brand community*.

If you've worked in digital marketing for any period of time, you know the field has more than its fair share of nonsense buzzwords and corporate speak meant to fill in for more nuanced or detailed thoughts (*synergy*, anyone?) *Community* and *brand community* can fall into this trap too if they aren't treated correctly. It's more complicated than just positive brand awareness or word of mouth; it isn't just customer lock-in or retention or subscriber acquisition or good reviews on Google or increased profits or positive network effects.

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In fact, it's *all of these*...but they're a symptom of something larger at work.

This isn't meant to be fortune cookie-level *dig deeper* stuff. The truth is, community is something that can be built, but if it's built correctly, it isn't controllable. If it's organic, it can't be fully steered. And if it's fully functional, it works without buzzwords or huge marketing spends or reports of its success laid out neatly in a visually pleasing chart (although I enjoy those, too).

Communities around a brand are dedicated customers who proselytize and become brand ambassadors to others. They carry on the mission of the company because they believe in it. They connect with others who share their goals and vision. They come together over the business' core values and make them their own. They utilize elements of the brand when making their own purchasing decisions, and they let their perception of the brand influence how they feel about similar products and services. They're loyal but not necessarily malleable. They're fans, but not just on social media.

They love the product but feel the brand.

Building communities isn't just a matter of pumping out good content and hoping people flock to it. It isn't just hoping people laugh at an ad or feel emotion. It *definitely* isn't coopting other content or user-generated material and making it worse. You want your core service or function to fill a genuine need in the customer's life. You want that core need to be translatable into conversations and need-filling in people related to the customer.

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You want network effects based on an organic understanding of the brand's benefits and how a larger picture can form around what they offer.

We've all seen the messianic and quasi-religious fervor associated with certain companies (Apple, Disney, Google, etc.). The goal isn't to build a cult or an enclave of supporters with insular tendencies and views.

The goal is to have an informed, educated audience who shares the facts of the brand with others and converts them based on the need. Reach beyond identities and demographics: don't say things like *"We have 18-25 year olds locked in for a product"*—say more like *"We've connected with young people because of our eco-friendly production chain."*

No more *Millennials are always on their phones*, but more *Millennials use new technology to connect more.* You won't build a successful new community without empathy for those different from yourself.

Get away from brand penetration in demographics based on the surface features of the brand. Think about how the product makes them feel, and how that product might make others feel—and this is the important distinction—when they hear about it from *others*, not *you or your company.*

A genuine brand community takes over.

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This is why it isn't controllable. You can run PR interference and try to course correct when public problems arise. But never forget that, despite utopian prognostications to the contrary, public opinion is not controllable and cannot be steered like a ship on a whim. At some point, people don't want to hear from you about your service, they want to hear from their friend or their family member.

Some of the [liveliest examples of brand communities](#) include Harley Davidson; Disney, with its massive production slate of movies and its accompanying parks that offer a deeper brand experience and a connection to others based on fandom and nostalgia; Apple, of course, inspires brand fervor and loyalty like no other; [Starbucks](#) has pioneered what I call an *omnipotent soft-touch approach*, constantly available, all-knowing, and filling a (definite) need while being approachable and welcoming. Tesla has built a tremendously devoted following based on exciting new technology and a charismatic CEO; Peloton has gone back and forth on its brand communities, inspiring a devoted fanbase but struggling to expand it (its ads have also been criticized as tone-deaf and out of touch).

Netflix has a brand community based around binge-watching the latest shows and sharing a love of found content. Netflix also buys a great deal of foreign content, appealing to broader global fan bases and stretching themselves to different cultures. They use audience and viewing habits and patterns to create more content tailored to those groups.

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Their social media strategy then reinforces this content to their viewers, engaging actively on Twitter. People share their love of the company and its content across numerous disparate sites and feeds, and remix the brand into their own memes and content based on their viewing habits that relates them to others ("Netflix and chill").

Managing communities successfully while juggling the needs of content (and the oft-criticized bottom line) can prove a distinct challenge. Netflix is a great example of a loved company that also has had high-profile PR slipups, not least of which was the Dave Chappelle controversy.

Netflix prides itself on its LGBTQ-friendly atmosphere and content appealing to younger, more liberal fans. While it has never been a mono-focused or singular-demographic-content company, it has struggled to find an acceptable balance in producing entertainment for all audiences, especially those niches who stand in stark political disagreement with one another. It remains to be seen how they'll remake inroads to their transgender community fans after the dustup.

On the flip side, Patagonia did an excellent job fostering brand communities by building an [environment-first strategy](#) that laid bare their supply chain, manufacturing and sourcing processes, and how long coats should last. Transparency, expertise, and authority were on complete display for every part of the product. Patagonia recognized its community was based around core values of conservation and a green future. They successfully tapped into this and reinforced their fans' belief in their company by being trustworthy and living up to their stated goals.

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Patagonia stood out from competitors in the natural way its customers harnessed the power of a company doing good to feed their own beliefs about a more eco-friendly future. And those communities were rewarded with great coats and a shared sense of mission.

Brand communities shouldn't be thought of as a marketing strategy, but rather a business strategy encompassing all the company's goals. Brand communities don't just feed the bottom line or expand market share or help CEOs buy new cars—they are meant to serve the community itself, the customers, the people who interact with one another and who use the products that you make.

Brand communities are often messy things, with uncontrollable thought leaders and influencers emerging organically from the community. It helps to embrace this; recognize influence and foster it. Encourage a community based on active participation and secondary thought leaders and structure arising from natural interactions (*adhocracy*).

If you're from a political background, you know that [community affiliations](#) come in pools, webs, and hubs. Pools are composed of members united by shared values; web affiliations are based on strong one-to-one connections like on social media; and hubs unite themselves around a single individual. A good brand community utilizes all three, and sometimes bridges connections *across* types. The digital community builders are discovering that the physical world, with its messy contradictions and nebulous webs, can be made online and simulate a real world of customer interactions, and that the messiness should be retained rather than stifled.

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What many brands can do to create communities is to branch out their digital presence and their platform. Democratize their processes. Use new technology to educate. Hold listening events with customers. Associate with similar brands and form partnerships based on organic sharing rather than strategic profit margins. Connect with companies that are unlike in product or service but similar in values and core beliefs (B corporations, for example, can form a web of like-minded certified companies that appeal to people collectively looking to mitigate their environmental impact and focused on the triple bottom line).

Never underestimate the value of cooperativism and democratization of the brand.

When I say democratize the platform, what exactly does that mean?
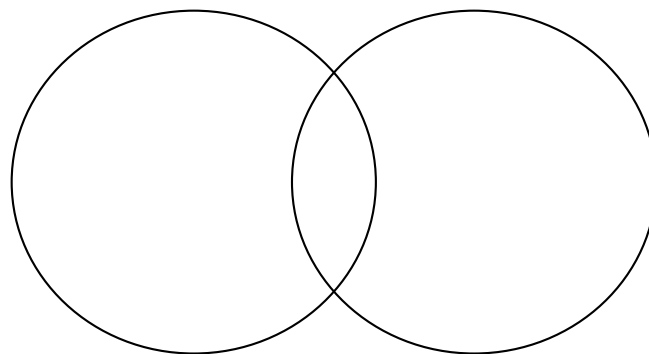
One of the simplest ways is to let in guest bloggers or invite community suggestions that are actually acted upon, if helpful. Make certain high-profile fans brand ambassadors, or let them guest tweet as the official account. Invite them and others to company tours; share stories, blogs, videos, and other projects with like-minded companies. Create an influence map, and see where organic interactions can spruce up challenge areas and can provide better content opportunities for online discovery. Open message boards or community forums; engage in chats about reviews on various social networks; create a robust email follow-up system that encourages loyalty and personalized touches. When guests post about you on social networks, engage with it on its own terms while letting it grow naturally. Don't try to dominate or stifle conversations, no matter the tenor. Share, share, share. Discuss, listen, learn.

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It can be scary for marketers, companies, and any C-suite officers to cede such control of the brand to communities like this. The first urge is to always dominate the brand conversation and try to control the message and its reception.

Massive programs exist for content and semantic analysis to parse tweets, posts, and messages for every possible criticism and drawback in the hopes of shutting them down before they blossom. While this can be successful from a PR vantage point, there will always be something organic that is rewarded by an equally organic response. The key is to find an appropriate balance between control and democratization; between soft-touch and iron grip; and between a community and a customer base.

Each brand has to find their own balance to strike. But the rewards of an engaged brand community are potentially endless. The future of marketing is to foster communities based on shared values that triumph over buzzwords and sellable noise. The best ads are like the best interfaces: none at all.

When people are encouraged to share instead of sell, the results are more positive, longer lasting, and simultaneously build a brand while building the community that supports it.

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# Folksonomies<sup>[H1]</sup>

Safe to say that the words we use help give us context.

From how we describe things on social media to how we tag products in our online ecommerce listings, words (and their related partners keywords) help form meaning and structure for online content. When culling Google for a product or page, we rely on words and click based on terms in the URL. When publishing posts, we take time to make every word right, to say what we mean, and to convey a message to potentially thousands of people.

Traditional web content is structured via a taxonomy: a predefined set of clickable terms from a dropdown menu at the top of the website that provides gateways to more information. We search a site based on context, especially the listings and terms that we've come to identify with that particular site or page. We often share with hashtags and other related terms to classify the content we make, find, or repurpose.

When we search Google, the [knowledge panel](#) on the right side of the screen is directly created from a culled set of web and relational data called a knowledge graph. This knowledge graph is special for Google, but it can be created and used for almost any sized business or entity, online or otherwise. Wikipedia, for instance, has its own knowledge graph-defined taxonomy with its [Wikidata format](#) and knowledge box panels on the right side of the page.

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This web of structured data can be seen as an evolving template for both the [Semantic Web](#) and the proposed [context graph](#) of the Internet, or a way to bring search and user intent directly into the process of browser search and online content structuring.

It makes sense: A UX point of view asks users to take their own clickstreams and navigational paths and provide feedback on the usability; we might as well think of the Internet and browsing more in terms of recommender engines than static pages waiting for us to make the steps happen.

A taxonomy can be formed from an ontological framework, perhaps even a controlled thesaurus with a set of terms and their semantic equivalents for use on the page. Having a controlled set of words and terms help define not only the vibe of a site or its content, but how that content relates to other content and forms navigational patterns for users.

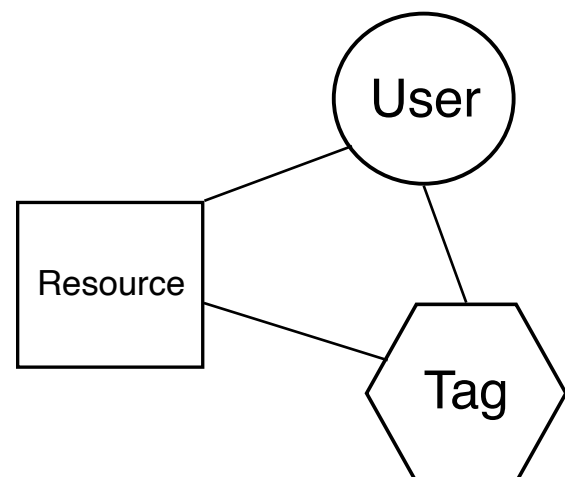So it can be pretty important to get this right.

Take Google Ads, for instance. The placement of key terms and phrases based on which audiences you want to reach at what stage of the buying funnel can mean the difference between success and failure; it can mean reaching only part of your audience (or none at all) or reaching precisely the right market and increasing conversions or other KPIs. Product catalogues for ecommerce can leave customers feeling ripped off if the terms used and reviews aren't relatable or descriptive enough.

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And yet, the terms we use can be jealously guarded, walled off, discovered only through rigid scientific or even cold means, such as aggregated information from an SEO program or Google Trends, keyword research or Chrome extensions that help us see what topics are trending and how people are using them. Key terms can be generated entirely in-house, which isn't necessarily a bad thing—but there is another way to define them.

I've always loved the idea of community branding—not just in an outreach way, where a company establishes its brand in the community and lets users spread its tailored message, but in a cooperative way. In this way, a company's core features are directly influenced by feedback from users, customers, or owners (in the case of a genuine co-op).

Many, many companies throughout the world operate as co-ops, where the workers are owners and everyone has an equity stake in the value of the company. A brand or logo, in this case, might mean more than just the executive team and the staff, or a trademarked logo splashed on the sides of buses...it could mean something more abstract, an idea hewed to by members of a community defining a brand and its function for themselves, autonomously and then in a collective.

Similarly, for those companies operating here that want a more open brand, there is the delightful idea of a [folksonomy](), aka *folk + taxonomy*.

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If a taxonomy is a more rigid structure of a company and its terms built from the top down, a folksonomy is built from the ground up. Users, customers, and fans build the terms that are used to define the brand and spread a message based on an autonomous collective of sharing and remixing of identity.

For example: Let's say a Semrush keyword search has returned a set of ten target keywords for a company to focus on. These keywords can be concatenated with others for key phrases, the better to match search intent from users.

These phrases and terms are used on the website to label categories, dropdowns, menus, and blog titles. The information architecture (IA) of the site is built around these researched, trend-influenced terms and its posed questions are the subjects of blog pages and a FAQ sheet.

Perhaps it's even a little more open than this. Let's say the company and its founders decide on the terms they want to use and white-board it as part of defining the brand's *voice*. The voice is then a [controlled vocabulary](#) deployed on site pages as needed, with minor variations or semantic relations for navigation.

As an example of a recent controlled vocab term, just look at the transition from *employees* to *team members* or *teammates* (or *people*). One is a classic but slightly colder descriptor, whereas another defines (positively) relations between working members of a team. It's been changed in favor of a friendlier vibe.

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The site pages may have been scrubbed of the terms *employee* or *employees* and replaced with these friendlier terms. A good start, especially for defining a set of more positive monikers.

Such changes can help positively influence and define team culture, and presents a framework for hiring and training new team members. For businesses struggling to hire and capture the voice of external reality about the company, a folksonomy and social indexing for vocabulary can help them break through, and possibly even counter possible existent criticisms.

But let's say we opened it even more. Let's say we didn't just let the members of the company weigh in with terms and defined lists of vibe words. Let's imagine we had forms, fields, and options for social tagging. Let's say web content, web pages, blogs, and social media pieces could be tagged and defined by users and the customers themselves.

These terms can then be put through a histogram or Excel file, with the most used terms ranking highest for content. These terms can be incorporated in a knowledge graph or structured data framework (such as *The New York Times* did), or they can be actively used for descriptions, information and knowledge classification, and lively, evolving taxonomy.

Social tagging and folksonomy used to be a more active occupation for online content.

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Tumblr, Digg, and others incorporated the use of social tagging of terms and categorization for user intent. Facebook, of course, still lets you tag yourself and others in pictures (if the permissions are enabled). Tagging and defining our content is a principle recipe of the Internet's ever-evolving semantic structure. Words continue to give us meaning even now.

A folksonomic classification system can also be applied to ecommerce category listings, especially letting users tag and submit their own terms for not only how they find something, but how it relates to their lives and the uses it provides. If marketing is less about the product and more about the need that product fulfills in your life, then a requested and open folksonomy process enables users to directly tag the use of these products in their lives.

Extended knowledge graphs for a community-branded business can also be built in a similar way, with many different term input mechanisms available. Questionnaires and surveys are widely used; an evolving process of social tags and keywords gleaned from sentiment analysis and shares on social networks, including Twitter and Instagram, can also help define a brand's core terms. Part of the excitement of a lively folksonomy, however, is the way terms can always be added or changed based on directly feedback and input.

A knowledge graph for an enterprise built around these terms can also include more semantic relations between them. A site or page with more interests in web accessibility can use folksonomy-gleaned ALT tags to completely democratize the process for those users it wants to reach.

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Knowledge graphs aren't only used for enterprises or Google—they have also been used for events and external documentation. COVID-19, for instance, generated a massive amount of data, papers, and scholarly work. For a team of researchers trying to use all this data, the problems can present themselves quickly.

