

A Pattern Language for Digital Spaces

We increasingly rely on digital spaces.

Our buildings shape us, and the digital spaces are the buildings that shape our minds. They impact our information and social relationships directly, weave into our collective consciousness, and become part of us.

Without a common language for them, we cannot imagine, articulate, and realize a shared future.

To retain our agency, digital spaces should be processes we actively participate in instead of products we passively consume. They can be open ecosystems of protocols, software, and people that better ensure autonomy. Yet such potential is hidden in jargon and only understood by a few, and the possible future is beyond the experience for most of us.

We can summarize patterns that aid human flourishing, and form languages to imagine collectively.

The idea of “pattern language” was first used by architects to enable ordinary people to design and build their physical spaces. The most habitable environments are incrementally built by the inhabitants, but the specialization in design and construction has limited personal agency in modifying our environment. Pattern language is a way to penetrate that specialization, and it might work for digital spaces as well.

By returning agency to non-specialists, more can explore the balance between individual agency and community autonomy.

The concept of pattern language has already influenced product design and software engineering heavily, especially in the form of design patterns. In applying pattern language to digital spaces, we can hold an intention closer to that of Christopher Alexander et al., to enable the agency of individual and self-determination of communities. Using philosopher Ivan Illich’s term, they are “convivial tools” that allow “individual freedom realized in personal interdependence”.

Each pattern functions at a particular depth in an ecosystem.

The effectiveness of a pattern largely relies on its context, the patterns that limit it, and the patterns it enables. In A Pattern Language, this relationship is presented by the spacial scale, and patterns are organized on the spacial scale to describe a particular environment.

It is the depth of a user's journey into the ecosystem.

For example, a newcomer can start by reading the public content in a digital space, before creating content in the network. Then she can continue to organize a community and host a server for the community. If she has the necessary skills, she can contribute to the client she uses, or fork one to make her own. Then finally, she can participate in improving the protocols shared by multiple parties, which takes more discussion and a slower consensus-making process.

It is also the depth of time, and the depth of “protocol hardness”.

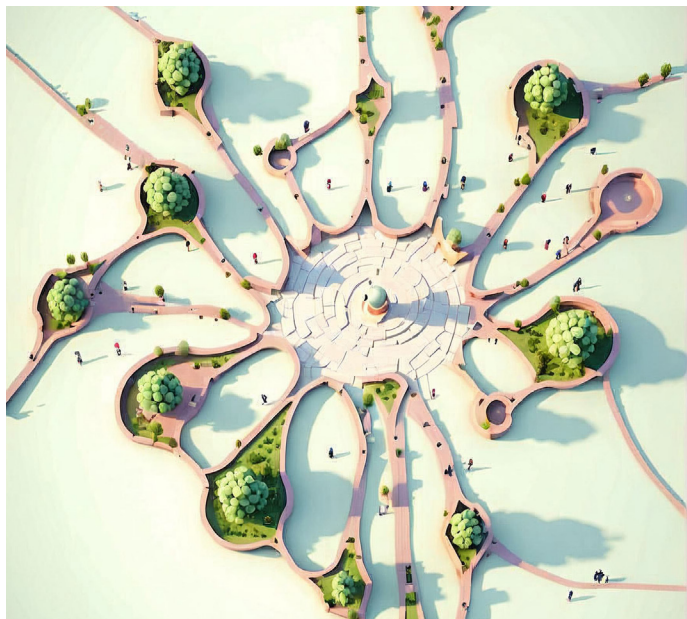
This is a scale of increasing agency and impact: the deeper you are in an ecosystem, the more influence you have on it. It is also a scale of decreasing rates of change: the shallower layers, such as the topic of content, change fast, while the deeper layers, such as protocols, change slow. This creates [shearing layers](#) as elaborated in *How Buildings*, in which the dynamic of the faster layer is determined by the slower, while the slower layers need to gradually incorporate trends in the faster.

This a personal imagination of how such pattern language could look like.

It follows you deeper and deeper into an ecosystem of digital spaces, describing 4 patterns you encounter at different stages. You start from ...

