The Plural Stack:

Rebuilding Our Digital Foundations from Protocol Up

Executive Summary

Europe stands at a critical juncture in the digital age. US Big Tech and Chinese state capitalism dominate global digital infrastructure, whilst the bloc is challenged by systemic vulnerabilities, extractive economics, and strategic dependencies. However, blaming 'foreign' digital infrastructure misidentifies the challenge; it's not about the foreign origin of digital platforms but the architectural logic of technical centralisation, economic extraction, and the funneling of decision making power.

Our vision of a European digital stack demands a strategic imperative towards Plural protocol ecosystems, offering a properties-driven framework to design, identify and build plural protocols across three independent but intertwined dimensions: the technical, economic and social. The aim is to build open and decentralised technologies, fair and non-extractive economic models, and plural, participatory communities - for every layer of the stack. Using our established framework, Plurality addresses each structural problem - systemic vulnerability becomes infrastructural resilience, economic extraction becomes competitiveness, and strategic dependency becomes shared sovereignty.

Beyond Europe, democratic middle powers and like-minded allies equally possess the capacity to collaboratively forge a distinct third path - one that embeds human rights, digital rights, sustainability, democratic subsidiarity, and proportionality into shared infrastructure. Drawing on successful models, including Taiwan's digital democracy and emerging initiatives in the decentralised open source space, we propose a framework that operationalises democratic values through technology in a globally enforceable way.

This broad conception of platform power demands a policy response that goes beyond competition law alone. This paper proposes concrete policy recommendations for building self-sustaining Plural protocol ecosystems; covering public infrastructure investment, fiscal instruments, interoperability mandates, legal forms for decentralised organisations, and procurement targets - proposing a strategy of transformation by existing platform actors, rather than exclusion.

Part 1:
Why Now

The Imperative for Action

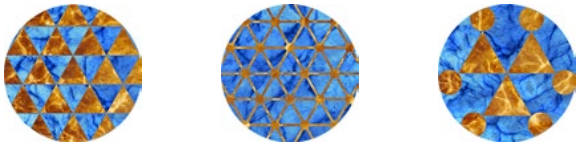
Introduction

Today, a few platforms run the digital world and, with it, our markets, our informational environment, and, increasingly, our democracy. Three problems follow.

- **Systemic vulnerability:** when a handful of firms control the infrastructure, a single outage can take down half the web.
- **Extractive economics:** platforms harvest our data, attention, and open-source labour, and hand back crumbs - Artificial Intelligence compounds this.
- **Strategic dependency:** Europe's data lives on foreign soil, governed by foreign law and run on platforms whose rules are set beyond European reach.

But the biggest underlying issue isn't that these platforms are foreign. It's that they're **centralised**. European Big Tech would behave the same way; centralisation is the deeper challenge, and regulation only treats its symptoms.

The answer is a different architecture: **Plural protocol ecosystems**. Think ecosystems not champions; technical decentralisation not centralisation; community-led protocols not corporate-led platforms and most importantly - make digital infrastructures serve their builders, creators and users as first priority.



The Perils of the Power of Centralised Digital Platforms

The concentration of power in the digital economy is no longer a prospective concern; it is a structural condition of the present. A handful of large platforms now mediate access to markets, information, social connections, and increasingly, public infrastructure itself. As the Observatory on the Online Platform Economy (Busch, Graef et al., 2021) identified, the control exercised by these firms extends well beyond classical notions of market power: it encompasses power over businesses, power over consumers, and power over society and democracy at large. This broader conception of platform power - rooted in network effects, economies of scale and scope, and the self-reinforcing logic of data accumulation - turns routine digital incidents into systemic control, leaving citizens, businesses, and governments at the mercy of decisions they did not influence and cannot easily contest.

The result is not just digital fragility, but a steady erosion of Europe's economic potential and democratic agency. In practice, these dynamics are already reshaping Europe's digital landscape in three concerning ways:

1. **Systemic Vulnerability:** Currently, a handful of Big Tech firms hold a large part of digital services, including infrastructure, cloud, data, and service platforms (Busch C, Graef I, 2021; European Commission 2020; Baur, 2025). This creates single points of control and failure, leaving Europe vulnerable to geopolitical pressure and cyber-attacks. When platforms become the infrastructure through which public and private life operates, their gatekeeping role shifts from economic to political: they become, in effect, regulatory structures of the social (Busch, Graef et al., 2021). Similarly, when these centralised services fail (deliberately or not), entire digital ecosystems are exposed. Recent examples include the 'Blue Friday' CrowdStrike outage of 2024, which jeopardised cyber security worldwide (Pupillo, 2024) and the 2025 AWS Outage (Barua, 2025), which paralyzed 40 % of global web traffic in an instant.

2. **Extractive Economics:** Dominant platform ecosystems like cloud, search, social media, and Artificial Intelligence platforms operate through a mode we describe as value extraction at scale. They capture data, attention, open-source code, and the economic value of network effects from users, builders, and creators, offering digital services at near-zero marginal cost in return (see Zuboff, 2019; Wu, 2025). Content creators earn cents while platforms pocket dollars; small businesses pay rising platform taxes to reach their own customers; and open-source communities build the foundations on which proprietary empires are constructed.
   AI repeats this pattern at a new order of magnitude: contributions from users, creators, and open-source builders are absorbed into training datasets, and the resulting model value accrues almost entirely to a small number of providers. This extraction fundamentally misaligns incentives between platforms and their ecosystems. Platforms extract because the structure of digital markets makes extraction the path of least resistance, and because that structure is self-reinforcing in ways that resist correction at the margin. Regulation aims to address the symptoms, but not the cause; addressing extractive power is a question of architectural logic.

3. **Strategic Dependency:** Outside of European jurisdiction, Europe's data, innovation, and sovereignty increasingly reside within centralised platforms and infrastructure controlled

[1] The European Parliament's resolution of January 2026 (471–68) noted that "the EU relies on non-EU countries for over 80% of digital products, services, infrastructure, and intellectual property."

by non-EU actors. These actors have the power to quietly distort how societies communicate, deliberate, and govern themselves, concentrating decisions over public life in the hands of those private actors who are neither accountable to nor aligned with democratic norms (see Bradford, 2023). Further, laws such as the US Foreign Intelligence Surveillance Act (FISA) and the CLOUD Act, alongside China's cybersecurity mandates, allow foreign governments to access data held by their home companies regardless of where the service is physically provided. Europe is trapped between two economic models of digital hegemony, both anti-ethical to democratic values.
As pointed out in the influential policy paper "The European Way" (Zenner, Kai, et al, 2025), dependence on foreign technologies for the most basic digital infrastructure puts the sovereignty of both citizens and states at risk. This dependency on foreign, centralised actors is, at its core, a question of sovereignty. When foundational services are unilaterally controlled from outside Europe – whether in legal, technical, or operational terms – Europe's capacity to choose and adapt narrows. Even when data is hosted and processed locally, external jurisdictions and corporate decisions can dictate access, continuity, and the rules of participation, creating a profound accountability gap. But even if those centralised actors were based in European jurisdictions, the core problem would remain untouched: it is the concentration of power, not the location of the headquarters, that hollows out sovereignty and resilience. A single dominant provider becomes an indispensable intermediary whose failure, capture, or unilateral decision can disrupt the whole system, independent of where it is located. Winner-takes-most incentives present in the digital sphere produce the very lock-in and erosion of competition that the plural approach exists to prevent. Relocating control to Europe would close the jurisdictional accountability gap while leaving the deeper architectural gap open.

Systemic vulnerability, extractive economics, and strategic dependencies are not about the geographical location of the digital firms but about the competitive logic that favours the centralisation of power. A European 'big tech' would not solve the problem. Businesses aimed at increasing returns and exploiting network effects tend, over time, to produce *winner-takes-most* outcomes and lock-in effects. This stifles healthy competition and destabilises market equilibria.

The European Union has responded to the competitive power of big tech firms with an ambitious digital regulatory programme. Most notably, by targeting digital firms not by size alone but structural diagnosis, using regulation to level the playing field for any firm considered a digital *gatekeeper*[2] - focusing on regulating *core platform services* in the domains of operating systems, search, app stores, social networks, and, among others, messaging. The process is to impose ex-ante rules when a firm's digital platform holds significant control over a critical gateway between businesses and consumers, has a substantial impact on an internal market, and an entrenched and durable market position. The diagnostic value lies in what it concedes: the gatekeeper is a private rule-maker, governing the relationships between businesses and people alike by providing indispensable economic platforms. In this context, platforms often enable economic network effects, resulting in a tendency towards platform monopolization, lock-in, and centralised control. These instruments aim to constrain gatekeeper behaviour, restore contestability to digital markets, and create conditions for sovereign European data infrastructure. Yet the limits of such regulatory programmes are equally clear. The legislation aims to level market dominance by governing what platforms may and may not do, but does not change the underlying architectural logic through which this power accumulates. They focus on regulating incumbents; they do not constitute successors.

[2] See: Digital Markets Act.

In an era where bits increasingly govern over atoms, digital supremacy is becoming the precursor to real-world power. Europe possesses both the motivation and the means to offer a viable alternative before winner-takes-all outcomes become irrevocably cemented. This alternative lies in a fundamental transition: moving away from extractive platform gatekeepers and towards systems built on open protocols, shared governance, and genuine agency for users, builders, and creators. The challenge facing democratic societies across the globe is whether digital infrastructure can be built on foundations that democratise rather than concentrate power. This is the idea behind ⿻ Plural protocol ecosystems.

The Vision: ⿻ Plural protocol ecosystems

In recent years, the EU has articulated a value-driven direction for its digital future. The European Declaration on Digital Rights and Principles (European Commission, 2022), signed by all Member States, commits to a common strategy of digital sovereignty that puts citizens at the centre, aligned with fundamental European values and rights. These core principles – citizens first; digital solidarity and inclusion; freedom of choice; participation; digital safety, security, and empowerment; and digital sustainability – must be baked into the very architecture of the technical systems built by Europe.

Our vision is for the EU to pioneer and scale a compelling, viable, and competitive alternative to the centralised, extractive, and misaligned digital platforms it relies on today. Europe can achieve this by defining, designing, and building plural infrastructure that encourages innovation while embedding citizens' interests and EU sovereignty into the technology itself.

To achieve this, we propose ⿻ Plural protocol ecosystems[3], synthesizing the best elements of existing models. From the European tradition, we prioritise human rights, democracy, and collaborative forms of governance as non-negotiable foundations. From the US economic model, we emphasize dynamic, market-driven, entrepreneurial ecosystems open to global innovation. From the Chinese model, we adopt proactive public investment that steers technology toward a model that serves a European mode of public interest and common good.

The paradigm of ⿻ Plurality is best understood as providing technological and methodological foundations to harness collaboration across social difference. In practice, this paradigm can be understood in different ways, from governance processes to institutional design; taking the recognition and strengthening of connections between individuals as the priority to designing political, economic, and social mechanisms. In the digital realm, ⿻ Plurality designs infrastructure that takes these connections seriously. Open ecosystems of digital protocols enable this far better than closed platforms. Protocols prescribe the formal rules that determine how digital systems interact, shaping whether the design of the political, economic, and social mechanisms maximise positive-sum interactions between civil society, government institutions, and private entities.