A knowledge graph attempt to reckon with all this, CORD-NER, was an open-sourced data set using named-entity recognition (NER) to build a usable, easily searchable taxonomy to enable potentially lifesaving research and insights. There were others built, but frameworks for events such as this can bring needed advances from previously jumbled and unstructured sets of data.
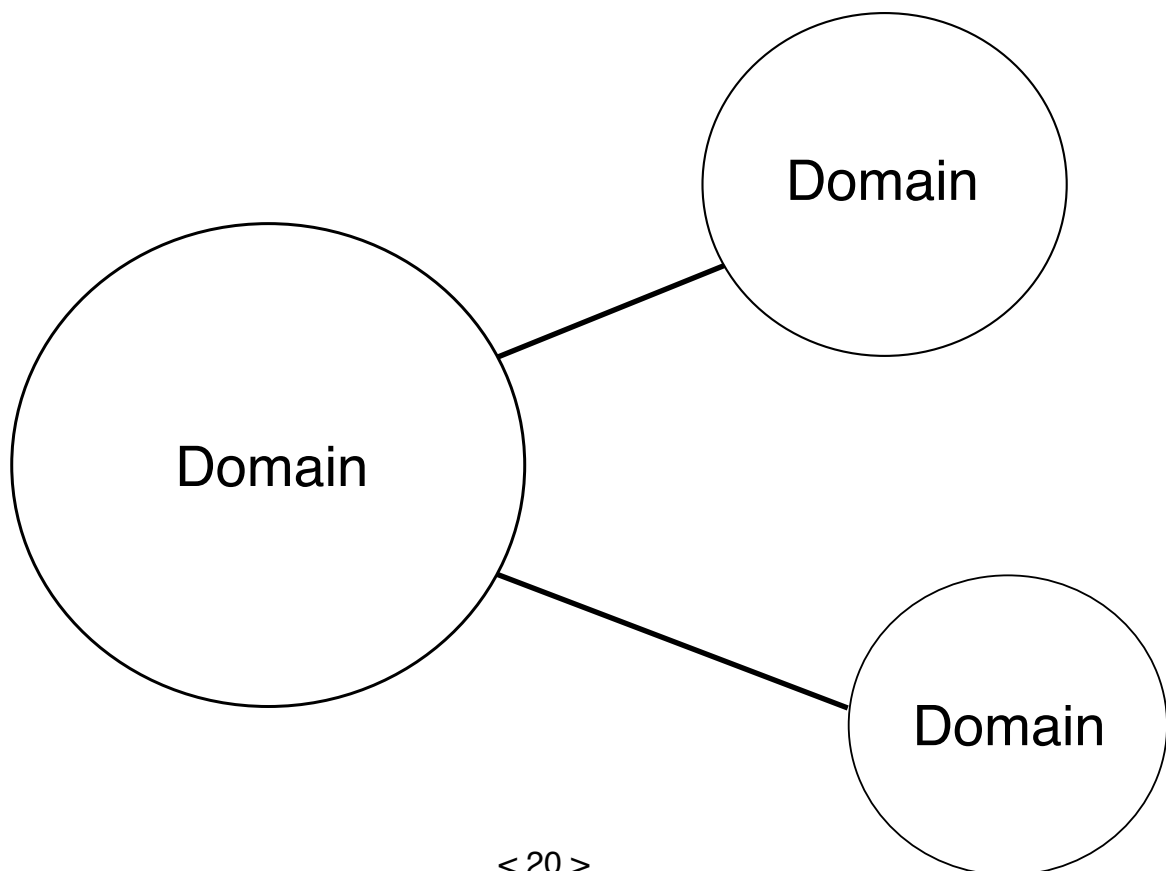
In online commerce sites, a product or retail taxonomy has been a boon for many. Creating a detailed, well-formatted (and knowledge graph/controlled vocabulary-influenced) catalogue for products and descriptions can help bring desperately needed organization to an unstructured but growing site.

The biggest things to keep in mind are that folksonomies are only as broad or as helpful as the users defining them. A small company might get less use out of public-facing controlled vocabulary creation than a larger enterprise or brand with multiple sources of data and indexable terms. Competition for keywords can still be fierce, and there will always be plenty of stop words and inapplicable words or too much of a broad match to be employed usefully. It comes down to a careful plucking and evaluation process, with the data cleaned and prepared before wildly reformatting a website based on social tags.

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Experimentation, reimagining, remixing, and open-ended design.

This is, of course, a much more complicated topic than just a simple chapter can do justice. But it's also an important opening for a new line of thinking that potentially democratizes and opens a brand, displacing it from siloed or a walled garden of controlled ideas.

User-defined brand presences online can help build trust and foment a brand community that engages with, loves, and extends the work done in-house. Much like a folksonomy itself, the use of knowledge graphs and enterprise vocabularies remains an evolving, exciting prospect for a connected digital web of discovery.

Domain

Domain

Domain

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# Social Media's [H1] Mise en Scène

We live our lives in frames and images. Our world has become unanimously photographed, reproduced, captured, shared, liked, commented on, and distributed to far corners of the globe.

More pictures have been taken this year alone than in the first 100 years of photography—in fact, more pictures are taken [every two minutes](#) than were taken throughout the entire 1800s. More film and video is shared online every day than the first few decades of the art.

Our modes of media dissemination have also drastically increased in reach and volume. Where once penny papers and broadsides were distributed by hand in concentrated geographies, bound by delivery networks, now the power is in the hands of every person.

Massive companies that built their legacies and empires on the power to distribute media have been replaced by platforms—companies like Facebook or Twitter that rely on user-generated content (UGC) to fill their engines and bring back recurring customers.

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With all this content produced, and with viral pictures, videos, and stories taking off hourly, it's worth it to examine the art of social media photography and posts. Is there a discernible art form to posting? What makes a post stand out, or go viral? What appeals to the emotions and the senses, sometimes subconsciously? How does the Kino-Eye of social media dissemination function on a post level? Can we see the workings of a mass-produced art form stand out from the clutter of trolling and programmed junk?

Mise-en-scène is a French term meaning the arrangement of scenery and stage properties of a play or film, or the settings and surroundings for events, actions, and stories. The way a scene plays out in a film, the way action and dialogue surround the viewer, the way visual effects and juxtaposition speak to the primal and inform archetypes in all of us. In a simpler pictorial sense, it means the way action is framed, the way individuals, ideas, or scenes are represented in a photograph. Here we'll focus just on the silent forms of media, including pictures on social platforms and the earliest days of silent filmmaking.

The 20 most popular posts on Instagram, a site devoted to photography as the content engine, are almost all dominated by celebrities. Billie Eilish, Ariana Grande, and athletes from around the world pose happily or deeply, doing cover shoots, showing new hair, or posing with friends and writing captions about the message we're seeing. The images are framed as a view into a world of the rich and famous.

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We see slices of life we don't live, but we feel the immediacy of the action around it as though we're there. Some are taken with pro-sumer cameras, while others are made with cameras built into smartphones.

The number one picture, in keeping with the Internet's tradition of random minutiae, is a picture of an egg. The picture has a call to action that does what social media platforms do best: it literally asks to be shared. As of this writing, the picture has been liked over 55 million times. The design of the post was to beat a picture by Kylie Jenner for what was at the time a record of 18 million likes. That record has since been beaten many times, and not just by more eggs or sillier ideas.

The most liked Facebook photo of all time belongs to a man named Nick Vujicic, posted on March 31, 2014, and liked over 15 million times by 2020. The image depicts the limbless Vijucic posing on a beach with his family. He's a best-selling author, speaker, coach, and podcaster. The image is a simple one, showing beauty in a way we don't always encounter in our daily lives. It's positive; it has meaning. Its value is easily extractable. It's designed to be seen, commented on, and shared when you scroll through your feed filled with thousands of other posts, memes, and gifs.

The [most popular tweets of all time ](#)are also almost uniformly made by celebrities or individuals in the public eye.

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The current most retweeted and liked tweet in history was from the family of Chadwick Boseman, announcing the actor's untimely death in August 2020.

The next top tweets belong to Barack Obama and Joe Biden. Jungkook and V, members of South Korean boyband BTS, own many of the top tweets, usually with simple emojis and basic messages bookended by hashtags.

The theme is the same across these platforms: celebrities, faces, news about them, and updates in their lives. It's been noted frequently in network theory that preferential attachment with established name-brands builds far more easily than with unknowns. Had these pictures been posted with non-celebrities, they very likely wouldn't have performed anywhere near how they did. If you want to be famous online, it helps immeasurably to be already be famous offline, too.

But for the average, everyday post from the billions of people inhabiting social networks online, and the millions of companies using them as an advertising channel, what can be gleaned? How do we sort value from fluff? What makes a channel's strategy work whereas another's will die quickly? What makes posts last longer? And how can companies define and set their brand image and updates in a way that appeals to universal values of the subconscious and image-setting?

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I work in social media now, but I'm originally from a film background. Social media as an art form, having been around as an art at all for about 16-18 years but lingering as an idea for closer to 25-30 (Six Degrees comes to mind, in 1996), is right about where film was in the 1920s. It's both a business and an art form rapidly expanding into a commodified global structure that displaces—or disrupts, in modern parlance—everything that has come before.

And if Defoe or Richardson invented the novel as a viable format, then filmmakers like Eisenstein did the same for film, taking it seriously and examining its peculiar qualities.

We can look to silent films to find some inspiration for our own posts today, as odd as that may seem initially. Let's look at still photography, by far the most used by individuals on these platforms. Silent film and platform posts have some similarities: soundless images showing meaning, often cut against text that asks the viewer to read and absorb. If one does a carousel on Instagram, Snap stories, Facebook stories, or multiple pictures on a Facebook post, or perhaps uses the all-too-common slideshow format on their website, the pictures can function like a reel, intercut together with text to set the scenes.

A picture of a company helping distribute goods to a hurricane-ravaged location can be posted with a textual framing of helping the community.

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The text builds the story around fundamental human values of compassion, presence, brand identity, and service to the people who will eventually become customers if this post does what it's designed to do. The frame is filled with both human activity and ideology. Subconsciously, we remember the feeling of helping, and how we reward compassion. We might even be able to smell the waters in the shot, or hear the voices. Maybe we're there, the text and photograph doing enough to ignite our imagination to do the rest.

The most viral and shareable social media posts hinge on emotion. Russia has long since mastered the art of propaganda and emotional persuasion. During their interference campaign in the 2016 elections in the United States, they not only paired volatile images with gripping text appealing to an audience—they also loaded and posted those images in relevant networks, taking advantage of social media's cheap, ubiquitous quality of attaching frames and deliberate mise en scène to existing structures. Facebook channels become a hub of misinformation, disinformation, and outright lies built from primal elements of the Kino-Eye.

Their message was aggressive: *If you're for Hillary Clinton, answer for the deaths of police officers and contractors in Benghazi. If you're from a predominantly black neighborhood, remember the politicians don't care about you, and don't vote at all.*

Depressing the vote in key battleground areas is far more effective than mobilizing a person to support a side they don't agree with. One invites the person to make a sustained emotional and mental effort; the other requires they simply do nothing.

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Eisenstein and the early Soviet filmmakers, such as Dziga Vertov, were enamored of [montage](#), or the editing together of film strips and frames to create meaning for the audience. We take it for granted today, but in the earliest days of filmmaking editing was a heretical, uncertain thing. Eisenstein used a term from writing called portmanteau, the creation of a totally new word from two previously existing ones (example: *breakfast + lunch = brunch*), to define his sequencing.

From the earliest pioneering work of Edwin S. Porter, it was discovered that audiences accepted juxtaposition and [editing](#). Suspense could be created from showing a woman tied to tracks and a train headed her way. Previously unconnected pictures could be used to build a new feeling. We were invited, subconsciously, to place ourselves on the tracks. We felt the emotions of the scene. We were there.

Eisenstein filled the frame with propagandistic images in films like *Battleship Potemkin*, with violent close-ups interspersed between charged imagery like soldiers descending a staircase, firing on protesting citizens.

A baby's carriage slowly rolled down the steps, cut between images of boots stomping and a woman holding a dead child. Shock, awe, pathos, and action could be called up by the intercutting of these frames.

Agitprop was a currency of the Soviets, and they mastered it in ways most companies on social media today struggle to do equally.

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This is still a tactic used on social media by ISIS and the Taliban: images of strong victory, guns, triumph, and bloodshed.

When ISIS captured large swaths of land in Syria and Turkey, their robust social media campaigns (with a special emphasis on Twitter) showed their advance in real time like those Potemkin soldiers. They dominated and filled their frames with ideology and an irrepressible march forward. Similarly, China's 50 cent army and the Russian infiltration of social media in Ukraine use posts as a show of overwhelming force and information overload to reinforce narratives of victory.

We're inundated on social media with images of smaller victories: our colleagues and friends winning awards, getting married, having children, partying, living, loving.

It's been studied ad nauseam, but we now know that these images don't represent reality, but a textured, fabricated reality that shows the good things and censors the bad. Social media may make us depressed because it shows others as happier, more successful, and generally doing better than we are. But narrative film can make us depressed, too. So can facts, stats, and music. We're emotional creatures. Tapping that well of emotion belongs to social media the same way it belongs to every other art form.

The additive properties of images + text can also make way for another quality in silent film: music.

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Musical accompaniment, in the form of classical productions, aided the emotions and moods of the shots. Though recorded sound had not yet been pioneered, leaving the movies silent (until 1927), they still spoke. But music is another shared fundamental human value.

The cathedral setting for orchestral movements or concerts are secular church performances that culturally unite us. Eisenstein pulled emotion out of his viewers with montage; Walt Disney pulled it out of them with slapstick, joyous animations that sprang to life from ink and cells. It's no wonder Eisenstein was such a lavish admirer of Walt Disney: they were focused on the same fundamental thing, the way images and emotions were culled and fabricated from the raw materials of the camera. Mickey Mouse lived on the screen, bigger than all of us.

Carl Theodor Dreyer, a Danish filmmaker, made *The Passion of Joan of Arc* by interspersing close-ups of her panicked, sometimes elegiac face against the anger of her inquisitors.

The close-ups are violent with emotion. He let the actor's face fill the frame with primal emotions, and let the values from the cutting between them fill our minds with the fear by making it real. Whereas classical renaissance painting had a focus on golden ratios and defined rules of viewpoints, the haphazard, ad hoc nature of cinema's composition added an immediacy to reality that turned this medium into a powerful driving cultural force. The smoldering looks of Valentino ignited the passions of his female audiences in the millions; the scandalous vamping of Theda Bara lured the male gaze.

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Think of every political campaign in the modern era. The posts and updates are defined by attempted-iconic shots, historical figures and movers and shakers next to text framing the narrative like a chapter in a book. Faces are currency in digital media. Actions, movements, and meetings form the backbone of the stage. Conferences and world events, such as the G8 summit or the WTO conventions in the 90s, are chances to frame the action and report them through a lens. The sets themselves, or the backdrop to this action, helps set the tone and the mood.

German Expressionism, such as the films of Fritz Lang, F.W. Murnau, and Robert Wiene, used gothic images and twisted, melancholic, highly expressive sets to set the mise en scène that functioned by pairing broad, dark imagery with moody textual titles. The design of the set was the design of the mood. The emotions were built as though by a craftsman on the soundstage, and the romance seeped through the shadows.

All this, of course, is many stages more dramatic than 99.9% of all social media posts. A picture of a cute puppy is hardly setting the stage for broad productions. But the emotions conveyed, and the desire to convey them by the makers, broadcasted to an audience that will be forced to respond to what they're seeing even if they don't fully understand it, is a universal value that transcends any one medium. It functions like memory in us, or dreams, as the work of [Hugo Munsterberg emphasized](). Our dreams are composed of shots, sounds, feelings, and uncertain longing alongside triviality and drudgery. Hitchcock said film is life with the boring stuff cut out. Dreams are the camera focused every which way without a script.

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If novels started out as prurient also-rans to poetry and scripture (as they did), then film started out as a paltry cousin to the mature art form of novels. Novels could be told over hundreds of thousands of words in epics like *War and Peace.* This was the labor of a single man in Russia. D.W. Griffith needed astronomical sums of money, a large crew, and years of labor to make a three-hour comparable epic in the form of *The Birth of a Nation* in 1915. Film was constrained by the images needing to be real. Novels were only constrained by imagination. The power of words conveyed what was happening and the broadest strokes of the narrative.

Now, images both simple and complex, posted alongside textual stories and snippets of a larger world, are easily shareable, reproducible, and monetized. They reach millions of people for free. The famous Volkswagen print ads of the 1960s, with a very simple graphic hovering over a story begun with a single word (like *Lemon*), set the template in the modern digital publishing age for what sells and what's shared. It could be that mise en scène is best aided by text, or that the human cognitive ability for reading makes us predisposed to engage with it more than just images or sounds by themselves.
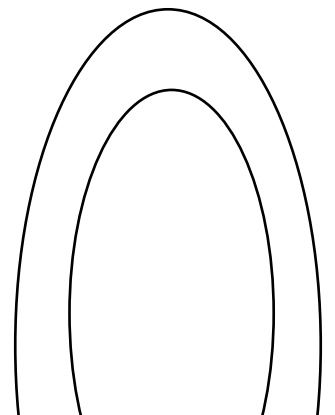
For our work at the Nebraska Department of Health and Human Services, the largest performing posts by far have been devoted to COVID—but not in a conventional way. Posts emphasizing the history of vaccines, such as for measles, smallpox, and polio (no mention of COVID at all), have paired historical imagery with text setting the stage and calling to action. They've invited the audience to share, to reflect, to remix and add to it. They're emotional templates that speak to our experience and to our arguments.

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They're shared not only out of interest, but to persuade and convince.

They're used as frames of argument and as rhetorical devices in an ongoing campaign involving us all. Subconsciously and consciously, we attached modern meaning, in this case about COVID vaccines, to images from history. We've reached millions of people with them organically.

Some films have been told entirely in single frames and pictures rather than 24 of them strung together a second. For instance, *La Jetée*, a French film from the 1960s, depicts a science fiction story in the span of 28 minutes using only still images and narration. The emotion comes not only from the stark images but from the rhythm of the cutting itself, editing being used to convey the tonal properties of the interlaced shots. It's more akin to music than what we think of as film, and the use of editing remains innovative.

Part of the magic of social media is the ability for brands to reach their customers in a personalized way. Images and ideas can be tailored to the individual. Voices can be shared with others in the network, letting the art do the work in real time to find the audience. Sharing and network effects yield greater cumulative growth across platforms. Brand frames, or pictures and posts, are just clips from the larger corporate narratives gradually unveiling and projecting themselves on the timelines and feeds of millions. The side bars of the timeline feed separating image from white space (or, more likely, third-party ads) are the modern proscenium arch.

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That space between the ads has scaled up. Where once ink and paint made the canvas come to life for static art, film used a strip of celluloid or nitrate to chemically capture light.

It was done this way for decades.

Film was defined by grain, and the larger the film size the better the image (70mm being what the massive epics of the 1950s were shot on, 35mm being an average big studio production, and 16mm being indie films). The gamma curve informed contrast for the composition, with darker darks and lighter lights pleasingly framed and exposed being the mark of quality.

Today digital is a self-contained publishing ecosystem, with digital photography being analyzed in pixels instead of grains. We've scaled up to expect 4K resolution, and 8K is being used for larger films. Digital IMAX exists to make the biggest, clearest image possible, image data measured in terabytes. Gamma is still used, of course. Some things remain universal.