Town square to rabbit holes

You walk anonymously in a public town square, discovering content and people emerging from different communities. You follow them into their communities, each with its own gating and moderation policy, as well as focuses and social norms.



We can find this pattern in how people [use Reddit to enhance Google search](#), popular posts on [Reddit](#) and [Discourse](#), [话题广场](#) on [豆瓣](#), [微博热搜](#) on [微博](#), and many other products and ecosystems.

The town square shows the same result for different people, representing a consensus on what is currently important or relevant, instead of enhancing individual echo chambers. Such consensus arises from rabbit holes of communities, each with their own gating and moderation policies. They are also where members acquire...

Identities based on communities

After inhabiting the digital space, your new identity starts to root in the communities you joined and organized. They govern the moderation policy for the content you publish, and help you recover your account when you lose the key.

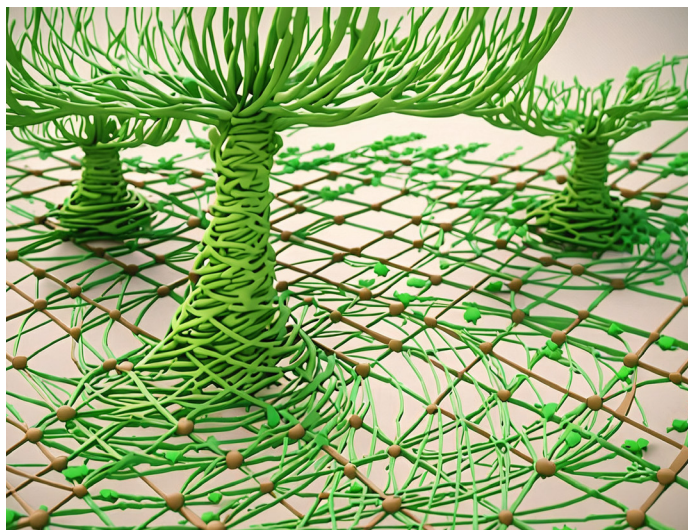


It has been [argued](#) and [tested](#) that when we post to a community whose members we know, we act more civilized and thus reduce the need for content moderation. When moderation is still needed, individual users or communities can decide to block a community, similar to [deferating a server](#) in the Fediverse.

Our identities in real life are formed by the social relationships they are situated in, allowing us to play different roles in family, school, work, and local neighborhoods. The digital space we inhabit should also reflect this reality. But to build social relationships persistent enough to define our identity, we need to control and own such relationships. To do that, we need to be able to use...

Different applications on the same data

You are able to switch between different applications while interacting with the same content and social relationships. Applications can hide or highlight different content, but cannot forge the authenticity of data.



Even on centralized platforms, we expect to own the content and relationships we create. When Reddit started charging its API usage and effectively banning 3rd party applications, users organized a [massive blackout](#) even though it took no effect.

To really own the data we create, we have to rely on decentralized services tied interoperable through shared protocols. This allows us to choose the application we prefer, lowers the barrier of building such an application, and creates more competition in optimizing user experiences.

Many ecosystems of social protocols enable this pattern, e.g. [Secure Scuttlebutt](#), [ActivityPub](#), [AT Protocol](#), [Nostr](#), [Farcaster](#). In reality, the variety of applications in each ecosystem varies. Protocols that attract developers to build on them have...

Strong structure and unfinished surface

When you decide to build an application or service, you find that the core spec of interoperation is straightforward. Outside the core spec, each service has its own way, forming de facto standards that you can choose to follow or violate.



Buildings that are well-loved and adaptive to generations of changes often have a strong structure that endures time, but also an unfinished surface that invites hacking and customization. “(H)umans have a taste for things that not only show that they have been through a process of evolution, but which also show they are still a part of one”, noted Brian Eno in *How Buildings Learn*, “They are not dead yet.”

Alive protocols are also like this. [Nostr](#) began with a minimal set of rules, ignoring many practical concerns. Standardization often comes after practices become commonplace, and extensions such as [Lightning Zaps](#) do not affect core interoperability. The popular [ActivityPub](#) can be seen as a framework for federated communication, where each service can have its own flavor but share the same core vocabulary.