[3] Our commitment to the inclusion of the "⿻" Plurality unicode is to emphasise its methodological significance.

A Foundation of Strategic Precedents

Our vision builds on recent European and international policy and civic-tech initiatives that converge on a shared idea: embedding governance and democratic values directly into digital infrastructure. In Europe, *The European Way (2025)* sets out principles such as principled governance, interoperability, resilience, trust, sustainability, and decentralisation, emphasising the need for coordinated action to realise existing potential. Similarly, *Rebalancing Europe's Digital Power (2025)* argues for "decentralisation-by-design" as a foundation for digital sovereignty, shifting regulation from reactive enforcement to built-in, ex-ante compliance mechanisms. Complementing these approaches, Taiwan's digital democracy model through initiatives like g0v, the Presidential Hackathon, and vTaiwan demonstrates how open-source collaboration and structured deliberation can integrate citizens directly into policymaking, improving responsiveness while reducing capture by either state or commercial actors. Together, these examples point to a model of digitally enabled governance in which sovereignty, accountability, and participation are built into systems rather than enforced after the fact.

Building on these precedents, a Plural protocol ecosystem is guided by four core tenets:

1. **Ecosystems over Champions:** Following the EU's motto "United in Diversity", Europe should cultivate diverse ecosystems where multiple organisations, communities and initiatives collaborate and compete in the market, rather than betting on "national champions" prone to distort those markets by acting as gatekeepers.
2. **Community-led Protocols over Corporate-led Platforms:** Power and governance must be plural and participatory, and value distribution must be fair. Decision-making should be collaborative and situated as close to the community as possible to simultaneously serve common and self-interests.
3. **Technical Decentralisation over Centralisation:** Compute, data, and infrastructure should rest on structures that resist capture through unilateral control. By ensuring resilience through decentralisation, we acknowledge decision-making at the local and community level.
4. **Builder, Creator and User-centered:** Infrastructure should reward contributors – creators, builders, and users – ensuring a fair environment where value flows back to the communities generating it, rather than being siphoned off by intermediaries.

This vision is not driven by nostalgia for an earlier internet. It is an attempt to redeem the internet's founding ethos at scale. Technological development has crossed a threshold – modern cryptography, open standards, and civic-tech practices – that makes plural, participatory digital infrastructure realistic, giving Europe the means to pioneer a digital model that modernises its society, institutions, and markets alongside its technology.

Defining Protocols as Formal Digital Foundations

To embed and operationalise European democratic values, we must specify the kinds of digital 'objects' that sit at the core of our theory of change: protocols. Put simply, protocols are the roads of digital infrastructure, running the full height of the stack from the foundations that operate the Internet to the applications people actually use. An open protocol - like the Simple Mail Transfer Protocol (SMTP), the mechanism behind email - is a public highway that anyone can travel and build on; a closed protocol - like Apple's iMessage or WhatsApp's XMPP - is a private toll road whose owner dictates who may enter, at what price, and on what terms. Determining when and why these roads should be open, fair, and equitable is essential for digital infrastructure to serve the common good, rather than the interests of digital gatekeepers. This makes *protocols* the most direct route from principles to enforceable properties of digital ecosystems.

In technical terms, a protocol is a formal specification defining the rules, formats, and procedures for interaction between entities within a system. It specifies the syntax (the language and structure), the semantics (the affordances and interpretations of interactions), and the mechanisms (error handling, state transitions, and security) that enable diverse, independent implementations. Protocols develop and use open standards to interoperate with other systems predictably and reliably, and extend far beyond simple network communication to encompass governance mechanisms, collaboration tools, economic coordination, identity systems, and social media infrastructures.

We use the word protocol broadly in exactly this sense, across the full height of the stack. At the base sit transport protocols such as IP, HTTP, and SMTP, the kind of foundational plumbing the EU Sovereign Tech Fund calls Open Digital Base Technologies (EU-STF, 2026), those required to operate the Internet and build software. Higher up sit protocols for settlement and exchange, for identity and trust, and for application-layer coordination. These are not equivalent. A protocol's layer determines what work it does. What makes a protocol plural is structural rather than positional. It is an open specification with many independent implementations, at whatever layer it sits.

This structural feature is also what separates a protocol from a platform. A protocol is a specification that allows for multiple independent, modular implementations, whereas a platform is typically a single, centrally controlled implementation. A proprietary platform like Facebook may offer protocol-like features (APIs, data formats, etc.), yet remain a singular implementation under centralised control. On the other hand, at the infrastructure layer, the IP, HTTP and SMTP have innumerable implementations across different hardware and operating systems, all compatible due to their common set of public specifications. The Ethereum infrastructure also demonstrates this: the availability of multiple independent clients (Geth, Nethermind, Besu, Erigon, Reth), written in different programming languages, ensures that no single implementation can compromise or capture the network. Similarly, the AT Protocol demonstrates this on the social media layer: while Bluesky provides a reference implementation, the specification is open, allowing independent account providers like Eurosky to interoperate seamlessly. This multiplicity is not incidental – it is essential to resilience, innovation, and resistance to capture. By keeping the road public rather than proprietary, Europe can build its digital sovereignty on a foundation of diversity rather than dependency.

Part 2:
The ⿻ Plurality Dimensions

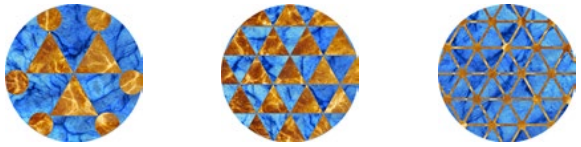
Operationalising Democratic Values in the Digital Sphere

Introduction

If protocols are the shared language of the digital world, then ⿻ Plurality is the logic that prevents them from collapsing into winner-takes-all. ⿻ Plurality lives across three dimensions - technical (open, decentralised, and verifiable), economic (fair and non-extractive value-flows), and social (participatory governance and real exit rights). All three must hold at once.

The foundational properties of each dimension need to be effectively implemented to give rise to emergent properties like verifiable trust, credible neutrality, composability, fair prosperity, and agency. The super-emergent properties - sovereignty, resilience, competitiveness - are the result of all three dimensions being alive. You can't engineer these directly. They are created from the ground up.

This rewires the human role. Today, users generate the data, builders make the apps, creators produce the content, while centralised platforms capture the value and make the rules. A plural ecosystem flips this. It shifts from consumer to user, builder, and creator - a digital Enlightenment from dependency to agency, from consumption to co-creation.



Plurality: A Definition

If protocols provide the shared language for digital interaction, Plurality is the structural, value-based logic that ensures this language supports a diverse and cooperative society. Rather than a set of technologies or attributes, Plurality is an emergent model for organising digital systems that facilitate collaboration across social difference, without requiring uniformity or cascading into centralised control.

The **Core Principles of Plurality** are satisfied when digital systems are designed beyond winner-takes-all dynamics toward a model of shared agency:

1. **Collaboration Across Difference:** Diverse communities, implementations, and perspectives coexist and interoperate. No single entity, standard, or viewpoint dominates; the system is designed to bridge differences rather than ousting them.
2. **Distributed Power and Agency:** Decision-making authority is meaningfully distributed across a wide range of stakeholders, effectively eliminating any single point of control or failure. Within this framework, individual communities are empowered to retain autonomy even as they participate in larger, interconnected networks.
3. **Decentralised and Open Protocols:** This is technically anchored by protocols that exist as open specifications with a multiplicity of implementations; as a result, competition is redirected away from a struggle for control over the protocol itself and towards the quality of service provided by different members of the community. By combining decentralisation and diversity, this model fosters a systemic resilience that protects the digital environment from both external capture and internal collapse.

Foundational, emergent, and super-emergent properties

To create digital systems as outlined above, the core principles of Plurality must be reflected in the foundational properties of the underlying protocols. *Foundational properties* are the enforceable building blocks of a system; they are elements that are operationally enforceable by design (e.g., decentralised architectures, privacy-by-design, non-extractive value distribution; participatory governance, etc.). When these foundations are sound, they give rise to emergent properties: desirable outcomes that follow naturally from a robust architecture (e.g., verifiable trust, composability, agency, etc.). Attempting to force 'emergent' outcomes without a sound 'foundation' creates systems that claim false plurality: vulnerable to capture, extraction, and centralisation. The architecture and governance must be sound from the ground up. When all three dimensions work together, a Plural protocol ecosystem achieves what we call *super-emergent properties* - sovereignty, resilience, and competitiveness. These cannot be engineered into a single layer or manifested by a single implementation. They are the earned outcomes, emerging reliably only when all dimensions of Plurality are fully integrated.

The Three Dimensions of Plurality

The *foundational properties* span three dimensions: technical, economic, and social. All three must be satisfied for a protocol ecosystem to be truly Plural.

- Technical Plurality: Focuses on structural resilience and neutrality through foundational properties like open source code, decentralised architectures, interoperable standards, privacy-by-design, and verifiable execution. It requires interoperability, verifiable execution, and auditability, giving rise to emergent properties like verifiable trust, credible neutrality, composability, and contextual integrity.
- Economic Plurality: Addresses the flow of value to secure a non-extractive distribution of value and transparent incentives. This involves purposeful public funding mechanisms and data dignity, ensuring fair prosperity and sustainable funding of public goods like the protocols themselves.
- Social Plurality: Manages the human, governance, and legal layer through multi-stakeholder governance and participatory decision-making. It prioritises bridging deliberation, generative openness, and the right to exit and fork, ensuring systems are effectively governed by their builders, creators, and users rather than external shareholders.

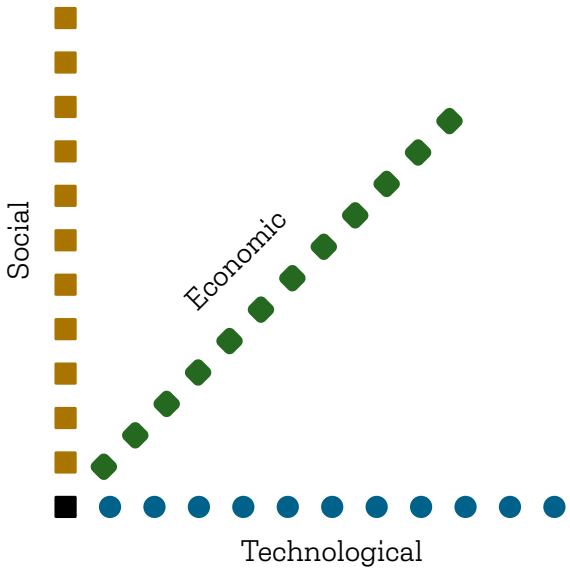


Figure 1: The Three Dimensions of Plurality

It is easy to mistake the implementation of a single principle or property for plurality as a whole. While the building blocks described might be useful on their own, they only fulfill their plural potential when they work together across all three dimensions. Done right, the Plurality dimensions approach has the potential to create a digital framework that embeds European democratic values by design.