Images can lie to us, and frequently do. Much like film is a reproduction or representation of reality, so too does the image used in online marketing represent a biased chunk of captured life. Filters edit our reality; photoshopping changes our world as expressed digitally. The text can be total lies, editing reality with each syllable. The massive amounts of misinformation around COVID vaccinations show us that broader narratives hinging on emotion still rule over fact-based, dryer posts. In WWII, most audiences were bored by the mandatory news reels of the war effort before the movie. They came to see drama, not real life.
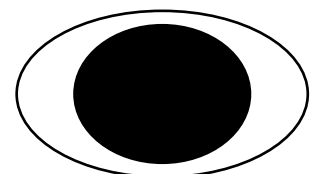
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Social media can be an art form even for companies pushing agendas and products. True, the vast, *vast* majority of posts by companies and businesses are little more than advertising filler. Too many marketing firms exist solely to cater to companies dumping messaging and their brand name into a pipeline, hand-waving digital as another channel checked off on the marketing mix box. The messages have no more thought than programming. They might as well be infomercials at 3:00 am.

The question becomes: Do you want a brand experience, and does your audience deserve quality? For that matter, does it deserve the same digital quality that theatergoers receive?

We can go to movies in IMAX and see massive computer-generated productions displaying the labor of thousands. With audiences growing used to this, shouldn't digital media and social media marketing strive to deliver more than just rote sentimentalism or trivial excuses to shove the phone number in someone's face? The fundamental rule of all showmanship applies to social media: give the audience something worth seeing.

When we pack or fill the frame with emotion, loaded with textual reinforcement and aided by the ongoing narrative that is sharing by others and their comments and responses to it, we start to see the show unfold in real time. We aren't constrained or handcuffed by the space and the word limitations, we're enhanced by them. We have the opportunity to spread a message concisely, as though framed on nitrate or celluloid and projected for the world.

If all the world's a stage, then every eye is a camera.

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# (Block)chain Novels[H1]

We know the author as a solitary figure. We're used to the vision of the solo artisan struggling against norms both textual and social.

Blogs and novels might be collaborative but they are of limited collaboration, with designated members, true names, known identities and verifiable credentials and backgrounds.

But what if the solo artist was more like a distributed collective of artists? A scattered, decentralized *la Boheme*. Say we're working on a single novel, maybe even an epic fantasy, like *Lord of the Rings*. Such a task might be too much for a single writer, and maybe we want a distributed textuality to give it flavor or life. Or maybe we just want the social experiment. Either way, in this scenario, we've concluded that the writer is solitary no more.

The concept freeing us from authorial solitude is the chain novel.

Everyone involved writes a section, which is appended to the novel and becomes the next chain of events in the narrative. This has an old pedigree, with writers and theorists like [Ronald Dworkin weighing in](#) with practical or scholarly uses for the concept. Dworkin used the concept for legal theory; others might use it for a novel of 18 chapters having 18 different writers, one for each chapter.

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It makes sense in legal theory: Someone publishes a paper, another writer publishes a paper linking to it or referencing it, and more and more append to the paper and its ideas until there is an entire chain of concepts linked by their referencing of the first paper.

A novel might have a similar structure. The first chapter, the genesis chapter, is written by a human or software, creative intelligence. From here, the next author writes a chapter, using the elements from the first to continue the novel like the familiar and then in improv—but hopefully more cogent. If we're writing a novel anyone would like to read, it'll be important to make sense. Might even be worth it to be engaging and good, too.

After 18 successive rounds of this, we have an 18-chapter novel, each one sequentially and narratively linked to the one that came before. We have, thus, a chain novel. We can read it chronologically like any other story, lose our place in it, spoil it for others online, reread it for analysis or criticism.

You might've noticed from my loaded wordplay that this chain novel has many structural similarities to the blockchain.

Each chapter is a completed block, each conceptual linking (chapter titles or numbers) links back to the previous block all the way to the genesis chapterblock, the novel is append-only (i.e. previous blocks cannot be changed by ones that follow), distributed users or writers add their material to the book and complete transactions, etc.

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## Let's dig deeper into this blockchain novel.

First, part of why cryptocurrencies work and double-spending is prevented in blockchain is because of proof-of-work (PoW) or proof-of-stake (PoS): Those involved in validation and acceptance have to demonstrate their validity by showing computing power or coin investment in the various outcomes available. Similarly, computational mining is needed in PoW to ensure a truly decentralized acceptance of block additions.

For a blockchain novel, each chapter will need to be accepted by the community of readers and literature miners. These lit miners need to overcome a possible 51% attack: What's to stop the majority of nodes from accepting trashy or wrong chapters simply because they have the necessary voting power to continue the dominant chain? What's to stop good chapters, or chapters of acceptable literary quality, from being abandoned as orphan blockchains?

We have two avenues. One is to require some kind of coin staking for validators, i.e. skin in the game to prove the commitment to the chain. Another choice is to not require this at all, and to let the narrative become a branching tree, like a choose your own adventure novel where orphan blocks are appended to storychains of choice and later readers can follow whatever path they choose.

For the dominant chain, PoS might work like this: lit miners all mine the chapters, or in this case, write them. These chapters are broadcast across the distributed nodes for voting and acceptance.

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Writers have their chapters added to the narrative if more than 51% of reading nodes accept it as the best chapter for the chain. This might confer artistic or bragging rights, or it might be that access to the blockchain novel, for outsiders, is fee-based, like selling a book through a conventional publisher. The sales revenue from novel access are distributed equally among winning chapter contributors. If the novel is optioned into a movie, the possible monetary rewards are even higher.

At first blush, this might all seem ghastly, a capitalistic nightmare of democratized voting for artistic pieces. Did anyone stake tokens for each brushstroke of the Mona Lisa? Did Flaubert claim a block reward?

While there is plenty of merit to these criticisms (and let's be clear, a system like this will never, not in a million years, become a dominant writing form over the conventional authorial narrative), there is also some precedent for such a thing, albeit limited.

*Atlanta Nights* is a 2004 novel that was written by several authors, one for each chapter. The only rules were to follow with basic characters and situations—and to write as poorly as possible. This is, first and foremost, a parody novel. It's also hilarious, like every wrong choice taken on purpose for anti-literary merit.

There's nothing to stop blockchain novels from being similarly done, for novelty and community engagement rather than an earnest attempt at writing the Great American Novel.

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There are numerous examples of parody coins over the years (think *Shitcoin*), so the marriage of silliness and sarcasm seems perfectly able to use this method without much concern for high-minded criticisms about the death of the writer or the art or whatever else. The real challenge, of course, is producing a blockchain novel of genuine artistic merit that reaches a wide audience. What can a community say that can't be said by an individual? What is the best practice for democratizing the writing of a solo project? Is it ever truly needed?

Even with an earnest attempt at quality production, there is a genuine risk of a limited append-only blockchain novel giving readers whiplash. Different authorial voices are able to hijack the narrative even if they can't retcon the previous mined chapter. *The Last Jedi* retconned *The Force Awakens*; *The Last Jedi* was then retconned by *The Rise of Skywalker*. This left viewers worse off, as the plot soon made little sense and seemed to be guided entirely by subversion and trolling of the previous installment.

Part of what makes literature so much different from pure computer science and cryptography is the subjective nature of quality. We often don't let individuals vote on parts of novels or where a story is going because there is too much of a diversity of opinion, too strongly held, by too many. We wouldn't have a coherent narrative, only ideas shoved together.

A chain novel would need strong, limited validators to be successful at all in true artistic achievement.

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Possibly, agents or software (AI), without human intervention or input, might compete with one another to produce the next chapter. With set parameters, we get a diversity of bots adding their voices to the ongoing tale. Maybe it's a mingling of bots and humans...and maybe all validators are bots, dispassionately weighing the narrative choices of emergent, distributed novel writing to mine the very best, objective, story.

There have been many attempts in the past to mathematically define and create literature or films. One of my favorites is *Plotto*, by William Wallace Cook. Cook, more or less, listed [every possible permutation of a story at successive steps](#) and codified it into a guidebook that a writer could choose. If followed, it's the very definition of a paint-by-numbers writing style.

Vladamir Propp, in *Morphology of the Folktale*, applied a [mathematical formulae notation to analysis of the Russian folktale](#). The result is a set of equations for what happens in stories. This is highly unusual from a conventional Western criticism point of view, which eschews numbers and formulae in favor of schools of thought or ordered critiques like structuralism, Marxism, Freudian analysis, so on.

Franco Moretti has written [numerous books](#) about the quantitative analysis of literature, in contrast to these same qualitative valuations. Quantitative analysis might look at the use of certain words or phrases in a novel or novels in a given region or time period. It might weight the use of titles or styles to make points about how novels have changed in word counts or styles over many years.

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Perhaps, rather than chapters as blocks, we instead have distributed microtransactions for a chain novel.

Female critics have often noted that male writers seem to have a limited toolbox of expressions for writing women characters, or that the male characters are much stronger due to a dominant viewpoint contrary to an equality of experience. Perhaps a community of female critics accepts a character profile, down to the sentence level or even word choice, if it passes such strictures.

Male characters are written by men and accepted by male validators. Female characters are written by women and accepted by women validators. So on with non-binary, different races, different neurodivergent traits, you name it. The democratization of the blockchain novel might end up being countless small pieces pulled together by distributed, hidden validators into a cohesive whole that, frankly, might capture the messiness of the human experience better than a solitary writer lacking the awareness of other viewpoints to an artistically acceptable degree, a content-centric networking rather than a centralized creator.
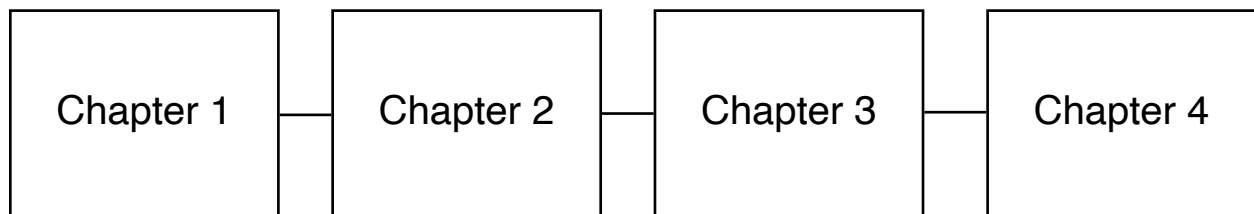
Even more fascinating is the idea of empowering online critics and being able to actually capture viewpoints and ideas and feed them directly into a novel. Voices on Twitter might be invited to participate in a permissioned blockchain novel by raising substantial issues with ongoing literary choices. An inclusive artistic society, in this manner, might find a way to incorporate criticism directly into an active, ongoing tale.

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I mentioned earlier the idea of dominant chains and orphan blocks. With so many potential chapters and additions to a chain novel, it might be artistically rewarding to allow soft and hard forks of the chain.

Branching novels have been a massive mode of experimentation for years. You only have look at works like *Victory Garden* or *If on a Winter's Night a Traveler* to see the possibilities of branching narratives or the Borges-esque *Garden of Forking Paths* concept.

Hard forks from the main blockchain novel might provide interesting artistic expression on their own merits, without needing validation from a community. If a novel's events are unsatisfying, escape to another chain. If you want to get lost in the story world itself and read nearly endless permutations of possibilities, read as many chains as you like, in different directions.

The same could work for film, radio, television, internet series, any other form of entertainment medium. Anthologies have existed across the spectrum for generations. It isn't necessarily different to think of them here and imagine their possibilities when created in an append-only chain ecosystem. Part of the beauty of artistic expression is the *experimental* nature of creation, and blockchain novels might well create expression beyond anything possible before, with emergent quality or defined value.

| Chapter 1 | — | Chapter 2 | — | Chapter 3 | — | Chapter 4 |

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# The Snowflake

Content strategy isn't a secret anymore. Where once the notion of a "content strategist" was novel, the term has gained popular ground.

It's been adopted into our digital nomenclature alongside *growth hacking* and *10x content* as buzzwords turned cliché turned institution. We practically take it for granted now.

Defining content can be as nebulous as ever. It can be a blog, or a video, or a tweet, an Instagram post or story, web stories, a movie (if you're a streaming service), an article, a sponsored content post, or anything else that fills and fuels the demand for more content, spread often across many channels. Everyone these days has a pipeline to fill.

Of course, narrowing down content needs and audience needs is tougher. It involves heavy research, not only of relevant SERP results, but also of similar content that might branch or connect thematically without getting as much notice. Great content pulls from many sources to fill more needs. Copying a post and adding your own spin doesn't cut it anymore. One blog on a topic, decently written, doesn't get the traction it did fifteen years ago. Creativity has extended to the structure as well as the content.

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It often helps to visualize content in different ways to make it work for different methods or goals. We've seen broadcast models for content, mimicking television and theatrical film distribution. Those are certainly tried and true formulas.

A creator makes a message, disseminates it down to followers, who then share it with their applicable friends or connections. Makes for good watercooler talk, once consumed.

Some have even ventured into the very useful category of information architecture, or structuring content like a website for maximum findability. Internal linking has become essential for content structure; you want your readers to naturally find and follow the content that pertains to them, and hopefully fits their stage of the content funnel and buying journey. You've taken the trouble to tailor keywords to the segmentation funnel, now you need to make sure it hits that audience.

But what if we looked to other sources?

In *The Stack*, Benjamin Bratton compares internet fragmentation and digital production to the treaties of Westphalia, which established sovereignty and distinct boundaries for nations of Europe. Borders are power, land is control. He then applies this to other layers, such as city, state, and planet, to form a picture of ubiquitous computing at relevant scales. Bratton's interest, and our most helpful takeaway, is the application of geography and physical space to cyberspace. Maps and territory can exist in bits and bytes.

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Being from a geography background myself (urban design, not just memorizing capitals and rivers) the application of this discipline to our content structure posed many interesting ideas.

We have known continents, such as Facebook, Twitter, TikTok, etc., where massive groups of people conglomerate, share, interact, and form economies and ecosystems. We know these lands well; we typically live there ourselves. As interoperability hasn't occurred between them yet, these continents have firm, Westphalian borders of digital sovereignty.

But there are dark continents, or lands we don't know about. [Dark social media](), or private messages and emails, or communications shared socially that we aren't privy to, are the undiscovered and unexplored continent. We know it's there, we've seen the blank space on the map. But we can't see the land itself. We can't study their conversations, we can't reach them in their private digital operations. For every public post there is a shadow, and in that shadow lurks the trove of information. That trove has content galore.

We'll explore the notion of digital sovereignty and *land as internet* in another chapter. It deserves its own. But what if we went further? What if, instead of just looking at maps and borders, we began to look at shapes and objects in the known world?
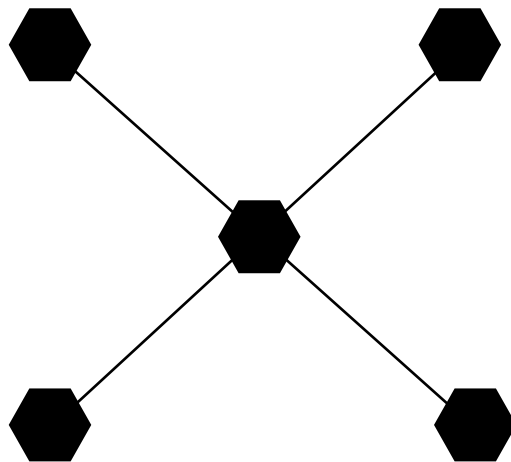
What if we mimicked our design and our strategy on structures observed in nature?

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There is a long and healthy tradition of examining natural fixtures for clues as to the self-organizing powers of the environment. Fractals are structures with similar patterns that recur progressively at smaller scales. They describe chaotic or random phenomena. You've likely encountered them before, such as the Fibonacci spiral.
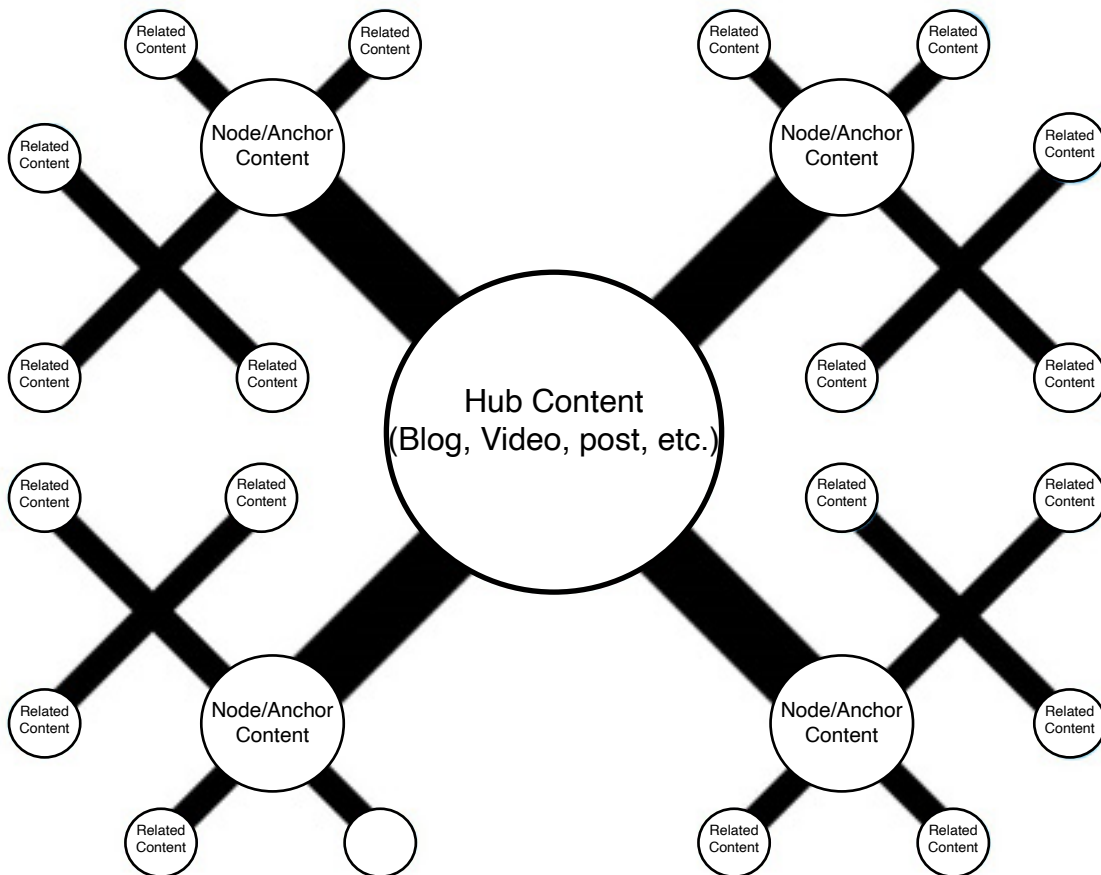
Fractals and their application to other natural phenomena are a particular focus of the Santa Fe Institute, which is a breeding ground for some of the best research into complexity science in the world.

A snowflake is a beautiful example of a fractal. Made of crystals that display complexity that increases with magnification, a snowflake encapsulates what we love and wonder about in nature: how did it come to emerge and look this way, and why has this underlying structure stood out over time? What about it appeals to us? What about it is universal in its design?

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This snowflake is composed of a central hub, surrounded by branching nodes connected by edges. It is designed to replicate a basic snowflake pattern, although, as we all know, there are innumerable different templates one could draw from. Increasing complexity followed by granularity increase the fractal nature of the design.

Replicated and repeated content structures mimicking the main design increase the complexity and the resemblance to an artifact from nature.



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The main hub is the [pillar](), or anchor, content. It can be an article, blog, or video. Whatever it is, it needs to contain valuable keywords and be longer form, or at least in depth enough to cover a topic or a series of related topics very well. For example, one could have a 3,000-8,000 word blog or article about a given topic as the hub. A longer video including external links to sources in the description for more information would branch it out as well.

From there, nodes are thematically related bits of content linked to the hub via detailed metadata strategy, internal architecture, and hyperlinks and anchor text. The nodes and their content do not have to be the same medium, but they should serve the same class of customers and/or serve the same functional content needs. This helps to distinguish them by purpose. If one is using the snowflake content strategy for an ecommerce site, then the nodes should equally be in the same part of the buyer's funnel. Nodes should have roughly equal weight.

A node can be a YouTube video that talks more about a given subject in one of the paragraphs of the hub article, for example. Another node might be a shorter blog or an article on a different social platform or publishing medium that goes into depth about a keyword cluster featured in the hub article.
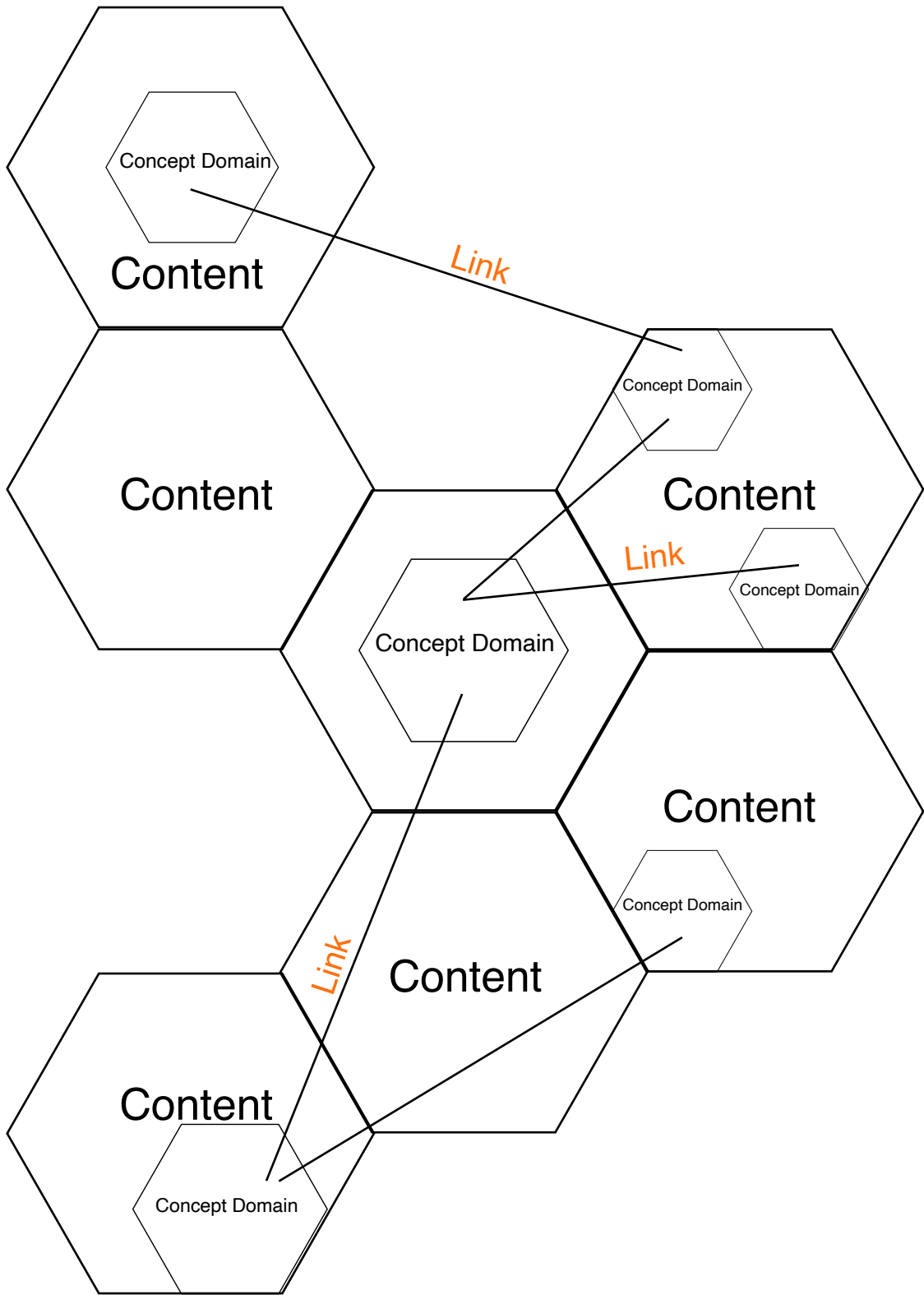
A good metadata strategy not only encompasses keywords and phrases, but also keyword clusters and their semantic connection to the rest of the material.

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A controlled vocabulary or a specially created and specific thesaurus is always a good place to begin. Creating and using [synonym rings](#) for keywords and phrases for use across hubs and nodes certainly can't hurt; neither can being aware of different categorization languages and standards, such as RDF or XML.

From there, the snowflake pattern is replicated further down. One can branch the overall structure from here or increase granularity depending on need. For example, the next hub might be a shorter article or different video loosely tied to the first, which then is connected to tweets or Facebook posts as nodes. Again, nodes distributed in this fractal way should serve the same purpose for ease of translation. Eigenvector centrality, or the weight of nodes and their relation to others, should start out roughly equal to one another in this system.

All nodes and the hub should be connected not only by direct hyperlinks and anchor text, but also by inferred links. This counts across the entire snowflake; anytime there is relevant linking for internal navigation, a hyperlink is valuable. However, part of this structure mimics nature in the fractal principle.

If, for example, the content strategy includes a robust series of content pieces about a given topic with related subtopics (concept domains), then merely discussing those topics in smaller node posts will likely automatically link to the main hub via inferred links. The chances of inferred links being created and growing increase as the amount of content increases. It scales down continuously while remaining thematically connected and branching.

< 49 >

Content

Concept Domain

Link

Content

Content

Concept Domain

Concept Domain

Link

Concept Domain

Content

Content

Link

Content

Concept Domain

Concept Domain

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Snowflakes can take on any level of desired granularity or fractal repeating. If the topic is related to the core functions of the business, then very likely the content will always be linked and snowflakes will grow into one another and cross over. If the pattern is held to, then soon thousands of hubs, edges, and nodes will intersect and branch in a giant network of content, repeated as fractal patterns if one were to precisely map the content across the platforms and their distribution channels.

Of course, this is a lot of content.

Whereas in nature snowflakes are a self-organizing fractal property, content is made by human hands. Each piece has to be crafted and generated by a person, written, edited, filmed, etc. At least, so far. In the future, it is highly likely deep learning and AI will lead to the ability to automatically generate content that precisely mimics the hubs and nodes scale. It will then be able to churn out massive amounts of content and fractally increase the complexity and its branching structure.

If one were to design a machine learning system that generated equal-weight node content pieces, such as two blogs and an article published on separate digital spaces, perhaps using ChatGPT, then content would indeed become like a snowflake, so indelible to the Internet and its structure that it is a self-organizing property created by the environment that came before. Content pieces are the atoms and the molecules, connected by inferred links and text as bonds that increase complexity beyond a human scale.

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Our entire digital ecosystem could, theoretically, be automatically generated and looked over by a few content stewards who ensure the machine self-replicates, copies, and creates new material. This fulfills the [old joke from Warren Bennis](#) about the factory of the future: "The factory of the future will have only two employees, a man and a dog. The man will be there to feed the dog. The dog will be there to keep the man from touching the equipment."

That being said, it's only a possible future. It might be that human hands will always fashion the things humans desire to read and engage with. It might be that a mathematically branching snowflake created by an AI is *too* perfect, like a fabricated city. It won't have the brushstrokes we've come to identify as human. It would lack apparent age. It would lack the messy quality that reads like a person was behind it. It might link to the wrong place, or send them off-message without even realizing it.
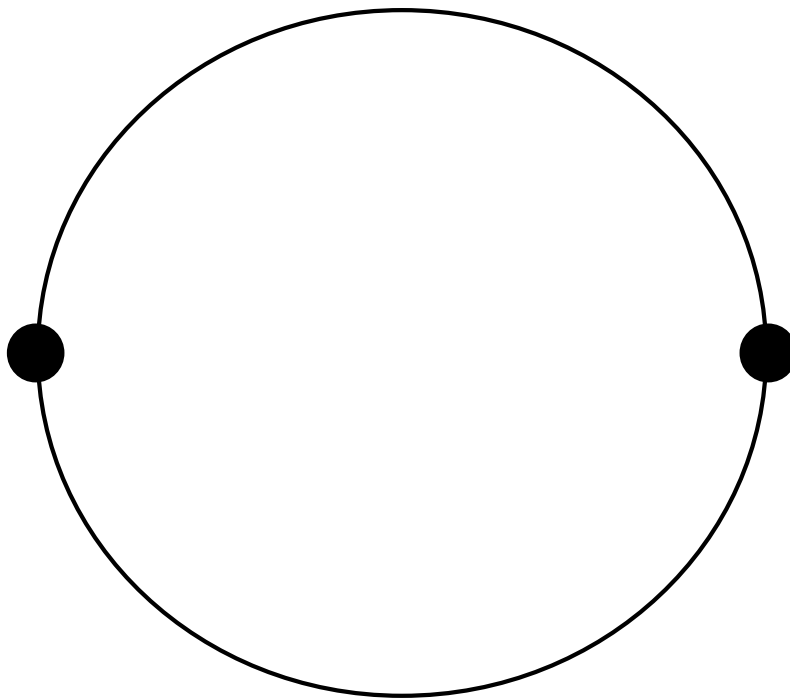
Perhaps there would be a mishmash, a combination of human and creation. Maybe the mathematically perfect and weighted hub and node system, created by deep learning, will only be the frame onto which humans then craft branching pieces themselves, of equal or not equal weight.

The perfection of the system gives way to entropy, the structure breaking down the way the Internet naturally does. For instance, remove one piece, and you have link rot lurking in another content piece; change anchor text or edit a piece substantially, and you might lose the inferred links and their resultant node weight.

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As a viable content strategy, the snowflake should be pursued as a starting place. It gives a shape and a pattern to the distribution of pieces, and it helps show how metadata link the items together.

It shows the way people might digest the information across the hubs and their nodes, and how customers find the products they're looking for. It should never be forgotten that the prime purpose of the content strategy is to appeal to the customer. This is designed for them. The snowflake is a possible template for how one might produce work naturalistically to appeal to our sense of the world around us.

But every piece, every node, should be designed with usability and purpose first and foremost.

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# Freytag's Pyramid[H1]

Anyone who ever sat through an English class in high school knows about the dramatic structure of writing.

At least, you do if you paid attention. I have to mention that it makes my English degree weep, but many people have since disregarded the idea of narrative structure and dramatic storytelling mechanisms. And you know what? That's okay, too, if it tells a better story without those structures.

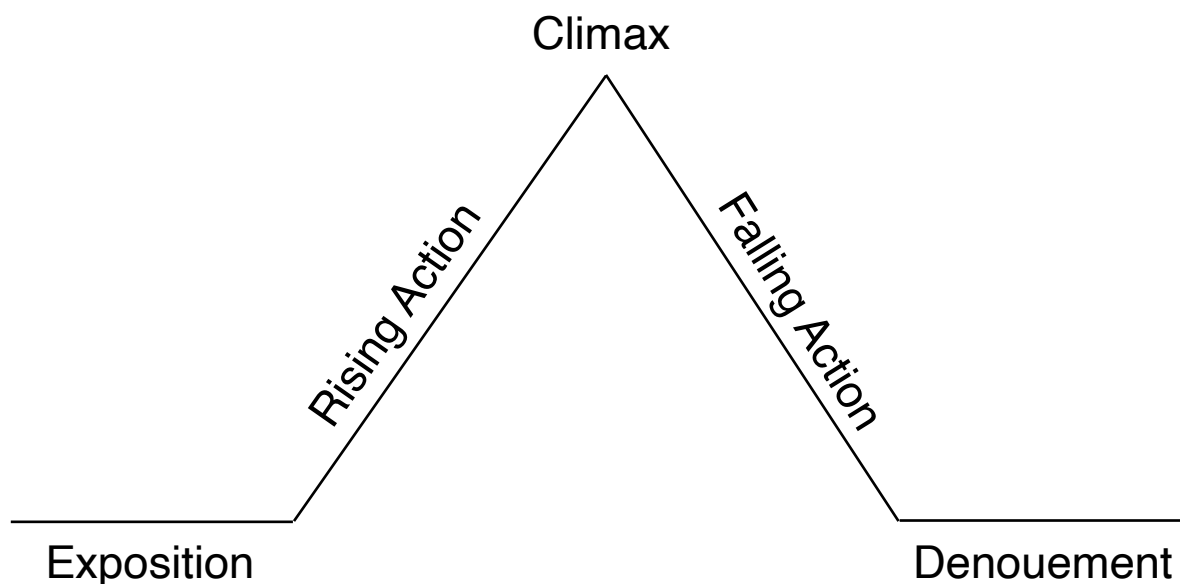There are, to be sure, manifold ways to tell a good story.

Part of my interest in content structure is to experiment and see what works. I've seen terrific content pieces that were, largely, unfocused. But their lack of focus was baked into the dramatic needs of the piece they were composing. A lack of structure benefited the whole of it stylistically. Web writing, with its many links and content pages, is often closer to [hyperfiction](#) or electronic literature than conventional dramatic narrative (more on that later). But for a single piece of writing, what if we were to go back to the basics and play with it?

I'm referring to Freytag's Pyramid.

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A novelist and German gent named [Gustav Freytag](#) developed this pyramid diagram in the 19th century. His goal was to put a structure to the dramatic narratives fiction writers had been using for thousands of years. Ambitious, that.

So here are the five key stages of his pyramid:
1. Exposition
2. Rising Action
3. Climax
4. Falling Action
5. Resolution

Climax

Rising Action

Falling Action

Exposition

Denouement

It's called a pyramid because when it's diagrammed according to the action being described, it forms a literal pyramid.

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Guaranteed if you ever took a creative writing class or a screenwriting class, this has come up. Writers and writing coaches have freely pilfered from it for decades. Syd Field embraced the notion of screenwriting structure from this pyramid, along with some helping doses of Joseph Campbell. Robert McKee, while focusing more on character motivations as the story driver, touched on the pieces as well.

I'll break each element down one by one.

Exposition is the part of the story that introduces the major elements, such as characters, setting, table-setting that builds the world we'll be in. In conventional three-act screenplay structure, this is the first act.

There is then an inciting incident, or an event that sets the main conflict into motion. This leads to the rising action, or act two in a screenplay. The majority of pages or screen time is devoted to rising action. This is where we explore conflicts, plots, character motivations and the beginnings of arcs.

The third part, at the pinnacle of dramatic narrative, is the climax (not to be confused with the ending). The story peaks here; the destiny of characters is revealed, plots reach fruition, and the central conflict is addressed in the form of a turning point. There is a lot of debate about the perfect place for the dramatic climax. It's different for playwrights, for instance, who often put it more in the middle. We think of the climax as being in the third act of a screenplay.

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I've just given a very broad overview of the structure of Freytag's Pyramid and dramatic narrative, but believe me when I say it can get far more complicated if you ever want to dive more into that kind of writing. There are many terrific books on the subject. For our purposes here, the basic outline will do well.