Plurality is NOT:

- **Decentralisation alone:** Technical decentralisation is a vital sub-property, but without economic or social considerations, systems remain fragmented or exclusionary.
- **Democracy alone:** Voting mechanisms alone lack the necessary teeth without a robust technical infrastructure and economic fairness to support them.
- **Open source alone:** Transparent, auditable code is a prerequisite for trust, yet it does not guarantee fair governance or non-extractive economic models.
- **Web3 alone:** Consensus protocols provide a reliable record, but they require a social dimension as a resolution mechanism for human dissent.
- **Multistakeholder-ism alone:** Representation is a key social property, but it can become performative without the technical empowerment to enact and enforce decisions.

Plurality IS:

- **Emergent order:** A resilient state that arises as foundational properties are increasingly satisfied across all three dimensions (technical, economic, and social plurality).
- **Ecosystems over champions:** A shift toward many diverse actors cooperating on shared protocols rather than a single dominant 'winner.'
- **Protocols over platforms:** Prioritising open specifications with multiple implementations over singular, centrally controlled platforms.
- **Communities over corporations:** Aligning the governance of digital spaces with the participants who are part of them, rather than distant owners or shareholders.
- **Cooperation over competition:** Leveraging technical architecture to enable positive-sum games where the success of one participant benefits the whole network.

The figure below visualises the foundational, emergent, and super-emergent properties against the three dimensions.

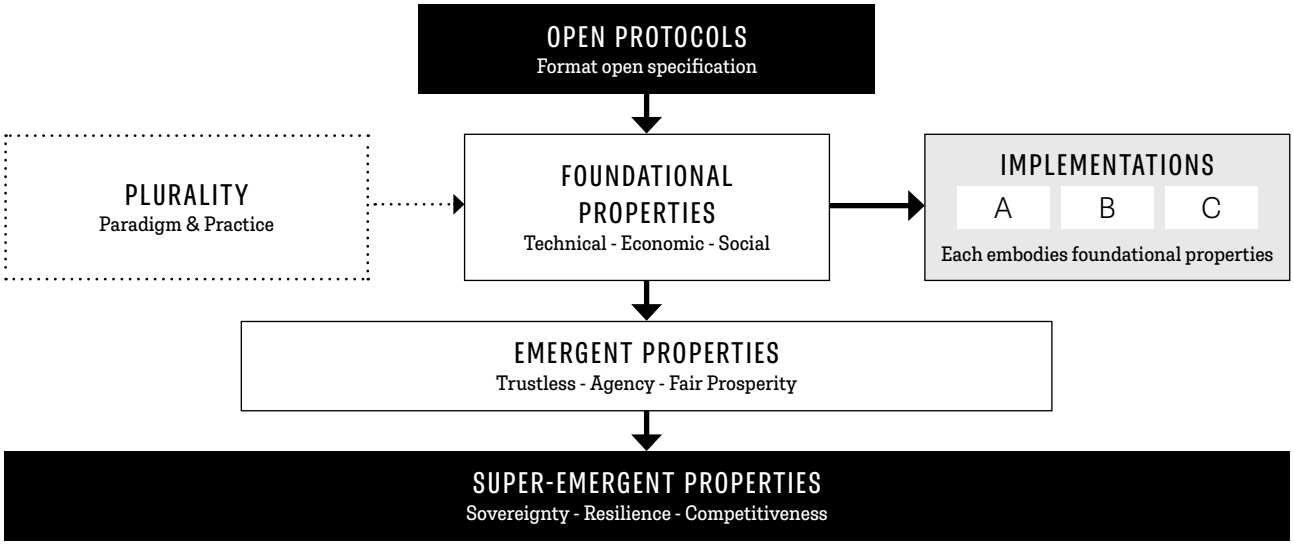


Figure 2: Plural Protocol Ecosystems

Defining the foundational properties for each dimension will detail what true ⿻ Plurality can look like.

The Technical Dimension: Open and Decentralised Technologies

The *foundational properties* of the technical dimension include:

- **Open-source Code:** All protocol implementations, standards, and core infrastructure must be openly auditable. This ensures transparency, enables community contribution, and prevents vendor lock-in.
- **Decentralised Architecture:** Decentralised infrastructure design eliminates single points of control or failure. Following Vitalik Buterin's d/acc (defensive acceleration) principles (Buterin, 2025), system architectures should be designed to minimise centralisation both in relation to physical hardware dependencies (computer and compute) and software execution design, so as to eliminate reliance on centralised nodes and actors, maximising performance resilience.
- **Informational Congruency:** Protocols must implement transparent, verifiable methods - such as consensus mechanisms, digital signatures, Merkle trees, checksums, etc. - to enable trustless computation, ensuring network integrity without centralising authority. This includes ensuring that information remains coherent, attributable, and non-distorted as it traverses heterogeneous social, technical, and institutional contexts.
- **Interoperable Open Standards:** Enabling permissionless innovation, standards allow anyone to build compatible services. This can be exemplified, for example, through portable identity, composable data schemas, and algorithmic choice. Access to coherent, interoperable, open standards must be a key foundation of open ecosystems.
- **Privacy by Design:** Protocols must protect information flows in accordance with context-appropriate norms. Following Helen Nissenbaum's (2004) framework, privacy violations occur when information crosses inappropriate contextual boundaries. Crucially, as not all data in these systems qualifies as 'personal' under EU law, protocols should deploy graduated privacy measures calibrated to reasonable identifiability risks. Rather than a retrofit, data protection - including minimisation and pseudonymisation - must be integrated into the architecture by default. In decentralised ecosystems without a single controller, these safeguards must be structural and encoded in the specifications.
- **Secure and Verifiable Execution:** This property ensures the protocol's robustness and integrity, protecting user assets and data against attacks, and enables digital information and actions to be proven legitimate and accurate without relying on any central authority. Through technologies like - but not limited to - Decentralised Identifiers (DIDs), Verifiable Credentials (VCs), and Zero-Knowledge Proofs (ZKPs), systems enable trust-anchoring, allowing for selective-disclosure and verification of privacy-preserving data, attributes, or information - including anything from personal attestations to data sources.

- **Auditability:** Structural legibility makes a system and its operations openly inspectable by anyone, not just its builders. Protocol logic, decision rules, and data flows must be verifiable by independent actors, removing the need to trust any single operator. Where full transparency clashes with legitimate privacy interests, cryptographic techniques such as ZKP enable selective, privacy-preserving auditability - proving the system follows its own rules without exposing underlying data. In practice, technical accountability should be a structural property of the system rather than a discretionary act of its operators.

The Economic Dimension: Fair and Non-Extractive Economics

The *foundational properties* of the economic dimension include:

- **Non-Extractive Value Distribution:** Contributors - whether users generating data, developers building applications, or creators producing content - must receive fair compensation. Drawing on *Radical Markets (2018) and Plural Money (2022)*, economic mechanisms must align value capture with value creation.
- **Transparent Economics:** Fee structures, revenue models, and value flows must be documented openly and explained clearly. Hidden extraction and 'dark patterns' must be architecturally prevented to chart a clear path to sustainable, non-extractive business models.
- **Purposeful Public Funding Mechanisms:** Moving beyond winner-takes-all public and private funding, Plural Funding models (RadicalxChange, 2026) - including quadratic funding, retroactive public-goods funding, and cooperative ownership - aim to distribute both capital and governance power among ecosystem actors. These models tie allocation to the breadth of support or the demonstrated impact of a contribution rather than to the capital or promises of any single actor, redirecting resources toward what is widely valued rather than what is already well-funded.
- **Data Dignity:** Data providers must have a say in when, how, and where their data is used, in exchange for payment. In the European legal order, the link between individuals and their informational self-determination is unbreakable. Grounded in the EU's General Data Protection Regulation (GDPR) and the EU Data Act, this right extends to all data generated through interaction - even that which falls outside the strict definition of personal data. Plural protocol ecosystems serve as the natural infrastructure for this framework, making data access the default and lower switching costs through built-in portability.

The Social Dimension: Plural and Participatory Communities

The *foundational properties* of the social dimension include:

- **Generative openness:** The general right to participate in a protocol should not be limited to specific groups, organisations or individuals and should include not only openness to use but also have a voice; becoming an active, co-creative, and 'generative' member of the community.

- **Participatory Governance:** Decisions should be reflected through rough consensus across differences rather than majoritarian dominance or elite capture. Governance should be inclusive and distributed, translating local knowledge into 'common knowledge', and transforming common-knowledge problems into collaborative solutions. Tools like quadratic voting and conviction voting enable nuanced expressions of preferences and coalition formation, while 'bridging-based ranking' rewards proposals that earn cross-group endorsement, shifting the incentive from one of ousting to that of overlap.
- **Bridging deliberation:** The design of governance and deliberation mechanisms should be transparent and composable rather than centrally dictated, such that content ranking must shift from engagement-maximisation to understanding-maximisation, prioritising 'bridging' (cross-community consensus) and 'balancing' (fair representation of diverse views). Drawing from vTaiwan, Pol.is, Bluesky's labeling services, and Ethereum's Improvement Proposal process, alignment assemblies should utilise a process of broad discovery followed by representative small-group deliberation - to enable democratic legitimacy at scale.
- **Social Provenance Transparency:** A system should enable the traceability of content or decision provenance ('active labeling') to reveal which communities embrace or contest specific content. By surfacing whether information reflects shared ground (broad consensus) or different perspectives (community-specific views), this approach allows users and co-owners to navigate online content (the 'social graph') with richer context for decision-making.
- **Right to Exit and Fork:** Communities should retain the ability to migrate from services and communities or fork protocols. This 'credible exit' - as exemplified by the Ethereum Classic fork - prevents capture and ensures accountability. Similarly, social portability should function like phone number portability, allowing users and co-owners to take their social graph to new protocols, forcing them to compete on quality of care rather than lock-in effects.

Emergent Properties

Desirable emergent properties can only be manifested by enforcing foundational properties. Each emergent property is a consequence of the effective implementation of multiple foundational properties in the same dimension.

The *foundational properties* outlined above enable the following *emergent properties*:

- **Verifiable Trust:** Trust in intermediaries is replaced by trust in protocol infrastructure. Verifiability is enabled by the trust frameworks that decentralised infrastructures implement. The number of trust assumptions is minimised.
- **Credible Neutrality:** Systems designed not to favour specific participants, including their builders, where the aim is not about being value-free but verifiably fair in the rules of engagement.
- **Distribution of Economic Power:** Increased competition and market health are inspired by the open nature of Plural protocol ecosystems.