From a business or brand storytelling point of view, it isn't hard to see why the pyramid is helpful, and how it can be used to tell an engaging, purposeful story. When building a brand, especially a brand centered on founders and people, telling about their struggles and conflicts is a rousing way to build attachment and focus a story on the core elements that drive the business. Ask yourself these questions when designing a business narrative:
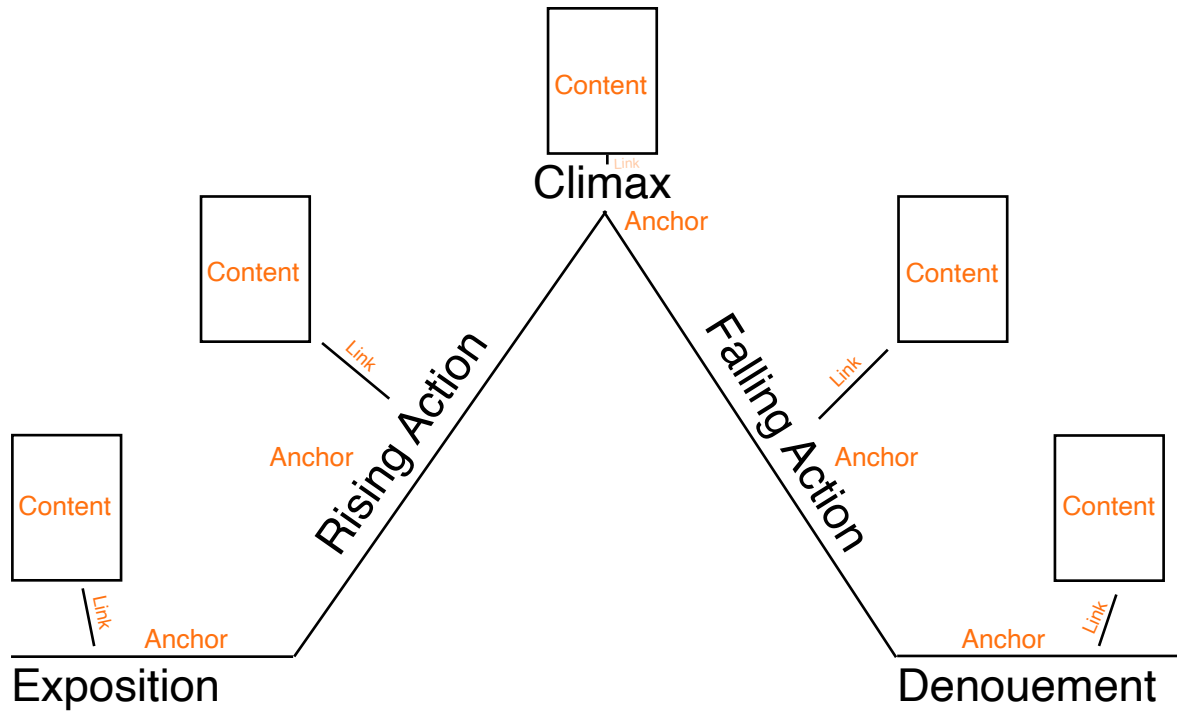
·     Why did they choose their industry?
·     How did they get into it?
·     Did it choose them? What was their call to adventure?
·     What challenges, such as rival businesses, did they face?
·     Who helped them along the way?
·     How did they resolve it? Are they still engaged in the conflict?
·     What weapons, totems, or boons helped them achieve their victories? Metaphorically, of course, unless you work at Lockheed Martin.

There are countless dramatic and scene-setting questions that can be gleaned from a simple business story. Posts, blogs, articles, videos, you name it, all can be pulled from a founder's story and turned into engaging, relatable content. Different parts of the narrative can be deconstructed and shared on applicable profiles and platforms.

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For example, an emotional part of the story could be shared on Facebook for better engagement; a business victory could go on LinkedIn. Narratives can tag or the people who helped them, but please don't do the same for people who didn't help you, or your enemies. It just leads to mess.

Part of the continuing gift of the Internet is the ability to branch out narrative content into different mediums, or set the scene with elements that are not necessarily on-page. I don't think we should fight this structure in favor of the conventional—I think we should take full advantage of it. And what if, while branching out further, we used SEO or linking strategies to augment and enhance the dramatic pyramid?

I'll do a simple scenario. Below, I've hacked Freytag's Pyramid to reflect the way we can link content to the main focal points of the dramatic story. In this example, a long article, around 4,000-6,000 words, has been written and posted on a company webpage. The story of the article is the founder of the company's journey in business, and follows the rough structure of Freytag's scenario.

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At those key moments in the narrative, we can mark anchor text and input links to more articles or content that explore that point of the founder's story. The diagram I've made only shows single ulterior links, but those links could link to even more content elements. Linked content can be more articles, blogs, videos, posts or tweets, if you feel they're salient. The length is dealer's choice. What matters, first and foremost, is relevancy.

What's relevant is emotional content that augments the reader's journey and pulls them deeper into the narrative being woven. Imagine a smaller version of a shared or expanded universe in movies and media (thanks Marvel), but instead a company has a shared content universe telling a dramatic tale.

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In SEO, it's all too common to generate content and link to it for no other reason than it contains a batch of sweet keywords and an H1 header that provides fuel for a crawler. But in this scenario, while the content does indeed serve an SEO purpose, the content needs to be endemic to the story. It can run any length provided it is necessary to be so long.

A video on the company's YouTube page might show the founder him/herself discussing a key incident or challenge he faced during the period of rising action, or a photo journal documents that period of the story in an interesting way; maybe the denouement links to where the company is at now, or links to specially designed infographics that demonstrate the victory was borne out in numbers, too.
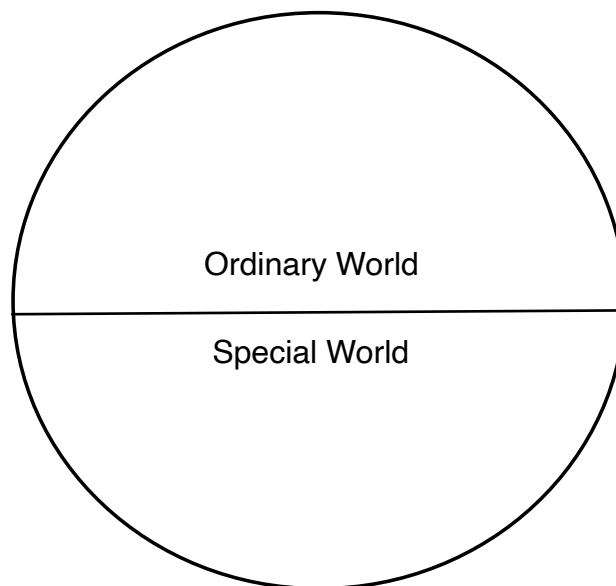
If you're designing for ecommerce, perhaps the pyramid can mimic the buyer's funnel, and the elements of the story can apply to different levels of interested visitors and potential buyers. The denouement, if you're feeling particularly confident, might link to the actual checkout page or a product guide. If you're more conservative, the denouement can link to another article or story that kindly informs why, subtly, the business deserves your patronage. Then link to the products from there.

It is, of course, possible to literally diagram the places in a webpage where the links occur. If one is using Majestic for their SEO (and it certainly has ample backlink perks), a handy feature called the [link density chart](#) can show you where on a page links occur.

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In conventional SEO, this shows you where sites linking to yours contain those links on the page. Frequently the tops and bottoms of a link density chart are fat, meaning they're filled with links. Those tend to be navigation portions of a page, such as headers and footers. Thin areas show where there are fewer links and more text. These tend to fall in the middle. There's more to it than this, which is why [I've linked to it](). It's not an emotional link, but it's a relevant one.

Using links and anchor text to augment dramatic structure is a meshing of SEO and dramatic fiction elements. The key is to ensure relevancy to the reader, and not waste their time by sending them to a link bait trap. I could see [10x content]() being improved by strategic placing of ulterior links throughout the piece, at relevant opportunities. But the main content piece should always be self-contained. It should tell an entire story without needing to click those links. It should be a choice for the reader, and one they're eager to take. If you've done the dramatic work already, they'll want to.

Thousands of years of dramatic structure might have a point.



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# Content Neighborhoods<sup>[H1]</sup>

Content evolves. What we read about, what we write about, what we talk about—it all changes, mutates, transmutes.

We redefine it, edit it, remix it, and share it with our own twists and spins on it. We use quote retweets and Facebook shares. We branch content together based on thematic categories or relevant identifier information in the form of metadata.

I'm fascinated with the ways written content is linked. I love seeing the structure that comes out of groupings of blogs and articles online. While some of it is attributable to apophenia, it can be more than that if we know the territory. There's an underlying structure to it even if we don't design for it—hence its fractal nature. A fractal, as I've written about above, is common in nature. A snowflake is one of the most famous examples.

A simple piece, with logically connected and linked pieces building off the prior foundation, can begin to branch out into unique shapes and designs if one were to measure and graph it all. A visual aesthetic applied to how we design and publish content can help show the gaps and the method. It can efficiently chart what works and what produces ROI.

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While online content comes in many different forms, for ease of use I'm just using articles and blogs for this example.

But one can amend it however they wish. The overlapping keyword densities are the main unifiers.
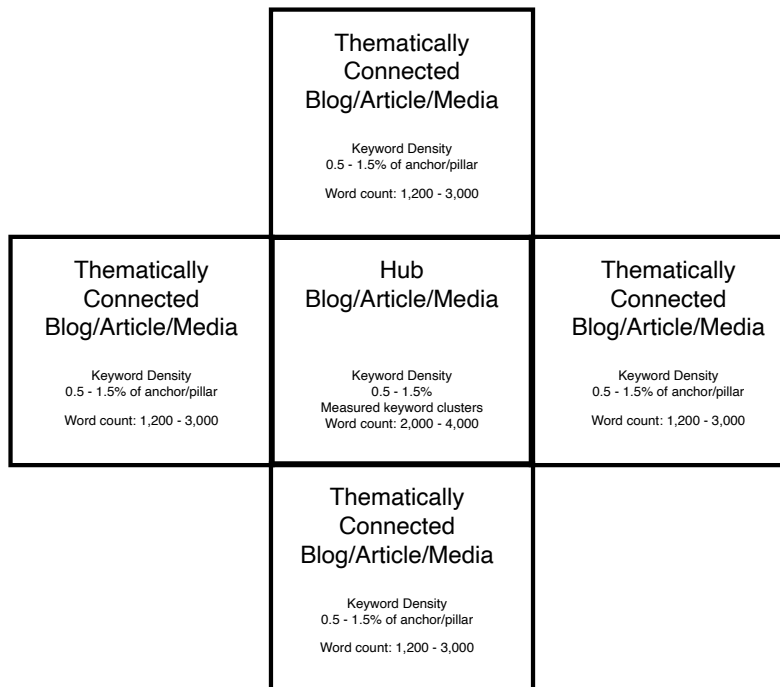
For this experimental content strategy chapter, I'm looking at neighborhoods, and specifically cellular automata neighborhoods. I'm going to avoid heavy theory and math on this one. My goal is to show the basics here as an idea and present it in a possible use context. The models are von Neumann and Moore neighborhoods, frequently used in digital life-simulation games. The middle cell, or hub, is the main blog/article (a pillar blog). This particular blog has a certain set of keywords, and a measurable keyword density (KD) that determines its content descriptor status.

Here's how we figure for keyword density: KD = (Kwa / TW) x 100. KWa stands for keyword appearances, or the number of times the keyword appears. TW is total words. We'll need keyword density later for linking to thematically related cells that emerge from the central hub.

Keyword density should traditionally be kept on the low end. Sparingly used keywords sprinkled throughout the piece are natural, organic and helpful. Use keywords when they are most needed to make the point and avoid the classic early SEO game of keyword stuffing. For best results, employ keyword clusters in writing.

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Consider [dependency modeling](#) and relations between terms, and think about how used keywords can affect the inferred linkages that might result from machine and human reading alike. Importantly, think of how those keywords can organically link to other pieces using similar ideas and keywords. Think of how those connected pieces can fill the gaps left by the first piece.

The first diagram is a classic [von Neumann neighborhood](#). The hub, or central box, is the main content piece with defined keyword density. In a von Neumann neighborhood, the pieces that emerge out of it are thematically related pieces with an overlapping keyword density. A cellular automaton evolves in discrete steps, with the next value of one site determined by its previous value and a set of sites called neighbor sites. Hence, the reason we're using von Neumann for content is to evolve pieces, or neighbor cells, based on the previous set. This is determined by the keyword density and shared keyword overlap.

|  | Thematically Connected Blog/Article/Media<br><br>Keyword Density<br>0.5 - 1.5% of anchor/pillar<br><br>Word count: 1,200 - 3,000 |  |
|---|---|---|
| Thematically Connected Blog/Article/Media<br><br>Keyword Density<br>0.5 - 1.5% of anchor/pillar<br><br>Word count: 1,200 - 3,000 | Hub Blog/Article/Media<br><br>Keyword Density<br>0.5 - 1.5%<br>Measured keyword clusters<br>Word count: 2,000 - 4,000 | Thematically Connected Blog/Article/Media<br><br>Keyword Density<br>0.5 - 1.5% of anchor/pillar<br><br>Word count: 1,200 - 3,000 |
|  | Thematically Connected Blog/Article/Media<br><br>Keyword Density<br>0.5 - 1.5% of anchor/pillar<br><br>Word count: 1,200 - 3,000 |  |

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We can get more detailed and complicated with this, of course. The evolution of cells in neighborhoods (i.e. content pieces) can be time-based, not only in publication but in keyword usage. Perhaps the keywords used for the main piece that are derived into the neighbor pieces are from a certain part of a buyer's funnel. Maybe the keywords are stage-of-buying based, or based on expected keyword popularity or utility at a future date. Maybe they are all based on long-tail keywords, as many pillar blogs are designed to take advantage of.

One could also design and create neighborhoods based on metadata. For instance, perhaps set categories and their codes, like in a library, are the overlapping features. In this case, metadata neighborhoods would have overlapping categories or identifier information that relates and evolves them as categories extend.

For content design strategy, the von Neumann neighborhood would require creating one pillar or hub blog. This blog has a set amount of words, and a detailed, determined keyword density. The four neighbor cells that emerge from it, aka shorter blogs also published online, are related by keyword and density overlap, as well as anchor text and hyperlinks. In total, five written pieces are created to begin. Certain terms are used in these related pieces that better explain a concept or idea from the first piece.

Node articles that are connected should evolve naturally from the hub article, like fractals emerging from set preconditions. One potential advantage of a von Neumann content neighborhood is that it's fairly easy to create from scratch.

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| | | |
|---|---|---|
| Thematically Connected Blog/Article/Media<br><br>Keyword Density<br>0.5 - 1.5% of anchor/pillar<br><br>Word count: 1,200 - 3,000 | Thematically Connected Blog/Article/Media<br><br>Keyword Density<br>0.5 - 1.5% of anchor/pillar<br><br>Word count: 1,200 - 3,000 | Thematically Connected Blog/Article/Media<br><br>Keyword Density<br>0.5 - 1.5% of anchor/pillar<br><br>Word count: 1,200 - 3,000 |
| Thematically Connected Blog/Article/Media<br><br>Keyword Density<br>0.5 - 1.5% of anchor/pillar<br><br>Word count: 1,200 - 3,000 | Hub Blog/Article/Media<br><br>Keyword Density<br>0.5 - 1.5%<br>Measured keyword clusters<br>Word count: 2,000 - 4,000 | Thematically Connected Blog/Article/Media<br><br>Keyword Density<br>0.5 - 1.5% of anchor/pillar<br><br>Word count: 1,200 - 3,000 |
| Thematically Connected Blog/Article/Media<br><br>Keyword Density<br>0.5 - 1.5% of anchor/pillar<br><br>Word count: 1,200 - 3,000 | Thematically Connected Blog/Article/Media<br><br>Keyword Density<br>0.5 - 1.5% of anchor/pillar<br><br>Word count: 1,200 - 3,000 | Thematically Connected Blog/Article/Media<br><br>Keyword Density<br>0.5 - 1.5% of anchor/pillar<br><br>Word count: 1,200 - 3,000 |

The above is a similar model called a *Moore neighborhood*. This is similar in cellular automata to the von Neumann neighborhood, but with more cellular neighbors. The evolution and keyword densities are the same as von Neumann, but to create a content neighborhood from scratch requires creating twice as many thematically related pieces.

Keyword density is figured across eight neighbor cells instead of four. The evolution is the same, however, and the advantage is more thematically-related blogs that could increase SEO value earlier than von Neumann.

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Organic is the key idea in all of this. Just as a snowflake emerges from natural conditions and forms shapes on a subatomic level, so too should content neighborhoods emerge naturally from set conditions. In this case, the set conditions are keywords, topics, and related categories in an online space. They can also be organically related by time and user-level in space, aka buyer funnels. It's important to remember the new content emerges from prior content directly. Iterations are based on what has come before.

Once one content neighborhood has been successfully rendered, other content neighborhoods can be created based on different topics. One element of classic von Neumann neighborhoods is their solitude, at least when first created. They're unconnected, and evolve in distinct pockets. For online content, if we were to create, say, three separate content neighborhoods of a von Neumann type (three hub/pillar blogs, each surrounded by four node blogs, or 15 pieces total), through keyword density and overlap, all the neighborhoods would eventually at least touch, and likely overlap, sometimes significantly.

It might be that small changes in one hub or node blog lead to incremental evolution that changes the shape and structure of the whole site's online content ecosystem.

You've heard of the Butterfly Effect certainly, but in a practical way, small changes cause disruptions in iterations, growing larger with each evolution. This is seen in weather, biology, financial markets, you name it. So too does it emerge in our complex digital ecosystem.

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Before we know it, our experiment in precisely designed cellular automata has truly taken on a life of its own and evolved into an organic, interlinked content environment based entirely on natural groupings. It might be that structure is still observable and ordered from afar as well as a close up—or it might be that the system has given way to entropy, the content and words free to evolve without the same ordered neighborhood structure as before, deterministic chaos.

Hub
Blog/Article/Media

Keyword Density
0.5 - 1.5%
Measured keyword clusters
Word count: 2,000 - 4,000

Thematically
Connected
Blog/Article/Media

Keyword Density
0.5 - 1.5% of anchor/pillar

Word count: 1,200 - 3,000

Thematically
Connected
Blog/Article/Media

Keyword Density
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Hub
Blog/Article/Media

Keyword Density
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Word count: 2,000 - 4,000

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Connected
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Connected
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Keyword Density
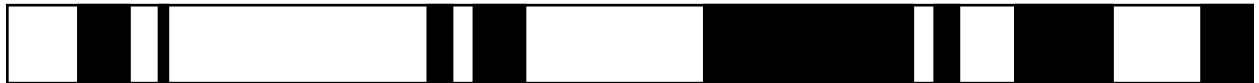0.5 - 1.5% of anchor/pillar

Word count: 1,200 - 3,000

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If, as is likely, one day we have deep learning and machine intelligence that automatically writes and produces content, then ordered content neighborhoods might be their foundation guideline for creating connected material. In that case, it would genuinely become cellular automata, automatically evolving and creating content based on preset mathematical conditions, i.e. keyword density metrics. I have a feeling this scenario will arrive [sooner than we realize](#).

All of this is, as mentioned, experimental. It's another way to think about digital ecosystems and online content environments. Words are highly interrelated things, like cells, genes, and molecules. Their particular combination and overlap can yield interesting results that shape how we think about the digital realm. It may or may not be practical for humans to create content neighborhoods in this way, but it would certainly be accomplishable by machine intelligence.

As our online world evolves, so too should our strategies and abilities. Looking at the inherent and emergent structures of linked content can help bridge gaps in our online content strategies.

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# Blogjects and Spimes<superscript>[H1]</superscript>

Our objects and things live lives all their own.

We don't often think about our appliances, our possessions, or the great amount of stuff we've accumulated. We appreciate it, from time to time; we use it when we need it, discard it when we're done with it. Some of us connect our devices to the Internet of Things (IoT) to ensure they're "smart" and can communicate with similar technologies. We like a good, clean UX and a simple interface for our household devices. We like portability.

But what if those same objects were able to actively participate in their world, rather than waiting for us to motivate them to do so?

There's been a lot of talk the last few years about the Internet of Things, and the implications not only for smarter data but also for security and usability. Sure, it's cool for a minute to make the toaster talk to the lamp. Is there greater meaning? Is there a point to having hyperlinked objects, or physical products that tell stories?

[Blogject](#) is a term coined by Julian Bleecker. In his conception, blogjects are exactly what they sound like: blog objects, or objects that can blog. Hyperlinked devices or digitally connected products not only serve their technological functions but also actively convey what they're doing. They're assertive in their environments; they command space and need attention. They influence the world around them. It isn't about web 2.0, but world 2.0.

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Bleecker is working in the tradition of Bruce Sterling, who wrote *Shaping Things*, a design manifesto for objects. In that book, he created the concept of *spimes*, or objects that can be tracked through space and time throughout their entire life. Spimes are a trip—they not only can be digital products, but can take physical form; they can be physical but take digital form. They communicate with one another, and with you. They're communicating in their world the only way they know how, and have been programmed.

Spimes have a certain set of uses and criteria. For one, they're small and inexpensive. They typically function via radio-frequency identification (RFID, or "arphid") tags, and near-field communication (NFC). They can be used to locate something on earth, such as through GPS. They can be used to mine large amounts of data, can be used for rapid prototyping or experimental designs, and enable beginning-to-end lifespans, especially to ensure cheap and efficient recycling or generalized reuse.

For a long time, hyperlinked objects were no more than theoretical. The Internet of Things was a radical if indefinite notion. In the early years, the creation of a web of hyperlinked things ran into a simple technical problem: address exhaustion. Under the IPv4 (Internet Protocol version 4), there simply weren't enough available IP addresses to account for all the possible objects that would need links. But when the IPv6 became an Internet Standard in 2017, the idea of connected blogjects and spimes was made manifest. The new protocol has more usable addresses than we could ever possibly use. Here was the chance to connect objects intimately across space, time, and ideology.

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An idea once seen as science fiction has become science fact. Our daily life has added these objects in naturally, and we no longer question what a generation earlier would've been a radical reworking of space, manufacturing, and design. Privacy, or data collection, was sacrificed willingly so we could interface directly with others on our phones and screens. We want the connection; we want to be able to turn clicks into objects that appear on our doorstep.

With a highly connected world, it's reasonable to believe we can track and know where our stuff comes from. We can track packages ordered on Amazon through their journey with USPS, UPS, or FedEx. We can see delivery hubs and know when the package is on the doorstep. We can use QR codes on brochures or pieces of paper in restaurants to directly take us to the website and the menu. We buy products with barcodes. We can order food and see the progress that's being made, and how quickly DoorDash will bring it. We see the status of payments in our online bank account portals; we see where our animals are located from RFID tags in their collars or under their skin.

But what if we wanted more? What if we wanted those same objects to not only show us the data to tell stories, but to tell the stories themselves? Blogjects are hyperlinked to the Internet, and thus easily interfaced with websites or data collection points. That package you're tracking on Amazon can not only send you where it's at, but what's going on around it. It could tell you about the people involved in the process of bringing it to you, or making it in the first place.

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Sustainability and ethical extraction and use have become top of mind for many people around the world. Our connected world is connected down to the atoms. We ask for conflict-free diamonds for engagement bands, or want to know that our food comes from an open pasture and was raised humanely. We want to know what extractivism occurred in Chile for platinum, or in the Congo for coltan, both used in the phones we carry in our pockets every day. We're connected and hyperlinked via the elements and minerals of the earth.

Spimes and blogjects could not only help ensure sustainability and ethical extraction, but could tell the story of how it happened and the people involved. For example, a series of RFID tags or NFC components could link someone's personal blog or social pages to the object upon coming in contact, which stimulates a blog or content post. This shares that portion of the story with the world. A package no longer stops at a warehouse in Reno—a chapter in its story is written there.

Let's say, for example, a package is ordered on Amazon and is being sent to Ohio. The package, or specifically the object inside, has an RFID tag embedded in it. This tag is a trigger, and it operates by sending a message within a field of communication (say a few feet) of a compatible transponder through an antenna. The transponder sends a message to the digital device worn by mail workers that automatically uploads a chosen bit of content to their social hub that is then processed via RSS feed or similar mechanism and is read by the online retailer who has sent your package and is providing tracking updates.

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When the package arrives at a mail distribution center in Ohio, the RFID trigger tag is read by transponders in the personalized hyper-linked wearables of the postal workers or the handler on duty. It can also be read by the building itself, if that location has a useful website.

This information is uploaded directly to the shipping portal. So now, when you go to check on your package, you not only see where it's been, but who it's been in contact with. You see stories. You see content related to the journey. You see an object moving in space and time, and know the stories of those in contact with it.

Postal workers are just the bare example. The real story comes from knowing about world-related things that effect how we see the world and how our values align with what we consume. We verify with these same tags that the animals we're eating really are raised in a pasture, far from confined factory conditions. We create transparency by telling the stories of farmers, workers, and handlers in our agricultural environments. We see the workers who make our phones and laptops; we see their stories and understand the objects we make tell a story of where they've been. We make content by aggregating the narratives of others to piece together our world, one blog or content piece at a time.

The challenge, of course, is curation. We don't want a new slew of IP addresses existing merely so a toaster can blog about toast. We don't need more noise, we have plenty as it is. We need stories that are curated to fit into the narratives we need to make informed decisions. We want our principles to be backed up with data.

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We can, for example, tell a story for conversion if we're of an ecommerce mindset. We can use blogjects and spimes to record manufacturing history and their environmental output, or see what exactly is not working in an appliance by simply asking it via interface. These reviews can be uploaded automatically to the website as product specs, so we don't have to rely on subjective interpretation but see down to the hardware what works, what doesn't, and why we might want to purchase similar products.

We can optimize the products to blog or reveal content that is set for certain layers of the buyer's funnel; perhaps such specs will push someone down into the ready-to-buy category. If honesty and transparency and authenticity truly are values people desire from companies these days, then the product itself blogging and telling you its honest story is one of the best ways to reveal what customers want. A digital record in narrative form of everything the product has done and what it can handle would also be valuable.

We can use Raspberry Pi and smart computing to better monitor the pH and moisture levels of our gardens and our farms. We can use this data to automatically communicate to us, via app, to better use our resources in the future. We make the content we need, and curate it to tell the stories we want others to see. For every product marketer out there, the ability for the product to speak for itself is both a blessing (for the scrupulous companies) and a curse (for the unscrupulous).

Of course, blogjects and spimes can fit into ontological frameworks the same way blogs and content pieces can fit into an online information hierarchy.

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It might be that we organize household objects and devices in [taxonomies](#) the same way we organize websites into navigation ribbons and headers and footers with connected categories and thematic groupings. Blogs might be connected from blogjects that show objects actively communicating with one another, sharing content and mutually creating.

Increased complexity, but increased storytelling.

Most of this is speculative. Though the technological conditions are in place for a world of hyperlinked objects, it isn't perfected, and so far it doesn't remain terribly useful. In machine intelligence, deep learning holds some of the most promise, but also has drawbacks and considerations. It's simply too big for those little objects right now. The ability for ambient intelligence of objects and locations is a potential security nightmare. Objects that can not only blog but actively learn and interact their environment while simultaneously *shaping* it have the potential to seriously increase filter bubbles.

If spimes are embedded with intelligent or deep learning-able RFID tags, then they have the ability to manufacture stories and, theoretically, obfuscate. If blogjects are hyperlinked objects that automatically upload content to the web hub of choice, they act like decentralized internet broadcast nodes, potentially being hackable and increasing the amount of false specs and stories that can keep someone in a further state of filtered protection.

Curating the news feed of a social network can lead to curating the literal objects we keep with us.

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Having our smart refrigerator link to the Internet and push out fake news is the last thing we'd ever want. Smart objects that use their RFID and NFC tags to hijack our phones and present blog content culled and written with deep learning that drives us further into our bubbles not only jeopardizes our life and health but the future of our planet, if used incorrectly. Worse, if countries wall themselves off with unique DNS sovereignty, appliances can be used to spread malware or collect private data and broadcast it, forming nation-wide blackmail resources.

When all this is said and done, the connected tags and receivers can help us with efficient recycling. It can help us understand what parts and components can be reused, and give voice to mountains of refuse to let us know what is biodegrading and what impact it's having on the environment. We can see our things and our products as connected to our world, the way they naturally are. We can read about them being returned and reused for a more sustainable world.

It seems likely that we'll do as we've always done with new technologies and continue to adopt and experiment with them, finding drawbacks and mischief while discovering new uses and boosting security. For a content marketer, the ability to auto generate stories across platforms and objects is exciting. I love the idea, in general. I love that we can see stories in real time that connect us all. I love giving context to the spimes of our world.

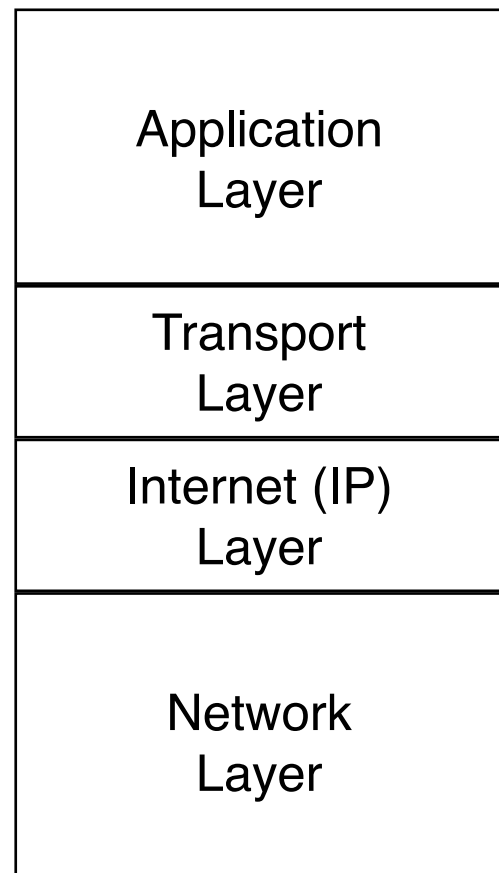Here's hoping Bleecker is correct and web 3.0 makes a better world 3.0.

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# Our Next Pandemic's Web[H1]

For those of us who worked in social media and digital, internet-driven communications during the COVID-19 pandemic, the question of the Internet's role in it all is a salient issue.
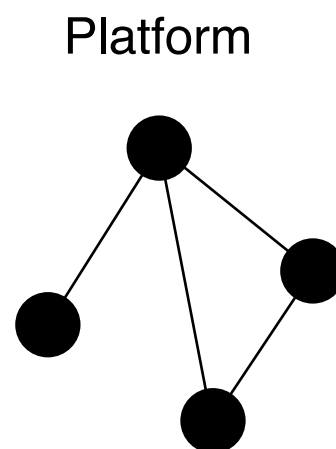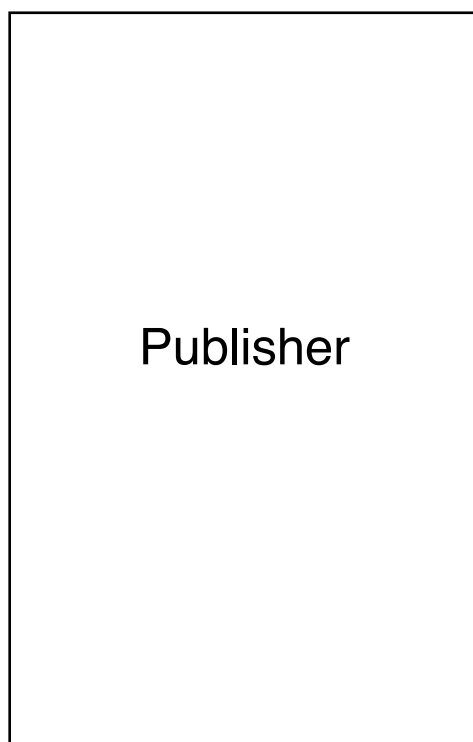
Our lines of communication and media dissemination are inextricably linked to the format and medium of choice; the diffusion of information, disinformation, and misinformation online happened within a set structure of the web.

This current structure, an IP-based client-server network with centralized internet service providers (ISPs) and monolithic, private information platforms (Twitter, Facebook, Rumble, etc.) with their own modes of content governance, was met with much criticism from across the political spectrum.

| |
|---|
| Application Layer |
| Transport Layer |
| Internet (IP) Layer |
| Network Layer |

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YouTube [struggled in vain to contain a video full of misinformation called *Plandemic*](#) during the early months of the pandemic. Facebook never fully got a grasp on COVID information dissemination, though it [pledged in high-minded tones](#) to only follow science; it has since borne the [brunt of much criticism](#), along with Twitter, which would flag and delete posts critical of government response to COVID or containing information deemed unscientific or inaccurate by their own internal, occasionally vague standards.

Our current web paradigm is of large, centralized platforms (debated whether they are *platforms* or *publishers* in current literature, with legal ramifications for one or the other), letting users post their own thoughts, memes, experiences, and the like, but with removal and account punishment based on automated readings of that material and its likelihood to spread and unduly influence public opinion.

Publisher

Platform

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The Internet we have now wasn't designed for any one thing; it was designed as a big, stupid pipe that could handle text, articles, video, frankly any medium that could be evolved in it, provided it satisfied the end-to-end design conditions and was stable. As a result, we have a web of everything.

Part of the trouble current platforms run into is derived from their legacy. Facebook, Twitter, LinkedIn, YouTube, and Instagram grew up as politically neutral platforms in the Web 2.0 era, when we were all much more focused on reaping the benefits of the wealth of networks than on handling the veracity of that information. It was thought, after all, that people brought their own values, judgments, and opinions to the online world, and a cafeteria of freethought would emerge that would challenge, entertain, and educate us. Having grown up in this era, I can say we didn't consider that these platforms would have such a massive influence in political life, or that information empires would be locked up in walled gardens and dissatisfy, well, everyone.

But this is the world as we've found it. The scientific establishment, especially government agencies such as the FDA and CDC, struggled to keep the science updated and accurate at the rate of scientific progress while the rest of the world moved at the speed of bits, nearly superluminal in velocity. A million flowers bloomed while governments carefully tended their sole garden, surprised when the updated information being published was now in contradiction to myriad rumors and alternative facts that hadn't even been considered. Commons-based peer production of Web 2.0 had given way to commons-based information circles, much of it locked away and not visible to governments or scientific agencies.

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For me, working as the social media specialist for the Nebraska Department of Health and Human Services, the task was to provide accurate information as quickly as possible, and make reasonable assertions that didn't sacrifice trust and accountability.

All of this was under the aegis of differing political regimes and opinions, along with finding new information tools to counter claims made online.

There is a mixed legacy there, as there is for all government agencies during COVID-19, but the question of how information is published and shared in the current paradigm led me to wonder: When the next pandemic happens, what will our internet be? What are the modes of transportation for misinformation in twenty, thirty years, more or less? How will our future online structure influence the mode of information sharing when the next pandemic emerges?