- **Composability:** Permissionless, modular innovation that allows projects to build atop existing protocols without seeking approval.
- **Authenticity and Explainability:** The ability for individuals to use identifiable attestations of attributes as verifiable, secure, and privacy preserving-tools for enabling digital trust based on the principles of self-sovereign identity.
- **Contextual Integrity:** Ensuring that 'data access' and 'permitted use' are context-dependent. Consent in one context does not imply consent in another.
- **Fair Prosperity:** Value capture is aligned with contributions.
- **Sustainable Financing:** Stable and accountable funding for shared infrastructure that remains free from the restrictive obligations of external funders.
- **Agency:** A context where individuals and communities maintain meaningful control over their data and digital lives.
- **Accessibility:** The de facto possibility for everybody to participate.
- **Accountability and Shared Responsibilities:** The possibility to show leadership by taking ownership and responsibility of one's sphere of influence -enabling others to do so too, beyond single individuals.
- **Democratic Legitimacy:** Technology that strengthens rather than undermines collective self-governance.

Dimension	Foundational Properties (Enforceable)	Emergent Properties (Desirable)	Super-Emergent Properties (Multidimensional)
Technical	- Open-source code - Decentralised architecture - Informational congruency - Interoperable open standards - Privacy by design - Secure and verifiable execution - Auditability	- Verifiable trust - Credible neutrality - Composability - Authenticity and explainability - Contextual integrity	- Sovereignty
Economic	- Non-extractive value distribution - Transparent economics - Purposeful public funding mechanisms - Data dignity	- Fair prosperity - Sustainable financing - Distribution of economic power	- Resilience - Competitiveness
Social	- Bridging deliberation - Generative openness - Participatory governance - Social provenance transparency - Right to exit and fork	- Agency - Accessibility - Accountability and shared responsibilities - Democratic legitimacy	

Figure 3: Foundational, Emergent, and Super-Emergent Properties, for all dimensions

Managing Plural protocol ecosystems in the real world

Financing the Transition

Non-extractive economics require non-extractive funding. 'Directly Plural' taxes offer a model: revenue instruments that not only fund infrastructure but also actively enact plural principles by discouraging concentration. Three models are particularly suited to the European context:

1. **Progressive taxes on concentrated computational power,** raising revenue while discouraging the monopolisation of Artificial Intelligence capabilities.
2. **Taxes on digital advertising,** with revenues earmarked for alternative, non-surveillance-based business models.
3. **Taxes on the exclusive control of digital assets** (such as spectrum or virtual spaces) to support commons-based alternatives.

The EU Emissions Trading System provides a domestic precedent: a levy on carbon-intensive activity that was initially resisted but ultimately accepted because revenues were earmarked for the Innovation and Modernisation Funds (European Commission 2018). The same logic applies here: levies on extractive digital models fund plural infrastructure that those very actors will increasingly rely upon. On the demand side, continuous public subsidies for adopting open plural services—as demonstrated by Taiwan's success with open-source SaaS - can close the loop between public revenue and market adoption. Deep funding complements these sources by mapping the dependencies within an ecosystem and directing resources toward the foundational layers that typically attract the least investment. When combined with quadratic funding - where matching funds prioritise projects with broad community support - and retroactive public goods funding, which rewards protocols based on demonstrated impact rather than promised outcomes, these instruments form a financing toolkit whose logic perfectly matches the architecture it aims to build.

Guarding Against the Drift Toward Dependence

The properties of a Plural protocol ecosystem must be defended against a natural tendency toward systemic decay. As the Trustless Manifesto (Weiss, Y., Buterin, V., & Posner, M., 2025) articulates, decentralisation often erodes through convenience rather than sudden capture. Systems drift toward dependence automatically; each minor concession - a hosted node here, a whitelisted relayer there - feels harmless until these dependencies become a habit and the infrastructure turns rigid. The history of email provides a cautionary tale. While theoretically open, the complexity of spam filters and blocklists has made it practically impossible for ordinary users to run their own servers. Email became effectively centralised not because the protocol closed, but because practical trustlessness was lost. To maintain plural integrity, ecosystems must resist this drift by internalising the following rules:

- **Delegation may exist; dependence must not:** Users may delegate complex tasks for convenience, but the system must never make that delegation a requirement for participation.

- **Openness in practice, not openness by name only:** Access and operation must be both possible and economically feasible for the average participant, not just reserved for specialists.
- **Affordability and easy exit:** Participants must maintain the practical ability to leave or fork the system without risking the loss of their data or social capital, such as their network or reputation.

To maintain efficiency and enforceability, systemic challenges should be addressed through a tiered approach:

1. **Technical Level:** Issues should be resolved at the technical level first to ensure the most robust enforcement.
2. **Economic Level:** If a technical solution is not yet possible, leverage economic incentives.
3. **Social Level:** If neither technical nor technological resolutions are feasible, address the issue through social governance.

This hierarchy supports the view that technical solutions restrict affordances, scale, and are cost-effective, whilst social governance is often complex and difficult to enforce.

Identifying Plurality Principles in Protocols

Plural Protocol Assessment Framework

Plurality can be a structural framework for organising digital systems. To accurately align existing or emerging protocols with Plurality principles, we propose a two-tier assessment process.

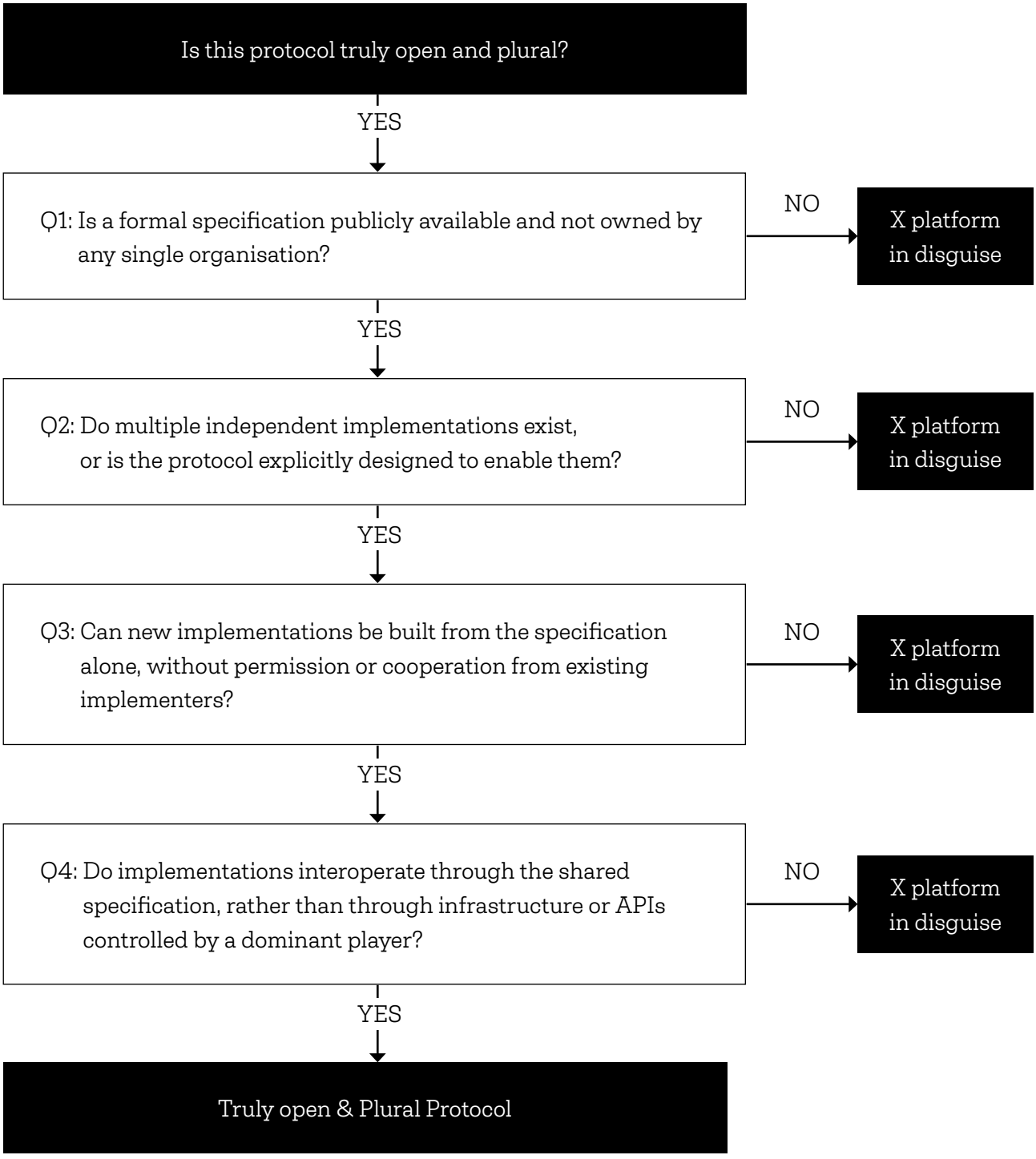
Tier 1: Minimal Protocol Eligibility *(Is this protocol minimally technically plural?)*

The first step is to determine whether a system is truly a protocol or merely a masqueraded platform. If a system fails any of the following criteria, it is ineligible for the classification of Plurality.

- **Ownership:** Is a formal specification publicly available and not owned by any single organisation?
- **Multiplicity:** Do multiple independent implementations exist, or is the protocol explicitly designed to enable them? Are operations decentralised and all components redundant?
- **Permissionless Entry:** Can new implementations be built from the specification alone, without permission or cooperation from existing implementers? Can anybody run any component of the stack without permission?
- **True Interoperability:** Do implementations interoperate through the shared specification, rather than through infrastructure or APIs controlled by a dominant player?

Systems failing Tier 1 are not protocols; they are platforms masquerading as protocols. Systems that pass Tier 1 are then evaluated across the three dimensions of Plurality. We analyse where a system sits for each property to determine its maturity.

Plural Protocol Eligibility Test



Tier 2: Assessment of Foundational Properties on a Spectrum

Systems that pass Tier 1 proceed to a qualitative evaluation. Because these properties often exist on a scale of maturity, they are assessed by the degree to which they are operationalised.

Technical Plurality

- Code Openness: To what degree is the code fully open-source versus proprietary?
- Architectural Decentralisation: To what degree is the system designed without single points of failure and with architecturally disabled decision-making centralisation?
- Interoperability: To what degree does the system achieve full protocol standardisation versus a permissioned ecosystem?
- Informational Congruency: To what degree are decentralised consensus and transparent mechanisms used rather than opaque or centralised ones?
- Contextual Integrity and Privacy: To what degree does data maintain cross-contextual integrity rather than being controlled or contained by non-owners?
- Data Sovereignty: To what degree is data user-controlled and portable versus platform-locked?

Economic Plurality

- Value Distribution: To what degree is the economic model contributor-aligned versus extractive?
- Revenue Transparency: To what degree are revenue flows transparent versus opaque?
- Funding Model: To what degree are plural mechanisms used for financing versus narrow investor control?
- Data Dignity: To what degree does the system facilitate fair value sharing versus offering no compensation?

Social Plurality

- Governance: To what degree is governance multi-stakeholder and collaborative versus unilateral and centralised?
- Decision Mechanisms: To what degree are distributed voting mechanisms used rather than a decision-making plutocracy?
- Moderation and Support: To what degree is moderation community-driven rather than centrally governed?
- Exit Rights: To what degree are exit rights credible, providing full portability versus vendor lock-in?

Plurality Classification and Scalable Auditing

Based on the degree to which these properties are identified, ecosystems are categorised to reflect their alignment with plural principles:

- **Truly Plural Protocol:** High identification of foundational properties across all three dimensions, demonstrating structural resilience and distributed power.
- **Emerging Plural Protocol:** Partial identification of properties in one or more dimensions; the system shows promise but requires targeted strengthening to resist capture.
- **Pseudo-Plural:** Low identification of properties across all dimensions; these systems carry a high risk of capture or extraction and require critical attention.

Importantly, this assessment does not need to be labour-intensive. Many Tier 1 and Tier 2 properties - such as open-source licensing, interoperability endpoints, governance records, and fee transparency - are structural features that audit tools can verify within hours. By automating initial first-pass analysis, human review can concentrate on the dimensions that require qualitative judgment: evaluating governance culture, community health, and the practical feasibility of exit rights rather than merely their theoretical status. Designing the framework for automated analysis from the outset ensures that compliance remains proportionate and prevents the assessment from becoming a bureaucratic bottleneck.

Our two-tier assessment sits alongside a handful of European frameworks that try to make digital values measurable rather than merely asserted. The EU's Cloud Sovereignty Framework (CSF) scores cloud providers across eight sovereignty objectives and five assurance levels (European Commission, 2025); Schwarz Digits' European Sovereign Stack Standard (ES³) builds on it for industry, adding an Artificial Intelligence dimension and a four-stage maturity model (Schwarz Digits, 2026); and Identity Valley's Digital Responsibility Goals (DRGs) rate digital solutions against seven goals - from privacy and transparency to human agency - aggregated into a Digital Responsibility Index (Meier et al., 2023). All of them share our basic instinct: don't take a claim at face value, assess it. The difference is what gets assessed. The CSF and ES³ look at a provider's service, and the DRGs look at an organisation and what it ships. We look at the protocol itself and the ecosystem around it. That is why our Tier 1 gate asks a question the others don't: is this actually a protocol, or just a platform dressed up as one? Tellingly, a cloud service could be fully EU-sovereign (top CSF score) or thoroughly responsible (high DRGI) and still be a single, centrally controlled system that fails our first test. Underneath this is a real difference in where each framework looks for safety. The CSF and ES³ find it in jurisdiction, meaning sovereignty grows as control moves inside Europe. We find it in architecture: power that no single actor can capture, wherever they happen to sit. The two aren't rivals; they answer different questions. The DRGs are our closest relative on values, overlapping clearly with our social dimension, but they ask whether an actor behaves responsibly, not whether the system's structure distributes power in the first place, and, like the CSF, they touch economic fairness only lightly. That is the gap we try to close: making non-extractive value a built-in dimension, and putting the guarantees into the protocol rather than into anyone's good intentions.

From Consumer to User, Builder, and Creator

Framing the Plural dimensions

The discrepancy between governing and contributing stakeholders in digital ecosystems is stark: users generate the data, builders create the applications, and creators produce the content - yet investors and intermediary corporations capture both governance authority and economic surplus. A Plural protocol ecosystem offers a structural alternative by realigning influence with contribution across all three Plurality dimensions.

Technical Dimension: **From Proprietary Enclosure to Open Participation.** Today's dominant platforms consume open-source code as an input and produce proprietary infrastructure as an output. Users interact through opaque interfaces; builders develop on APIs that can be revoked at any time; and creators produce content within systems whose inner workings they can neither inspect nor influence. In a Plural protocol ecosystem this relationship is reversed: open-source code and specifications make infrastructure auditable and improvable by those who depend on it; composable architectures ensure that builders can contribute, fork, and innovate without gatekeepers controlling essential services; and interoperable standards guarantee that creators and users are never locked into a single implementation. The technical shift, in essence, moves from platforms-as-black-boxes to protocols-as-commons.

Economic Dimension: **From Extractive Capture to Contributor-Aligned Value Flows.** The current digital economy is characterised by a structural asymmetry: those who generate value receive a fraction of the wealth they create, whilst intermediaries capture the surplus, resulting in a gradual loss of bargaining power and ability to innovate. A Plural protocol ecosystem addresses this at the architectural level. Non-extractive value distribution mechanisms can align compensation with contribution. For example, through token-based self-executing distribution. Transparent economics with openly documented and automated value flows replace hidden fee structures. Data dignity grants individuals and communities property rights over the data they generate or even the data products generated from it. Plural funding mechanisms replace winner-takes-all venture capital with instruments that distribute both capital and governance power. The economic shift moves from value extraction by a few to value circulation among the many.

Social Dimension: **From Unilateral Governance to Participatory Stewardship.** Perhaps the most consequential asymmetry is one of governance. Platform corporations unilaterally set the rules for governance mechanisms, content moderation, algorithmic ranking, and community norms - while users, builders, and creators have no formal voice. A Plural protocol ecosystem replaces this with participatory stewardship. Bridging deliberation ensures that the norms of a digital space are shaped by those who inhabit it. Governance based on the principle of subsidiarity enables a nuanced expression of preferences across differences. Credible exit rights, grounded in full data portability, ensure that governance authority is earned, not imposed: if a protocol's stewards fail their communities, participants can leave without losing their identity, data, or social connections. The social shift transforms users from subjects of platform governance into citizens of protocol communities.

Digital Enlightenment: From Consumer to Co-Creator

This recomposition of power is not only a structural rearrangement but also a transfer of responsibility, demanding a fundamental evolution in the individual's role. What German philosopher Immanuel Kant described in 1784 as the human departure from self-incurred immaturity, the courage to use one's own understanding, finds its contemporary digital analogue in the shift from passive consumption to active co-creation. For too long, it has been, in Kant's words, "convenient to be immature" (1784): to consume digital services without questioning their terms; to delegate data sovereignty to platforms; to accept algorithmic curation as a given; and to surrender governance to distant shareholders. A ⿻ Plural protocol ecosystem ends this convenience-by-design mentality. This does not dispute the benefits of good user experience but challenges the role users give themselves in the digital world. And in doing so, it catalyses an evolution of the user from consumer to co-creator of the digital environments they inhabit.

Users must grow from passive interface consumers into co-creative participants who manage their own identity, evaluate the protocols they rely on, and contribute to the infrastructure they depend on. Builders must evolve from developers building on proprietary platforms into co-creators of shared, interoperable protocol infrastructure - designing for auditability and composability rather than lock-in. Creators must move beyond producing content for extractive intermediaries toward claiming their stake in the value they generate, understanding data dignity, and actively shaping the moderation and governance of their communities. In each case, the trajectory is the same: from dependency to agency, from consumption to co-creation, from immaturity to societal 'Enlightenment' - the capacity for digital self-determination that the Enlightenment placed at the centre of human flourishing.

This is not a burden but a liberation - and a precondition for the emergent properties that ⿻ Plural protocol ecosystems promise. Agency, democratic legitimacy, and fair prosperity cannot be granted by benevolent platform operators; they must be exercised by empowered participants. Europe is uniquely positioned to lead this transition - not through regulation alone, but by cultivating digitally mature citizens, builders, and institutions capable of sustaining a truly plural digital order.

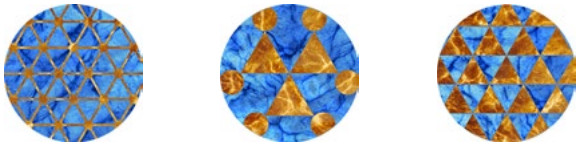
Part 3: Why a ⿻ Plural Protocol Ecosystem is the Strategic Imperative

Introduction

Europe missed the platform wave but is well-positioned to lead an open, non-extractive, and collaborative open protocol ecosystem wave. ⿻ Plural protocol ecosystems address Europe's three strategic shortcomings by enabling the following shifts:

- **Systemic vulnerability becomes resilience** - no single actor's failure or decision can take the system down;
- **Extractive economics becomes competitiveness** - anyone can build on shared infrastructure without paying the platform tax;
- **Strategic dependency becomes sovereignty** - credible neutrality assures a fair level playing field for all, while agency creates optionality.

⿻ **Plural protocol ecosystems** have the potential to be global digital infrastructures embedded with democratic values. All democratic powers are invited to co-create them.



The ⿻ Plural protocol ecosystem could span a coalition of middle powers. Not American platform capitalism, not Chinese state authoritarianism, but a non-adversarial architecture open to anyone - including US or Chinese actors - who honour internationally shared democratic values.

The preceding sections established what ⿻ Plurality is and what it can look like in the real world. The question remains: why should Europe stake its digital future on this approach? Having missed the US-led digital platform wave, Europe has an opportunity to lead the next chapter: one where its regulatory culture, civic tradition, and commitment to democratic values align naturally with the foundational, emergent, and super-emergent properties of the ⿻ Plurality dimensions outlined in Part 2. By enabling truly ⿻ Plural protocol ecosystems, Europe can ground theory in practice and attain true digital sovereignty.

Strategic Advantages of the ⿻ Plural Approach

Europe should stake its digital future on ⿻ Plural protocol ecosystems to achieve structural alignment between the super-emergent properties of plural ecosystems - sovereignty, resilience, and competitiveness - and the bloc's most pressing strategic needs - strategic dependency, systemic vulnerability, and extractive economics[4].

Systemic Vulnerability > Resilience through ⿻ Plurality

The single points of control and failure intermediaries hold make entire ecosystems vulnerable to compromise. Decentralised architectures, as ⿻ Plurality theory and the Trustless Manifesto emphasise (Weiss, Y., Buterin, V., & Posner, M., 2025), eliminate the systemic vulnerabilities of indispensable centralised intermediaries by removing them from the architectural equation. This eliminates the risk of single points of control and failure; no single actor's collapse, withdrawal, or coercion can bring the system down. Open-source code and specifications result in multiple independent technical implementations, whilst Interoperable open standards ensure no dominant implementation takes over. Crucially, this resilience must be practical: a system that requires massive servers and capital to operate has merely replaced legal gatekeeping with technical gatekeeping, concentrating risk under a different name. When digital architecture is truly decentralised, trust will move from the (hardware or software) intermediaries to the protocol itself (Verifiable trust), no operator will be able to revoke neutrality or restrict access (Credible neutrality), and a modular architecture will mean component failure won't cascade (Composability). With ⿻ Plurality properties in place, 'Resilience' ceases to be a property of any single component and becomes a property of the architecturally decentralised infrastructure as a whole.