To put it mildly, there are simply too many visions of new internets, new webs, new protocols, and new laws to ever fully encapsulate what might come to pass in this line of thought. What I will do instead is focus on the largest, or possibly likeliest, paradigm changes in web thinking and evaluate what modes of information spread will happen in them. I haven't a clue what the next pandemic will be, or when, but it makes a valuable case study for analyzing differing proposed web structures in light of our lingering questions about the role of the Internet in our current one. I also won't go into complete detail about each paradigm, as that would require several books to fully deal with.

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Web 3.0 is the only concept of the web that is guaranteed to occur in some form or another. If Web 1.0 was the first (pre-dotcom bubble) era of the consumer internet, Web 2.0 was the era of social networking as a powerful economic force. The lockup of data and centralization of information services online, such as Google, and the platformization of externalities and user-generated content, occurred in this era.

Web 2.0 was heralded by writers like Yochai Benkler and Axel Bruns for its developments of commons-based peer production and *produsage*, or the open-sourced blurring of lines between producers and users or customers. We're still likely in Web 2.0 now, but there is strong debate as to what exactly the next step will be and when it happens (if it hasn't already happened).

Simply put, Web 3.0 is just a general designation for what comes next. While opinions diverge on this (strongly, I might add), there are a few core features I believe will occur no matter what the final paradigm is. For one, artificial intelligence (AI) will no doubt play a large, possibly central role in this new web.

New applications and mobile computing will increase services and abilities, especially with continuing evolutions to IPv6 addressing and 6G networks, which will reduce latencies to unbelievable speeds and allow haptic interfaces and a tactile internet to develop in earnest. We will likely also see a larger influence from things like ambient intelligence, the Internet of Things (IoT), and virtual reality.

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Greater administrative control over networking, such as software-defined networking (SDN) and named data networking (NDN), and information-centric networking (ICN) might well give ISPs more control over information dissemination and the controls allowed to private companies or internet users. The internet protocol (IP), or the middle of the hourglass structure of the Internet, might be replaced by content-centric networking (CCN) or similar content-based routing, which would replace the where of information with the what.

Content-centric or information-centric networking (CCN and ICN, respectively) present their own challenges, but are exciting for being the first real potential replacements of the IP/DNS protocol we have now.

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Proposals range from DONA to TRIAD and general CCN principles, but the core idea is to deliver content to users based on forwarding interest bases, content routers, and pending interest tables.

The whole system is much closer to content delivery networks (CDNs) in that it greatly eases strain on server locations by serving content closer to the clients based on sent and received interest packets.

Web 3.0 might also see a [splinternet](#) along ideological lines, ala the private ISPs and fragmentation in Russia. There could be greater government control, such as a mimic of the Great Firewall in China that censors all politically inconvenient content and punishes dissent. Recently, leaked documents illustrated a plan for the [Department of Homeland Security](#) to more actively police online disinformation. It could become common to see COVID information policed at the ISP level in conjunction with government-backed policies and collusion. ISPs have always been more than happy to throttle users and services in exchange for government-guaranteed markets—just look at the net neutrality debates.

My political reading of the situation is that COVID, election disinformation, and general political meddling means we'll see an increased governmental presence online, along with a desire to police said information with either government mechanisms or using distributed-but-influenced private governance and clandestine technological solutions, such as packet inspection, throttling of services, or artificially dropped packets, such as what happened with [BitTorrent over Comcast networks](#).

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My feeling is that, given the tides of online meddling and the nuisance public opinion can be, governments will take a stricter role in policing online content. This should be a negative outcome for any side of the political debate, as governments are renowned for obfuscation, deceit, and misinformation. A government in control of online information is more like China, with a state firewall, or Russia, with distributed but strongarmed ISPs doing Russian bidding or facing the consequences, or Iran outright censoring social media platforms for palpable political reasons and to quell dissent. While private solutions haven't worked perfectly (or sometimes even well) during information crises, a single source of truth is a terrible idea for any open society. I expect this debate to take root in the 2020s and stay with us for many years to come.

The Semantic Web is Sir Tim Berners-Lee's baby: a completion of the dream he first had back at CERN. Simply, the Semantic Web is a web of application-layer, machine readable markup languages that links information and bits of data (uniform resource identifiers, or URIs) to provide a network of connected information. Derived from this are things like knowledge graphs, such as CORD-NER, the COVID-19 information-based knowledge graph.

The Semantic Web is already a reality in many sectors both public and private. Linked, open data remains a dream of researchers, and the use of RDF and OWL for the construction of information tuples and triples can help bridge the gap between unstructured online information across websites and search engines. This web is much like ours now, but with more links, greater connectivity, greater verifiability, and more backend information to provide resources for users and researchers.

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Of course, omnipresent political factors could limit the efficacy of the Semantic Web. It might prove easy to use markup languages and RDF syntax to create artificial designations that make mis- and disinformation seem more credible than it is.

Enterprising counter-information networks could easily hijack the mode and create a safe filter bubble for those who use the linked data, causing chaos. It's likely the Semantic Web will continue one way or another, but whether it ever reaches true fruition, and what the outcomes of that will be, remain open to speculation.

The Internet, it should be noted, is also rotting. Link rot, or the dead hyperlinks pointing nowhere to 404s, proliferate throughout the web. URL stability is a tough thing to manage, and any linked data must be able to account for a resource there today being gone tomorrow. In the case of pandemic information, this is vital.

Web3 is distinguished from Web 3.0 by its reliance on blockchain, cryptocurrencies, self-sovereign identity (SSI), smart contracts, NFTs, and metaverse ambitions.

Where Web 3.0 can encompass any number of outcomes or combinations, Web3 is a concept as well as a buzzword. We've seen both the tremendous success and total collapse of alt coins and cryptocurrencies; we've seen the rise and fall of non-fungible tokens (NFTs) and the tokenization of physical assets for increased liquidity. It might be that the entire web, and all its URIs and URLs, will be cordoned off and for sale, a crypto-libertarian paradise.

404

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I'm agnostic on this outcome; for one, those who decry Web3's overt financial ambitions don't seem to have paid much attention to the entire course of the Internet's history for the past three decades. The Internet, upon private commercialization, has always been about securing greater wealth for a few and making money. Countless (literally countless) businesses have been formed online from the exact kind of innovation naysayers now can't or shouldn't happen from Web3 designs, as though the ladder of innovation only has so many rungs and no more.

On the other hand, naysayers are correct in lamenting or possibly even opposing the more brazen financial strategies of Web3 that violate our principles of an open, fair internet and web of information available to anyone. The web is the most powerful information dissemination source in the world, and in the world's history; the ability to instantly share messages with anyone is a remarkable feat no matter what it's used for.

An open and democratic society should foster open and democratic modes of communication not contingent on wealth or financial stakes. If we hate the Golden Rule of *they who have the gold make the rules*, then we should oppose Web3's more draconian financial dragnets.

It could be that paywalls and ownership of online sources gets so out of hand that no one creates, shares, or invests without explicit promise of payment or tokenization of services.

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Perhaps ISPs create a settlement layer native to the Internet that fosters decentralized payments and means to interact in a hyper-capitalized online world, one must have the resources, such as a wallet and an address and verifiable credentials. Crucial scientific information might be further locked up and available only through smart contracts; online news publications might make exclusive articles or research only available as an NFT. Accuracy in scientific reporting might be contingent on staked tokens.

Web3 could allow more micropayments that foster equitable wealth, but time has shown that more likely slow centralization will again accrue to those with more financial capital to start with, and thus create artificial barriers to entry and information sharing. We'd again enter a world where only monolithic, massive conglomerate gatekeepers can choose what messages are broadcast, shown, or even created in the first place.

We're already at the mercy of views and payments. During COVID-19, many reputable news publications eliminated paywalls for articles in the public good or about health or government efforts. The generous side of me says this was because they believed in benefits to pubic health; the pessimistic side says they did this because they knew consumers would revolt and turn to information elsewhere, and cash-strapped news sources would bleed clicks and eyeballs to cheaper publications with migrating ad supporters.

There have been prediction market proposals for this as well.

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This isn't entirely unfounded: *The San Francisco Chronicle* is now infamous on Twitter for publishing articles with scary-sounding COVID headlines...only to point readers to a paywalled article. Online news was happy to provide information for the public good when they felt they could benefit financially from the optics of it, but they returned to their old ways almost immediately. In Web3, there would be more of this.

On the other hand, the IPFS, [FileShare, and provenance chains](#) might mean more accurate thumbprinting and accounting of online content and its distribution sources. With the advent of uncanny deep fakes, we'll need to know how and when videos were doctored and altered, along with social media posts and graphics. Cryptographically secure provenance chains might enable more reliable information diffusion than we have now.

Peer-to-peer (P2P), or users as both client and server, has been around for decades now, but the newer technology, such as the [InterPlanetary File System](#), might well replace HTTP and HTTPS standards and create more decentralized, user-driven content. Rather than relying on the servers of major providers, users might be their own server, and use structured or unstructured overlay networks in the application layer to provide information to other users, such as in a Chord ring or [distributed hash table (DHT)](#) formatted library.

Of all the possible outcomes, this is the one with the most potentially hostile repercussions for government-mediated online information. P2P is the solution with the least possible intervention by governments, requiring mediation by ISPs, much of which can and already is circumvented by VPNs and proxies.

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Mastodon, part of the decentralized Fediverse of social media on server instantiations, has already been [hard-forked to make Gab](), the right-wing social network; BitTorrent and other decentralized P2P networks are often accused of being used only for piracy and circumventing US copyright law.

P2P became famous for applications like Kazaa, Grokster, Napster (though this was a structured server P2P and not genuinely decentralized), Gnutella, Freenet, and BitTorrent. Many of these are associated with online music piracy and illegally downloading media content without payment. Governments, being purchased by corporations, have often targeted P2P players and made note that wild and wooly online environments often escape U.S. law and customs.

Secure cryptographic hashes and blockchain-based social networks might enable misinformation diffusion even more than they have already. Private users would have the ability to bypass conventional internet control and directly serve file contents, such as videos, articles, sites, books, and any other document, directly to other users. Using TOR or VPNs might ensure this content is spread massively without ever being publicly visible to governments, researchers, or law enforcement agencies. The CDC and FDA might not even know what to respond to anymore, as it remains locked in dark networks.

This is part of why I can't join in the crowing when public figures or disreputables are de-platformed from major social networks: It just sends them and their supporters to other networks where they can continue to foster their views quietly.

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We don't know what to respond to anymore; we end up with out-of-touch talking heads on television wondering, after a public shooting, how such alternative views could proliferate on Discord servers or Telegram messages without anyone being aware. How can one be "radicalized" and no one is the wiser? Turns out it isn't that hard. Rumble, Gab, Parler, and Truth Social make up an alternative political ecosystem, along with message boards on Reddit.

In a P2P network, these views might be more entrenched, served directly to others without interference, and escaping notice. VPNs are already criminalized by draconian governments for their ability to escape detection. It might not be long before the United States tries the same in an effort to curtail overlay networks and dark social media that can't be found.

The United States is no stranger to losing protracted wars for hearts and minds. In fact, I'd say it's almost become a national pastime at this point. Vietnam, Afghanistan and Iraq, the War on Terror in general, the War on Drugs, you name it, we lose it. A government initiative to police online content would run directly into the wall of P2P the way governments around the world already have. There is no more losing game than trying to curtail speech online, and nothing more likely to backfire.

A government disseminating official information about a pandemic would struggle to keep up with private information diffusion it can't even accurately track. Agencies tasked with seek-and-destroy of counterfactual or insurgent websites, such as proposed by the DHS, would run into distributed servers and Fediverse-style forks that mean policing is impossible—it's been designed to be so.

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There is one ultimate truth remaining from all these possible visions of the future web: People will share the information they desire. They will find ways to circumvent firewalls, policies, protocols, platforms, anything you can throw at them. The more you try to enforce views, the more people will rebel against them. You can release official information only to see it disappear in a puddle of misinformation, nonsense, or even facts.

I know this firsthand; I'd follow social media comments and their sources of information to half-assed WordPress sites with stuffed keyword densities and artificial links.

It didn't matter.

On our official DHHS posts, with CDC-verified information, we'd get a hundred comments with incorrect statements backed up by a flimsy site, from bot or sockpuppet accounts, which scored hits before we could respond. It likely influenced people faster than we ever could. I used CrowdTangle to see where our links had been shared across Facebook, only to see they had been coopted by rogue or dark social profiles and bots.

Limiting speech and opinion turned commenters against you, seen as censorship; not responding meant being embarrassed or hiding from the truth. Posting too frequently was damage control and posting too seldom was seen as inaction. Good graphics were too polished and official, bad graphics too shoddy.

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It can, and did, provide many headaches. But a lesson from it, and from all of it, is that sometimes our reach exceeds our grasp. Sometimes our technology evolves faster than we do, or faster than we know how to handle it.

The truth is, I'd be lying if I said I knew what was best for online structure going forward, any more than I know what the eventual protocol will be. My best guess is that it'll be a continuing and evolving hodgepodge of everything, little here, little there, that satisfies different user needs and Quality of Services in ad hoc and piecemeal ways, with governments always slow to respond.

Governments should be in the business of sharing facts, not deciding truth. In the next pandemic, government response would do well to remember scientific fact is indeed a powerful thing, and though humans are haphazard, they're also inclined to listen if you have something they want to hear. A government that uses the network as it's designed is a more responsive, agile one.

Whatever the next pandemic, I hope the structure of online government response meets and mirrors the medium it broadcasts in.



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# Metaverse Governance<sup>[H1]</sup>

A metaverse is a nearly boundless online space of art, real estate, advertising, communication, exploration, and a connected digital reality that can be harnessed, played in, used, and coded for every purpose imaginable.

The control of all these resources by one entity is a recipe for autocratic centralized control that enables the formation of private empires built on data, <u>larger in Web 3.0 than even in Web 2.0</u>.

Agreements and interactions between users and their avatars or digital personas (possibly called "profiles" still in this instance) form the core of the market and the spine of the whole metaverse. We're accustomed to digital networked interactions today writ large; the evolution of the metaverse is a natural extension of how we interact, commune, and organize our nations and our world in the physical reality of atoms over bits.

Keep in mind this is a different subject than user agreements or terms of service for private organizations and servers, which likely will stay play a part in user governance for individual platforms, sites, and applications.

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When I speak of user governance, it is more akin to the possible economic or market structures within the metaverse and its digital interactions that can be chosen in a [decentralized, peer-to-peer](#) "Fediverse" of Web3 applications forming a connected online world. This chapter is an explanation and a consideration of some adjacent possible economic and organizing structures we as users might choose to pursue in our metaverse.

The first question to arise is the value of the metaverse and how products and interactions can be monetized. It's not all based on attention and ad space, as conventional Web 2.0 monetization is. Non-fungible tokens (NFTs) and cryptocurrencies might be powerful ownership and financial structures in the metaverse; digital real estate, such as in Decentraland, might be a burgeoning market.

[Space or territory ownership](#), networked enclaves of users, biometric data, and virtual media (in-world movies, music, games, etc.) might form economies worth purchasing for users of the marketplace. Anything currently valued in the real world can theoretically have value in the digital one

Let's look at some examples from virtual economies and massive connected online games. *EVE Online* utilizes an in-game currency to purchase minerals for shipbuilding or other pursuits; Ethereum sells gas, or the ability to make smart contract exchanges, as well as Ether, its currency; *World of Warcraft* sells armor, weapons, goods, and other valued items with either in-game tokens or freemium prices with real-world money (most online games offer at least some such freemium starting economy that can turn into paid upgrading).

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Real world economies run on simple economic values such as supply and demand.

Scarcity is one of the prime movers of any economy: the less there is of something valuable, the more its value goes up (gold, precious stones, etc.). This can lead to the question of how digital abundance, a value directly appositional to scarcity, can ever lead to a valuable online marketplace. If we can make infinite amounts of something, why is that thing valuable? If a digital space is not the real space and lacks users, is it still valuable to own parts of it?

Part of the answer lies in how we value things in general. Many digital products are *positional goods*, i.e. their value isn't inherent in the utility but is in the value individuals put on it compared to other goods of the same kind (think weapons in online games, designed armor and gadgets, trinkets, anything unique to a user that has social significance). This isn't different from how we value many things in our own world. Sentimental value is a factor, as is social significance.

These principles form the value behind NFTs. Digital art and pieces of media are connected to a cryptographically secure hash that signifies it as being unique, even in the digital environment. This is the non-fungibility of the item or token: It can't be exchanged, broken down, or otherwise changed, giving the original a value like an original painting versus a reproduction of one.

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Almost any item can be tokenized, such as real estate; fractional ownership can enable communities of individuals to own art, land, real estate, and other items of value that they couldn't own themselves (like stocks in a company, valuable objects and parcels can have multiple holders of its value). This can provide neighborhoods and communities with shared resource ownership that they can capitalize on for their own chosen ends.

We've seen for many years that in-game upgrades can be a very lucrative source of revenue for game companies. Loot boxes and custom mods based on digital currency exchanged for real world currency can power the entire economies of games and build companies to be competitive with the established majors. *Freemium* (free + premium) means free to play, but costs money to do the *really* cool things. Naturally people have been susceptible to this, as they are to all sorts of upgrades and modifications.

Tokens and cryptocurrencies have distinct possible values in an online metaverse. The Brave internet browser has become known in recent years for providing a different monetization path for publishers, utilizing a [Basic Attention Token (BAT)](#) instead of cookies or third-party data sales. A metaverse might function in a similar way, automatically offering redeemable tokens and credits in exchange for attention. Watching political candidate speeches or looking at digital art might be automatically tracked, and the time spent can be redeemed as tokens directly and added to a wallet or a distributed ledger. We're used to monetizing time already: Super Bowl ads are famously expensive for only 30 seconds, and YouTube registers an ad watch after only three seconds.