Extractive Economics > Competitiveness through ⿻ Plurality

Currently, value created by the users, builders, and creators is captured by digital gatekeepers. Addressing the extractive power of the platform economy requires innovating the underlying economic mechanisms. By encoding non-extractive value distribution in the architecture, incentives are better aligned; *Transparent economics* result in no dark patterns; *Data dignity* maintains user ownership rights over user-generated data; *Purposeful public funding mechanisms* ensure competition incentives are not maximised toward extraction; and the *Right to exit/fork* prevents platform lock-in and increases quality-driven competition. By enabling ⿻ Plural protocols,

[4] See section 'The Perils of the Power of Centralised Platforms' in Part 1 for a description of the bloc's most pressing strategic needs.

Europe champions permissionless innovation at scale: anyone can build on shared infrastructure without seeking approval from a gatekeeper. This is *Composability* in its full form - modular innovation atop shared protocols without requiring permission - and its payoff is the distribution of economic power: European startups can build on shared infrastructure rather than reinvent the wheel or pay the 'platform tax' to digital gatekeepers, thereby reducing barriers to entry and increasing SME competition. Some of the internet's most transformative innovations - the web, email, and social media - emerged from permissionless protocols rather than closed platforms. Now, the Ethereum ecosystem demonstrates this dynamic in an economically competitive form: thousands of independent developers, projects, and organisations build on permissionless protocol infrastructure without requiring centralised mediation. With Plural properties in place, 'Competitiveness' is no longer achievable only through winner-take-all dynamics prone to capture, but rather through transparent, inclusive, and economically viable mechanisms.

Strategic Dependency > Sovereignty through Plurality

European data, infrastructure, and democratic discourse reside under foreign jurisdiction, an accountability gap that allows external actors to make decisions that European member states and civil society cannot contest. However, when foundational infrastructure has implementations across jurisdictions with *Credible neutrality* and portability *(Data dignity)*, no single actor can unilaterally restrict access *(Generative openness)*, extract data under extraterritorial law, or shape democratic discourse without accountability *(Participatory governance)*. Just as the GDPR turned privacy from a perceived regulatory burden into a global standard, other European values - personal sovereignty, fairness, and democracy - have the capacity to become embedded properties in a Plural protocol ecosystem. *Decentralised architectures* and plural implementations prohibit any single jurisdiction or corporate actor from controlling the stack. *Privacy-by-design* and the verifiability of information *(Verifiable trust)* empower data holders to interact across jurisdictions. Participation in governance processes on equal terms *(Generative openness)* taps into the collective intelligence of an ecosystem whilst simultaneously increasing engagement and commitment to it. The *Right to exit/fork* disciplines incumbents in the present, and the social fabric can reconstitute itself elsewhere when any single venue fails. *Agency* thereby ceases to be a permission granted by platforms and becomes a structural property of the stack. Individuals and communities with *Agency* maintain autonomy and diversity through deliberation that embraces differences and builds on common ground *(Bridging deliberation)*. *Contextual integrity* extends the GDPR logic from a static consent regime into a continuous, context-aware property of every data interaction - preventing what was disclosed in one context from being repurposed in another without permission. With Plurality properties in place, 'Sovereignty' ceases to be a jurisdictional issue and becomes a designed property of the infrastructure architecture.

The Cost of Inaction - Sovereignty, Resilience, and Competitiveness Risks

The European Parliament's (2026) report on technological sovereignty, adopted in January 2026 by 471 votes to 68, underscored the urgency: the EU relies on non-EU countries for over 80% of digital products, services, infrastructure, and intellectual property. Additionally, excessive dependence on non-plural foreign actors in cloud computing, semiconductors, AI, and cybersecurity threatens Europe's competitiveness, democratic resilience, and security. As MEPs Alexandra Geese (Greens/EFA) and Axel Voss (EPP) both put it bluntly, Europe has become a 'digital colony' (Schaefer, 2026).

The risks of maintaining the status quo are stark:

- **Data Alienation:** European data increasingly resides on foreign-controlled infrastructure subject to extraterritorial laws (including the US CLOUD Act, FISA, and Chinese cybersecurity mandates). The longer Europe waits, the harder this becomes to reverse. As foundation model training becomes the primary commercial use of data, European data ingested into foreign models cannot be retroactively reclaimed. Every month of inaction transfers not just data but the intelligence derived from it into systems governed by non-European interests. The window to assert meaningful control is narrowing with each training run.
- **Innovation Dependence:** European builders increasingly depend on US digital platforms and Chinese supply chains, and this dependence compounds with each technology generation. Developers train their skills, workflows, and codebases around foreign APIs. Startups design their products on non-plural foreign infrastructure. Each layer built on top of these dependencies raises the switching costs for the next generation of European innovators. The result is a gradual erosion of European innovation capacity, as each year spent building exclusively within foreign ecosystems makes it harder to build outside of them.
- **Democratic Vulnerability:** Non-plural foreign platforms already shape European public discourse, with decision-making authority over content moderation residing outside European democratic accountability. As Artificial Intelligence agents begin to mediate how citizens access information and interact with institutions, the stakes extend far beyond social media. These agents are increasingly woven into the everyday machinery of governance, from drafting legislation to informing judicial reasoning to framing policy choices. The question is no longer just who moderates online content, but who shapes the tools that European lawmakers, judges, and civil servants rely on to do their work. Inaction means these tools will be designed elsewhere, for purposes set without European input.
- **Value Extraction:** Extractive platform economics concentrates wealth and power, but the deeper cost of inaction lies in the feedback loop it creates. Extracted value funds the next round of infrastructure investment abroad, deepening European dependence and enabling further extraction. This gap widens with every cycle. Each year of inaction increases the capital investment required to build sovereign alternatives, while the communities generating that value - creators, developers, and users - see diminishing returns on their contributions to the European economy.
- **Loss of Competitiveness:** The digital economy increasingly determines overall economic prosperity, yet the next generation of infrastructure is still being built. Decentralised protocols, open Artificial Intelligence models, and new identity standards are maturing but have not yet consolidated around dominant players. This is precisely the stage where Europe can still influence the outcome. Once these foundations harden, as happened with cloud computing in the 2010s, the cost of building alternatives rises by orders of magnitude, and the network effects of incumbents become practically impossible to dislodge.

The window for action is narrow. As the Parliament's report makes clear, Europe must act now or risk permanent strategic disadvantage. The way digital infrastructure is built today will determine the autonomy of both our digital and democratic societies for decades to come.

Beyond the EU: Demonstrating the Potential of Global Cooperation

As framed in Part 1, a Plural protocol ecosystem must embed European values. However, its scope should not be limited by geography. A measure of success is the extent to which other regions and jurisdictions adopt the plural approach as a viable alternative to American platform capitalism and Chinese state authoritarianism. In a digital world where physical borders are increasingly porous, the plural approach offers a universal architecture for sovereignty while safeguarding global cooperation. The plural approach - between platform-capitalism and state-authoritarianism - has the potential to become more socially impactful than its centralised counterparts precisely because of its non-adversarial nature. It does not aim to create new dependencies or exclude participants based on origin; it is open to any actor - including those from the US or China - provided they adhere to plural values. The larger and more jurisdictionally diverse this coalition becomes, the less any single actor can take advantage of or weaponise a dependency. A mature coalition of this kind produces three reinforcing effects:

- **Equality of Participation:** Participants across jurisdictions can freely move their data, identities, and services, ensuring that no single gatekeeper can exclude them from the digital public sphere. The protections are architectural. Coercive disconnection becomes structurally impossible because no single entity controls the infrastructure. When multiple independent implementations exist across jurisdictions, shutting someone out would require coordinated action across all of them.
- **A Magnet for Talent:** An ecosystem built on open participation, non-extractive economics, and distributed governance becomes a global attractor. Countries, developers, and communities that refuse to submit to either platform-extractive or state-authoritarian logics gain a genuine third option, one worth joining and contributing to on equal terms.
- **Trade Integration:** As more jurisdictions adopt the same open protocol standards, these can be embedded into existing and forthcoming trade agreements, turning technical interoperability into a vehicle for economic integration. Each new jurisdiction that implements the specification becomes part of the ecosystem by default, lowering barriers to entry and accelerating adoption far beyond what bilateral adequacy findings alone could achieve.

Europe's response must prioritise the dispensable protocol over the indispensable intermediary. Scaling this coalition to like-minded partners across the globe strengthens the super-emergent properties we have defined: sovereignty, resilience, and competitiveness. Together, the strategic advantages, the costs of inaction, and the potential for global coalition-building confirms that these properties are achievable outcomes of deliberate architectural choice.

The strategic case for a Plural protocol ecosystem is clear, but strategy without implementation remains an aspiration. The following part of this paper sets out eight concrete policy recommendations that translate this vision into an actionable toolkit for European institutions, national governments, and ecosystem builders. These recommendations span public infrastructure investment, new funding mechanisms aligned with non-extractive economics, interoperability requirements, decentralised identity, and the application of our Plural Protocol Assessment Framework[5].

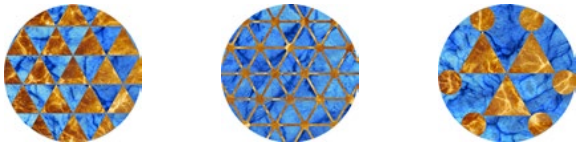
[5] See section 'Identifying Plurality Principles in Protocols' for a definition of the framework.

Part 4:
Policy Recommendations

Building the Plural Protocol Ecosystem

Introduction

Lead, don't compete. Europe shouldn't try to beat US hyperscalers or Chinese champions at their own game; it should define the next paradigm and become the steward of a Plural protocol ecosystem - funding, building, and adopting its protocols first, starting with decentralised Artificial Intelligence and cloud, civic tech, and interoperable social media. We suggest the following mechanisms: **fund differently** (a €5-10bn digital infrastructure fund, digital taxes, quadratic and retroactive funding); **cooperation over competition** (mandatory interoperability, shared infrastructure, global coalitions); states as innovators **leading through public adoption** (plural standards as a non-negotiable procurement requirement, 50% Plural infrastructure by 2035); and **attract global talent**. A real shift of power to **users, builders, and creators**. The closing logic is transformation, not exclusion: score hyperscalers against the Plural Protocol Assessment Framework, reward those that evolve, mandate interoperability for those that don't. The real choice was never Big Tech vs. Europe - it's **extractive centralisation** vs. **Plural protocol ecosystems**, and even the giants can be invited to make the change. The transition from a digital landscape dominated by extractive platforms to one defined by Plural protocols is a strategic necessity. For Europe to secure its sovereignty, policy must move beyond the status quo - addressing symptoms via ex-post regulation rather than root causes. Instead, EU institutions, in tandem with European national governments, must act as stewards of Plural protocol ecosystems. This entails funding, building, and working together with regional builders to leapfrog to a digital third way. The following recommendations provide a structural toolkit to make this transformation a reality.



Recommendation 1: Lead, Don't Compete

Europe must stop chasing the ghosts of Web2 and instead champion the next architectural era. Attempting to beat US hyperscalers or Chinese state-backed champions at their own game would be a critical mistake. Instead, Europe must lead in defining the next paradigm - Plural protocol ecosystems - over extractive platforms. This shift requires:

- **Public Infrastructure Funding:** Establish a Digital Public Infrastructure Investment Fund of €5-10 billion annually, comparable to investment in physical infrastructure. Public software R&D should scale towards 1% of GDP (~€150 billion EU-wide), compared to current levels below 0.1%.
- **Transnational Coordination:** Create a transnational coordination network of European Digital Ministers, working with civil society, researchers, and builders, iterating on the model of the European Digital Infrastructure Consortium (EDIC) and a network-of-networks for multi-stakeholder governance.
- **Values as Success Metrics:** Measure success by citizens' adoption of infrastructure aligned with European values, prioritising fairness and sovereignty over narrow corporate competitiveness. Europe should place less emphasis on whether systems are built geographically within its borders and more on whether they adhere to the European standards set forth here.

Recommendation 2: New Funding Mechanisms for Plural Protocol Ecosystems

Traditional venture capital and EU grants practices need to be more aligned with the development of public goods and Plural protocol ecosystems. Europe must pioneer alternative mechanisms:

- **Directly Plural Digital Taxes:** Implement progressive levies on concentrated computational power, digital advertising, and exclusive control of digital assets, with revenues earmarked for a Digital Public Infrastructure Investment Fund. Model the governance and maintenance of these instruments on the EU ETS Innovation Fund.
- **Continuous Adoption Subsidies:** Following Taiwan's model of subsidising open-source SaaS adoption, introduce ongoing public subsidies for organisations migrating to open plural services, creating sustained demand-side pull funded by the digital tax revenues above.
- **Strategic Evaluation of EU Grants:** Conduct a comprehensive post-mortem on existing EU grant programmes and Digital Public Infrastructure (DPI) initiatives lacking maintenance mechanisms - including DIGITAL and Horizon Europe. This evaluation should focus on purposefulness, long-term sustainability, governance models, and technical scalability, ensuring future funding is better aligned with the needs of a Plural protocol ecosystem.
- **Quadratic & Retroactive Funding:** Scale Quadratic Funding (matching community contributions) and Retroactive Public Goods Funding (rewarding demonstrated impact) to an EU-wide level of €500 million annually.
- **Deep Funding:** Complement project-level funding with ecosystem-level allocation that

maps dependencies between projects, tools, and contributions, directing resources toward foundational infrastructure proportional to its systemic importance rather than its visibility.

- **Plural Ownership Structures:** Provide tax benefits and regulatory support for steward-ownership models - like cooperatives, foundations, and benefit corporations over traditional corporate forms, incentivising the creation of co-owned digital equity based on data collaboration.
- **Data Dignity Funds and Sectoral Data Bargaining:** Establish mechanisms to compensate data contributors when their data is utilised (e.g., Artificial Intelligence training). The EU Data Governance Act (DGA) created a legal basis for such initiatives, enabling sustainable funding for individual digital rights.
- **Economic Sustainability and Ecosystem Building:** Establish a dedicated research programme for Plural business model innovation, funding pilot projects that test non-extractive revenue models (such as protocol-level fee sharing, cooperative subscription models, and data dignity compensation) with the explicit goal of demonstrating paths to economic self-sufficiency. Results should be published as open playbooks for the ecosystem.

Recommendation 3: Foster Cooperation Over Competition

Digital infrastructure exhibits strong network effects and benefits from standardisation.

- **Mandatory Interoperability:** EU-funded (digital infrastructure) projects should be built on open, decentralised protocols and designed so that no single operator becomes a mandatory dependency. Where full decentralisation is not yet practical, projects must demonstrate a credible migration path and publish open specifications that enable independent implementations.
- **Modernised Standards:** Extend the scope of the European Telecommunications Standards Institute (ETSI) to mirror the open, meritocratic approach of the Internet Engineering Task Force (IETF) and World Wide Web Consortium (W3C) focused on Plural protocol development.
- **Shared Infrastructure:** Co-fund European and global relays and nodes for all major protocols to eliminate single points of failure.
- **Regulatory Cooperation:** Align Member State approaches to enable, rather than fragment, Plural protocol ecosystems. This includes implementing regulatory sandboxes consistently across the EU and including 'Digital Free Trade Agreements' in all trade negotiations.
- **Protect Frontier Data and Enable Collaboration:** Safeguard EU frontier data from proliferating into foreign centralised platforms by creating alternatives. Europe must continue to invest in data spaces and ecosystems that establish viable alternatives to centralised data intermediaries.
- **Global Coalition Building:** Inspire like-minded, non-European partners to participate in the Plural protocol ecosystem. The necessity for global cooperation based on Plurality principles has never been more pertinent.

Recommendation 4: Attract Global Talent and Projects

Europe must become the global destination for plural protocol development:

- **Establish a Plural Protocol Champions Program:** Identify and support 10 or more leading protocols annually with significant grants (ranging from €500k to €50m), dedicated regulatory support, and strategic ecosystem connections to foster global leadership.
- **Agile Innovation Cycles:** Simplify the European Commission's innovation cycle by creating fast-track processes for Digital Public Infrastructure (DPI) proposals. Drawing on the success of the US's DARPA and Germany's SPRIND, Europe should target a maximum of three months from proposal to initial funding, removing the bureaucratic barriers that currently stifle digital innovation.
- **Specialised Regulatory Sandboxes:** Establish sandboxes specifically for Plural protocol ecosystems to allow for experimentation of novel governance structures, token mechanisms, and organisational forms. Europe should learn from the regulatory agility demonstrated by Estonia's e-Residency and Singapore's fintech frameworks.
- **Dedicated Talent Visas:** The EU's new Visa Strategy and Talent Pool are welcome steps toward attracting skilled workers. These efforts should be extended to explicitly recognise protocol engineers, open-source developers, and civic-tech community organisers as priority profiles, ensuring that Europe's talent pipeline matches its digital infrastructure ambitions.

Recommendation 5: Lead Through Public Sector Adoption

Government adoption provides a critical signal of trust and market scale. By becoming the first and most sophisticated user of its own infrastructure, Europe can turn public procurement into a powerful engine for digital sovereignty.

- **Mandate Plural Protocol Standards:** All new digital public services must facilitate open, decentralised, and interoperable protocols. Europe should implement strict plural protocol values for existing and future European level initiatives (e.g., EUDIw, Gaia-X, EBSI, and Common European Data Spaces). Following Taiwan's approach, these standards should be made a non-negotiable requirement for public procurement.
- **Digital Literacy Programs:** Ensure European governments include digital literacy and civic technology understanding so as to appreciate the socio-economic impact of protocol and digital infrastructure design.
- **Incentivise Local Experimentation:** Europe should provide Member States and municipalities with dedicated funding to pilot plural governance, decentralised compute, and digital democracy tools. A centralised mechanism for sharing these learnings EU-wide will prevent fragmented progress and ensure successful pilots can be scaled rapidly.
- **Accelerate Project Governance:** To match the pace of the digital frontier, dedicated digital transformation teams should be established within national Ministries, focused specifically on the

adoption of plural infrastructure. Empowering an EU-wide network of 'plural change agents' will allow for faster decision-making and more agile implementation of protocol-based services.

- **Measure and Reward Digital Sovereignty:** Progress must be quantifiable. Europe should track the percentage of government digital infrastructure built on Plural protocol ecosystems, with a strategic target of achieving at least 50% sovereignty by 2035.
- **Governmental Plural Protocol Ecosystems:** Governments should deliver public services, core infrastructure (digital identity, public finances), and democratic infrastructure (civic tech) as Plural protocol ecosystems - co-building and maintaining them, not just buying them.

Recommendation 6: Decentralised autonomous organisations as a New Legal Concept of corporate governance

Decentralisation, as a concept of self-organisation or private ordering, has developed because the law cannot easily regulate transnational technology maintained and operated by non-hierarchical networks of pseudonymous users. On a technological level, the advent of truly decentralised systems allows for autonomy in the form of trustless self-execution of management decisions and the self-enforcement of rules encoded in smart contracts. On a social level, Decentralised Autonomous Organisations (DAOs), lacking a traditional legal form, by design take decisions and actions collectively with minimal viable coordination through a distributed membership structure.

- **The Necessity of the Bridge to the Off-chain World:** If users of a protocol choose to engage in a DAO, they still need to build a bridge between the on-chain digital community - comprising users, builders, and contributors - and the off-chain, physical world. This bridge is required to form contracts, file and pay taxes, and enforce or defend legal rights in court. We propose that jurisdictions provide appropriate toolkits to facilitate this bridging for citizens engaging with DAOs.
- **The Risk of Default Classification:** To facilitate these interactions, DAOs must transform from digital code into legal entities. Without a designated 'wrapper,' courts across jurisdictions frequently qualify DAOs as general partnerships by default. In such cases, decision-making power is viewed as resting with the community of token holders, often conferred simply by the purchase of these tokens, which exposes all members to unlimited personal liability.
- **The European Cooperative Society (SCE) as a Preferred Form:** The preferred legal form for DAOs in Europe is the European Cooperative Society (Societas Cooperativa Europae/SCE), as opposed to the default partnership legal form. The SCE aligns most closely with core DAO governance principles: democratic membership control, self-organisation resulting in a non-hierarchical structure, and the 'formlessness' of entry and exit. Crucially, it limits members' liability in exchange for a minimum capital requirement. We advocate for this legal form within and outside of Europe.
- **Diversity of legal forms:** Rather than focusing solely on the European Company (SE) within the framework of the '28th regime' to close the innovation gap, we recommend for Europe to extend these efforts to also include the European Cooperative framework.

- The European Cooperative shares the transnational character of DAOs and offers a unified framework for "self-organised bottom-up socio-economic activity" at the European level.

Recommendation 7: Empower the Users, Builders, and Creators and their Communities in the age of Artificial Intelligence

Active users and builders no longer merely consume digital goods and services; they actively contribute to the maintenance of protocols and development of ecosystems, no longer independently, but with the aid of AI, acting as change agents in the digital market economy.

- **Producer-Innovator Paradigm:** The EU should consider complementing the producer-innovator paradigm, which associates innovation exclusively with corporations and entrepreneurs, by introducing a user innovation approach (von Hippel, 2017): if users do not intend to scale for profit, they are not less innovative if they contribute to improving and customising their use of services.
- **Data Co-Ownership:** The EU should review data access regulation to guarantee not only consumers' effective control of data sharing and any secondary use of data by consumers (e.g., Financial Data Access Regulation proposal/ FiDA-E) but also ensure direct access via data holders' API to prevent consumers from becoming the product of data monetisation. As introduced in the Data Act, the right to co-own machine data should be extended to any data that is generated by users or about users.
- **Data Product Co-Ownership:** Establish mechanisms that let all contributing stakeholders, most importantly the data providers, co-own the data products (including AI models) built from their contributions.
- **Preventive Controls:** The implementation of rules-based, value-driven regulation for digital technology relies on enforcement authorities to detect and sanction unfair practices and violations of legal obligations ex post. This concern applies to the AI Act, DSA, DMA, and the forthcoming Digital Fairness Act (DFA). The implementation of regulations should begin at the infrastructure level, where user control of data, contextual integrity, and privacy by design are structural properties of the regulated protocol, ideally preventing violations before harm occurs.