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Users of the metaverse might make money through arbitrage of goods or services. For example, if two federated metaverses communicate on different servers, they might have a wealth of different products and goods, facilitating trade or a mercantile system. But if a connected metaverse on a single server grows so large as to have cumbersome geographies with goods of different value in different locations, a user can purchase an item for cheap in an area where it's less valued and sell it for profit in another area where it isn't so available and thus much more valuable. Enough users doing this across a wide geography can make the disparate values of the product meet, causing the arbitrage.

Facebook has made a lucrative business out of the gamification of social interactions. Likes, loves, reactions, and shares form a networked attention economy that fuels their ad business. It's a much more conventional profit structure, very similar to network television selling ad space to fund its programs, showing ads to audiences. The metaverse might come to rely on this same principle, if history is any guide. Attention, ads, and pay-per-click might form the core profits of the metaverse the same as it's funded so many industries of the past.

Physical and active matter manufacturing might be a future business in the metaverse that can be successfully monetized. *Spimes* might be successfully tracked and manufactured in the metaverse to a level previously unimaginable. For instance, a person in the metaverse might precisely fabricate a digital item (meta-facturing, if you like); the item is then printed with a 3D (and eventually 4D) printer, to those same specifications; the physical object has its uses in the real world, wears out, and eventually has its constitutive filaments recycled.

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The manufacture, provenance, uses, and entire life history of this project is available for anyone to see, certified in a ledger. Perhaps people will pay above a certain margin with tokens for a spime (let's call them community-consented spime tokens, CCST for short) that has a chain of provenance in line with their values.

Divestment is both an act and a right in our physical world. Many people only want to do business with companies that share their values or display ethical standards for manufacturing or social justice efforts. Much like how B corporations are certified for their conscientiousness, CCSTs registered on a public distributed ledger for a metaverse company display proven provenance and reliability. Recycled filaments would prove a very valuable creator of CCSTs, as that has real world sustainability ramifications. Digital factories with 3D and 4D printing connections might enable valuable industries to form.

Blogjects, or blogging objects, have a possible metaverse value. Digitally fabricated items or spaces might one day create their own stories, craft them with words, and allow them to be harvested for various uses, especially for marketing.

Perhaps, in a metaverse bar or hangout, the patrons collectively create blogs automatically from their words and experiences and are rewarded with the currency or token of choice. This blog and others created from the web of digital stories of the bar can form the ad copy for a marketing agency selling this location as a desired hangout in the physical world.

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The collection of individuals all interacting in the combined metaverse might form what in digital gaming is called a fair or a bazaar, where individuals sell their wares for what they desire. [Theta Token](), for instance, is a tokenized coin system for packaging bandwidth.

Perhaps leftover bandwidth or other digital goods of the same make can be sold as tokens in a bazaar filled with tokens for similar products. This can be a barter or trade system, or it can be purchased directly with currencies like a freemium game. Free to look, costs to play.

With valuable resources existing in the metaverse, and legions of people and their eyeballs tuned to its environment, we can question what the most useful governance structures are for harnessing this new political economy.

If Facebook controls and operates the metaverse, and it's the only one in town, then our governance structures are nearly nonexistent. It would be an autocratic capitalist system, the same as we have now.

Mark Zuckerberg has [retained majority voting rights]() in Facebook and now Meta; as a result, he's the only one with the authority to make real decisions that affect billions of people. If Facebook is allowed to own and control the metaverse the way they've been able to dominate social networking, then governance, ownership, and organization is out of our hands. We'll have to just take what we're given and obey the terms of service, lest we get booted from the platform. Network effects and lock-in are still the values of this world.

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If, however, decentralized platforms such as Decentraland and Kong are able to provide a viable federated metaverse alternative to the Meta-verse, then the users of the platforms that constitute its core functions have some choices to make. Throughout history, citizens have formed a wide variety of organizations to collectively argue for their needs and their wants, as well as their societies and their laws. In our scenario, we are examining alternatives to conventional autocratic capitalism and managerial governance.

In our world today, we've begun experimenting with the idea of data cooperatives as an alternative to data collection and third-party data selling through the siloed mega corporations. For example, health data is a valuable resource often going to the highest bidder. The data is cleaned, anonymized, and sold in batches to many different companies or platforms that use it as they see fit for medical or other research, pharmaceutical ads, and numerous other valuable ends. In a data cooperative, the owners of the data are also the providers of the data. They can collectively offer, sell, and use their data as they see fit. They offer terms of service, they offer the product that they make.

The metaverse will likely have a tremendous wealth of data, ranging from attention to biometrics to user interactions to votes and everything in between. The metaverse might prove a fertile space for data cooperatives in different industries or types. Recorded biometric data anonymized and sold collectively can function like a health data cooperative today. From a manufacturing point of view, collective blueprints and their spimes can form purchasable collectives offered on the metaverse marketplace to others.

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Work in the metaverse, especially for networked avatars for workplaces, might use a form of *holacracy*, or an autonomous group of collectives voting or working on their own.

Ownership across companies might be like the Japanese [keiretsu](#), or a business network made up of different companies. While keiretsu can run afoul of integration and monopoly or competition laws in the United States, we might find the adjacent possible of the metaverse allows us to realize this structure on a much larger, workable scale. We might find the metaversal keiretsu shows us how to clear up supply chain and transactional issues in a simulated environment, which we can then apply to the real world. Such digital case studies can also be bundled for cooperatives or sold as tokens and bartered.

We might go the collective route in the metaverse, such as Michael Albert's concept of the *parecon*, or [participatory economy](#). Digital products, tokens, or other valuables might be preset by a facilitation board, or a group of individuals utilizing community needs to set levels of manufacture, distribution, and price—decentered centralized planning.
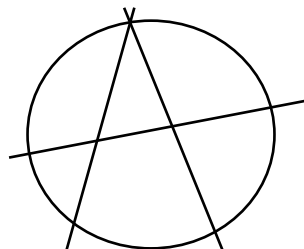
The parecon is a market abolition system, meaning prices are no longer set by any sort of free market, nor is one used at all. A single server or a collection of servers (federated servers) might form the facilitation board setting prices and products for their users; perhaps the board will be composed of avatars in an in-world environment. I could see a participatory economy over tokens and digital products, with an emphasis on market abolition entirely, gaining popular ground in the metaverse.

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Non-playing characters (NPCs) in online games can be used by the game creators to artificially set market prices: they autonomously buy at a certain price for every type of item, sell for every type, and provide a general way for users to use a simple market to keep earning points/tokens/gold/currencies to stay in the game.

This is more fun in the game world, but in the metaverse, where actual industries and the bottom lines might conglomerate, the issue of NPCs can artificially inflate or deflate prices, destroy currencies and markets, and provide a general anarchy for the system, especially if NPCs are used like a [Sybil attack](#) on a market or a currency (think click fraud in the online programmatic ad space, for example).

In this case, with a market or geography possibly flooded by untrustworthy actors and NPCs, a system without a market might help remove such problems and provide peace of mind for users. In the decentralized metaverse, cooperation and commons might evolve to facilitation boards that enable a participatory economy to successfully flourish where it might be stifling and impractical in the physical world. The boards will allocate space, resources, land, time or user rights, blogject and spime tokens, manufacturing rights, and any other valuable commodities in the metaverse.

Of course, there is another distinct possibility: private governance and anarchy.



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It could be that individuals seek personal ownership for personal goals. Products, attention, tokens, manufacturing, and any other goods or services in the metaverse are sold between individuals who can operate alone or form corporations of anarcho-capital collections. Smart contracts would form the spine of user agreements across servers and geographies, with rational self-interest the guiding economic force. Systems of law, order, and governance would all be private, subject to user or platform discretion.

If a manufacturing hub does truly emerge from the metaverse, anarcho-syndicalism might carry over from the metaverse into the real world, much as the printed objects do. Unions formed of designers, artists, and digital fabricators might join forces to own their code and their designs cooperatively in the metaverse and then bargain to sell them to the purchasers or distributors in the physical world. They might also vote for metaverse changes as collective unions rather than individuals, utilizing a labor approach to advocate for their wants, such as in the Mondragon workers collectives.

In a metaverse system of federated servers, genuine socialism might prove the desired method for governance. Individuals might get wealthy or form corporations that get wealthy. Server owners might choose to tax such metaverse company owners in either tokens or currencies and then distribute those tokens and currencies to users within the game or use the currencies to purchase other things from different servers or user groups. Maybe the metaverse companies getting rich will choose to split their profits with their workers or let them own the companies and deal with other companies in a mutualist system.

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Whether users choose democracy or a consensus protocol based on the code and iterations itself will also remain to be seen. Computer and internet engineers are notoriously as against democracy as they are against autocracy and authoritarianism.

The work should speak for itself; the world should vote for its own interests based on its needs. Perhaps different market sectors will use a liquid democracy and send highly educated voters in place of the masses, who care far less. Maybe deliberative democracy will finally take root and flourish in the digital realm, allowing people to be much more educated not only in the metaverse but in the physical world as well.

The West has had a growing problem of democratic backsliding in recent years, from election interference from the Russians to tampering in Belarus and gradual [anti-judicial takeover in Poland](). Democracies have been rare things in human history for thousands of years. Kingdoms, fiefdoms, empires, and feudalism are much more prevalent in the pages of history. Facebook, for example, has no interest in user democracy. It is a kingdom, largely benevolent but also highly resistant to user pushes for changes.

Based on the feudal nature of tech companies, individuals have proposed a [Dark Enlightenment](), or a return to pre-Enlightenment values such as monarchy and secular absolutism, filtered through the modern fascism of Julius Evola. This would encourage Facebook's Meta to control the metaverse, and to accept their complete autocratic rule as the rational emergent order of humankind.

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With democratic backsliding and faith in elections at all-time lows, it wouldn't surprise me at all (though it would greatly sadden me) if the federated metaverse was to prove a failure, unworkable in its chosen democracy and open societal system.

Centralized, strict control of empires might flatten the map and control nascent data collectives for their own untransparent ends.

The metaverse might be owned, siloed, and lockout competitors the way the tech corporations of today do the same. It seems highly unlikely to me that the metaverse will remain a commons, unowned by anyone or anything; anything besides some form of ownership constitutes wishful thinking.

Of course, users of the metaverse will have choices to make as the system is brought into existence. We have the potential for an entirely new world, one with the adjacent possible of different systems of management, governance, and commerce. We would do well to consider every issue inherent in that, and to leave no stone unturned in our pursuit of the perfect system we've so long sought. This might be our last chance to make the world we want.

Numerous online commons contracts have been proposed by the P2P Foundation

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# Coda: Lit Engines<sup>[H1]</sup>

This book is, ultimately, about a world.

It's much like the one we live in now—the meatspace—but with limitations and boundaries that are continually being discovered and destroyed. The excitement of this new, online world is that we have every opportunity to play with it and turn it into our own. The simple sorting cards of the postwar world have turned into an epic of connection, protocols, mega empires, cartels, dreams, nightmares, hopes, swipes both left and right, control, chaos, and imagination.

The Internet represents our collective imaginations, our ongoing experiment in turning how we think and feel, the processes in our brains, into a giant connected sphere. The earliest inclination of the web was a place of connected literature and free expression, and the boundless ability to break the very page that we had written on for centuries before.

*Theoretical Structures of Online Content* owes much of its existence to people like Ted Nelson, whose book *Literary Machines* was a big inspiration for the look and design of this one. Nelson envisioned a connected world of transclusion, transpointing windows, chapters you could follow around the web, microtransactions for authored or shared content, and networks based on locating the *what* rather than the *where*. Xanadu. It's incredible how much of this has come full circle, or in routing, a loop.

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Content-centric networking (CCN) represents the idea of data as chapters. We have names for the places we want to go, and the journeys we want to take online. We want the freedom to break the page, follow transmedial pathways, and to let our content expand and evolve beyond what even we could.

The new generation of AI has the capacity to help us continue to fulfill this vision with massive waves of expression. It also has the ability to create so much damn stuff that we finally get lost in the library and can't ever find our way out again, with no links to the past, obliteration by incorporation.

This book has, through the lens of content and the exploration of content structure, traced the basic evolution of the Internet, business and personal, and the web from each layer of the TCP/IP protocol stack. So much has changed from when Vannevar Bush played with cards in his office.

The ideal of the Internet as the world's open, free Library of Alexandria (or *Docuverse*, in Ted Nelson speak), became more like conventional bookshops and megastores, with the bound and licensed results of mass peer production mingling together for the sole purpose to compete for sales against one another. Code is law, and that law ended up looking a lot like the law that came before.

It's fair to express a fundamental sadness with this, not only for lost bohemian ideals of freedom of information in a digital era but also as a lament about the general inclination of humankind to seemingly resist sharing beyond a certain level.

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Maybe it's just the Internet growing up, and like all growing up it involves a level of nostalgia for ideas that are beautiful but ultimately doomed.
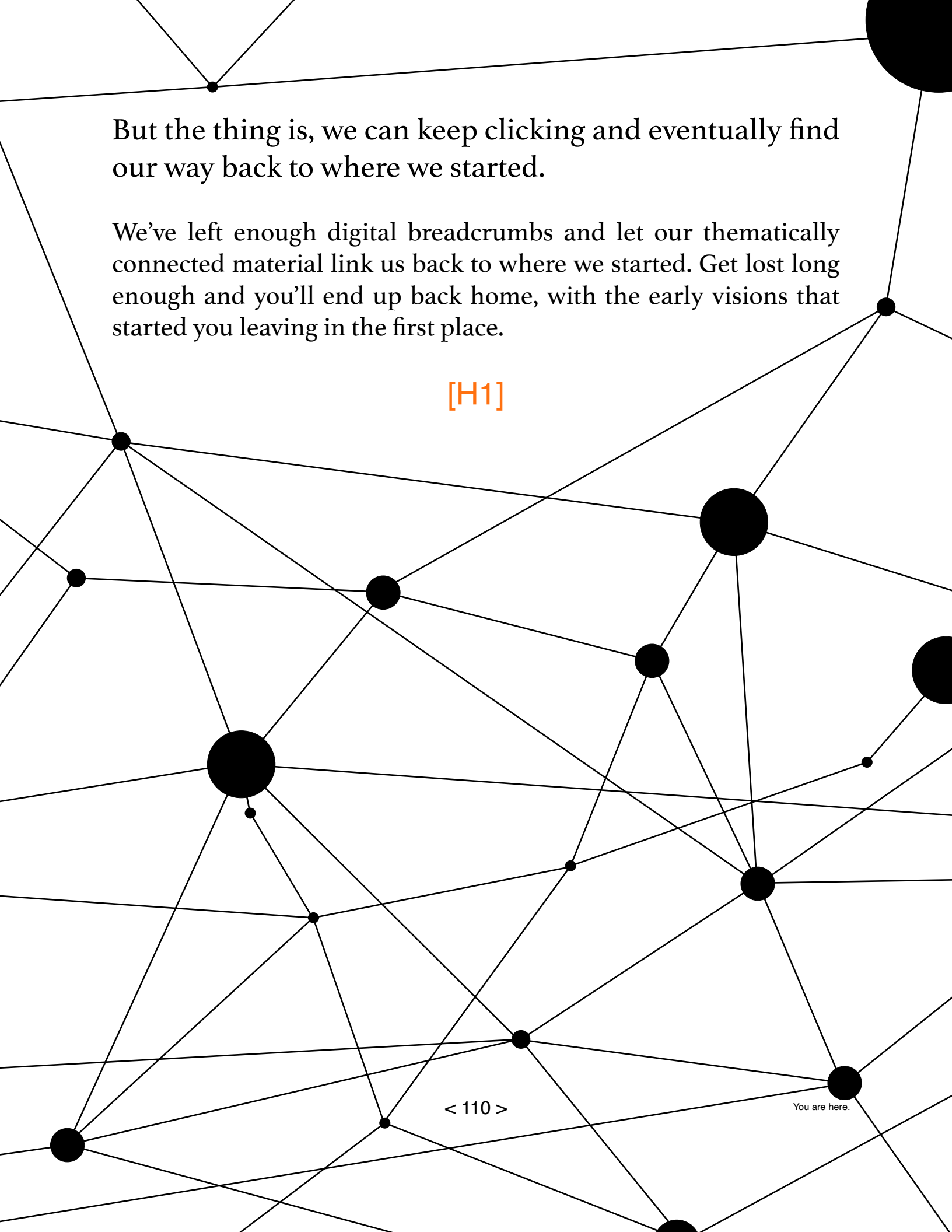
But there is a certain painful blowback to a system designed to fight government disinformation now being controlled and used explicitly for that purpose, or anonymous crowds creating bots to sell, sell, sell. Or worse yet, to enact targeted harassment campaigns.

It can make one question whether the Internet should have ever been at all. Maybe Bush's memex was more like a personal library or assistant than a massively interconnected hub with boundless possibilities. The sole human mind is trusted to take care of itself, but when connected with others its networks escape control or are found to be malleable and thus useful to others. It makes entropic sense that a system with infinite possibilities might stumble on one with terrible outcomes and uses.

The goal of this book is to break free. It's to think of the online world as one of excitement again, where ideas, radical, fresh, stupid, new, crazy, can experiment and grow. Where brands don't sell but fill needs; where information reaches those who need it most, when they need it most; where communities find each other and exchange ideas, money, recipes, fiction, you name it.

The earliest dream of the web was a hyperconnected literary experiment, and from the evolution of this hourglass stack we've reached a loop and gone back.

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But the thing is, we can keep clicking and eventually find our way back to where we started.

We've left enough digital breadcrumbs and let our thematically connected material link us back to where we started. Get lost long enough and you'll end up back home, with the early visions that started you leaving in the first place.

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You are here.