Recommendation 8: Apply the Plural Protocol Assessment Framework to hyperscalers and EU Digital Initiatives

Rather than treating hyperscalers as immovable adversaries, Europe can create structural incentives for existing platforms to evolve towards Plurality. This strategy seeks to transform the digital ecosystem from within, leveraging existing scale while simultaneously building sovereign alternatives:

- **Plurality Assessment:** Require all platforms operating in the EU with more than 10 million users to undergo an annual Plurality Assessment using the framework defined in Part 2. Assessments must be conducted by independent auditors and published transparently.

- **Score & rank:** Platforms receive the Plurality Assessment with detailed justifications. Scores are publicly posted on a European Digital Sovereignty Dashboard, empowering users, businesses, and governments to make informed choices and enabling a race-to-the-top.
- **Regular refinement:** The assessment methodology should be refined through a multi-stakeholder process involving academia, civil society, industry, and user representatives to ensure the criteria embody the plural governance they seek to promote.
- **Regulatory Fast-Track:** Platforms scoring 'high' across all three dimensions receive streamlined compliance processes for the DSA, DMA, and AI Act, reducing their administrative and reporting burdens.
- **Procurement Preference:** EU institutions and member states should prioritise high-scoring platforms in public tenders, creating an annual €50 billion market incentive for the adoption of plural practices.
- **Interoperability Obligations:** Platforms scoring 'low' in technical plurality should face interoperability mandates. They must implement open APIs, data portability, and protocol compatibility to dismantle the lock-in effects that stifle competition.
- **Tax Incentives:** Platforms demonstrating year-over-year improvement in plurality scores receive corporate tax reductions. Revenue sharing with users and creators qualifies as a deductible expense.
- **Breakthrough innovations:** Such as transitioning to fully decentralised architectures or implementing comprehensive Data Dignity payments - should be rewarded with a 'Plurality Pioneer' designation, granting enhanced market access and priority EU innovation funding.

Strategic Rationale

Digital transformation must work with existing markets whilst building alternatives. It is possible for existing platforms to genuinely evolve: Facebook's early movement toward data portability, Twitter's funding of Bluesky, and industry interest in Web3 suggest receptivity. By creating clear, measurable pathways and meaningful incentives, Europe can drive systemic change across the entire digital ecosystem. Crucially, this framework deliberately avoids the pitfalls of false dichotomies. It is not merely a contest of 'Europe vs. Big Tech' but rather a fundamental choice between 'extractive centralisation' and 'Plural protocol ecosystems'. The vision here is one of transformation rather than exclusion; even the largest existing platforms possess the potential to evolve towards a more plural architecture, and such transitions ought to be incentivised and rewarded.

Simultaneously, nascent Plural protocol ecosystems must be nurtured through the direct support outlined in Recommendations one to eight. This two-pronged strategy is designed to maximise the pace of the plural digital transformation while safeguarding European sovereignty and values.

Outlook

AI's Coming Transformation and the Plural Response

The preceding sections established the architecture of a Plural protocol ecosystem and the strategic case for building it. But infrastructure built today will operate in a world that looks very different in five or ten years. Artificial Intelligence systems are becoming agentic, autonomous, and deeply woven into governance, economic life, and individual cognition. Any policy action taken now must account for these trajectories, even where their exact shape remains uncertain. Europe must move beyond the reactive 'consumer protection' model and towards an 'active participant' paradigm, shaping the conditions under which these technologies develop rather than regulating them after the fact. The subsections that follow explore five such emerging shifts. The aim is preparedness and direction: ensuring that the architectural choices made today do not foreclose the options needed tomorrow, and actively open ones worth pursuing.

Artificial Intelligence as Local Infrastructure

The dominant approach to Artificial Intelligence development optimises for scale, building systems designed to serve the largest possible user base from a single point of control. The plural alternative points in a different direction. Audrey Tang and Caroline Green's 6-Pack of Care, developed at Oxford's Institute for Ethics in AI, articulates a design philosophy for agentic Artificial Intelligence that maps cleanly onto the Plurality dimensions: rather than building Artificial Intelligence systems for infinite scale and global optimisation, it proposes engineering them as hyper-local guardian intelligences bound to specific communities and contexts, incapable of expanding their mandate without fresh democratic authorisation. This framing adds a governance layer to the social dimension: each local Artificial Intelligence deployment should be designed from the outset to address its own community's needs without accruing leverage over others. Resource caps, built-in expiration dates, and explicit non-expansion pacts are treated not as constraints on capability but as normative requirements of trustworthy design. This gives a more concrete shape to what 'decentralised AI' means in a Plural protocol ecosystem.

Cultural Diversity as a Strategic Asset

Technocommunitarianism is a project that harnesses digital tools to rebuild the human communities that modernity has been eroding. One of its counterintuitive claims deserves explicit attention in the European context: the more sophisticated Artificial Intelligence models become, the more they depend on exactly what industrial homogenisation destroyed. Frontier models have largely mastered managerial decision-making processes. They still struggle with local knowledge, craft intuitions, linguistic richness, and the unspoken rules of specific communities and traditions. This means that Europe's languages, regional cultures, cooperative governance traditions, and dense civil society - long treated as a regulatory coordination harmonisation problem - are potential training substrates for Artificial Intelligence that global monocultures cannot replicate. A Plural

protocol ecosystem that actively preserves and invests in this diversity through Data Coalitions is generating irreplaceable value. Investing in cultural and linguistic diversity is therefore a strategic project, with direct implications for Europe's position in the global Artificial Intelligence landscape. It is not about building European alternatives in competition with American or Chinese platforms but demonstrating the possibility of a third way worth adopting. Countries like Taiwan, Japan, Singapore, and India have each initiated a path in which democratic values and technological innovation leadership reinforce rather than undermine each other. Europe's contribution to that coalition is its particular combination: statutory regulatory legitimacy, deep civic tradition, and the plural values this paper defined. The ⿻ Plural protocol ecosystem is an invitation for a global collaboration that Europe is positioned to pioneer.

The Transformation of the Attention Economy and the Rise of Community Network Effects

One of the most consequential near-term shifts in digital infrastructure is the transformation of the attention economy, in which human attention is treated as a scarce, tradable commodity. As Artificial Intelligence agents become primary intermediaries between users and information, replacing algorithmic feeds as the dominant interface to digital life, the business models of digital platforms do not disappear, they migrate. Behavioural data harvested through intimate agent interactions is potentially more precise and more valuable than anything digital feeds could capture, and advertising is already following users into conversational interfaces. The extraction becomes harder to see and harder to resist. This is amplified as Artificial Intelligence agents become increasingly human-like and sycophantic, leading to a new layer of risk that undermines humans' ability to remain unbiased in governing and overseeing agentic Artificial Intelligence activities.

This is precisely why the infrastructure layer matters. In an agent-mediated world, the critical question is whether users and communities can verify what their agents are doing, choose between competing implementations, and exit those that extract rather than serve. If the underlying protocols are open, auditable, and interoperable, this choice becomes real. Trust, authenticity, verifiability, and community alignment become genuine competitive assets, driving the transition we described earlier: from data network effects to community network effects. If the protocols are closed and opaque, the agentic internet will simply reproduce the extraction logic of the attention economy in a more intimate and less visible form. Community network effects need to be built into protocols from inception and protected from drifting towards dependence.

Artificial Intelligence as Extended Cognition - Agents becoming Co-Constituents

Artificial Intelligence is becoming a permanent reasoning partner for individuals, institutions, and democratic systems, mediating the relationship between citizens and increasingly complex political and economic realities. This is already happening. Legislators use Artificial Intelligence to draft and analyse legislation. Judges consult AI-assisted tools to inform their reasoning. Civil servants

rely on Artificial Intelligence to model policy options. The question is no longer whether Artificial Intelligence will be embedded in European governance, but whose Artificial Intelligence it is, governed by whom, and optimising for what.

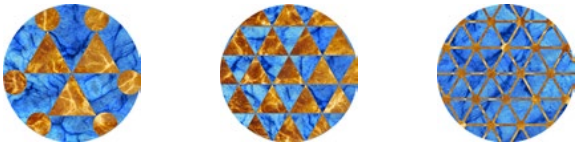
Within a Plural protocol ecosystem, this shift opens a genuinely new possibility. AI-assisted deliberation at a continental scale becomes feasible, feeding directly into legislative processes as a verifiable and auditable extension of democratic decision-making rather than a closed consultation exercise. The democratic vulnerability described in Part 3, where the reasoning layer between citizens and their institutions is designed elsewhere, finds its answer here. Plural Artificial Intelligence agents, built on open protocols, governed by the communities they serve, and auditable by design, can ensure that this layer remains under European democratic accountability.

But democratic accountability alone is not sufficient. Even a European-made model, if deployed as a single dominant system trained on a single dataset, risks homogenising the political imagination of an entire continent. When the same model drafts legislation in Helsinki and Lisbon, and when every citizen's Artificial Intelligence assistant frames policy trade-offs through the same lens, the diversity of legal traditions, political cultures, and civic institutions that define European democracy quietly narrows. The plural approach offers a structural safeguard. Multiple models, trained on diverse datasets that reflect different communities, languages, and governance traditions, and operating within interoperable protocols, preserve the cognitive diversity that healthy democracies depend on.

Conclusion

The European Moment

Europe stands at a defining moment. The digital infrastructure being built today will define the future of the continent like nearly no other factor. The choice is stark: continue dependence on centralised platforms and cede sovereignty, or forge a distinctly democratic path that embodies our deepest values. The ⿻ Plural protocol ecosystem is not utopian speculation. Working models exist: Taiwan's digital democracy, the AT Protocol and Ethereum communities, and hundreds of ⿻ Plural protocols_under development. The technology is proven. The economic models have continued to show success. The governance mechanisms function. What's required is political will and private-sector investment proportional to the challenge, with the right players and ecosystems in place. Just as Europe invested in physical infrastructure - roads, railways, telecommunications - that enabled centuries of prosperity, Europe must now invest in digital public infrastructure for the 21st century. As 'The European Way' paper demonstrates, Europe has both the policy frameworks and the technical capacity. What remains is the coordinated action to implement them and accelerate the next wave of compute. The stakes extend beyond Europe. In an age of increasing authoritarianism and extractive platform capitalism, the world needs proof that democracy, rights, values, and global competitiveness can thrive in the digital sphere. Europe is ready to contribute with its unique combination of democratic tradition, regulatory capacity, and technological capability to build an alternative way in the digital sphere. The ⿻ Plural Stack offers not just sovereignty and competitiveness, but a vision of digital society worth building - one where technology strengthens rather than undermines human connection, where economic value flows to builders, creators, contributors, and users, where power is distributed rather than concentrated, where diversity is celebrated rather than crushed. This is the future Europe can lead in building. This is the moment to act.



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