Data-driven distributed governance: an ecosystems approach

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There is an emerging crisis in governance. Citizen trust in public institutions is at an all-time low, and the work of multilateral bodies is compromised by non-democratic governments often working counter to the interests of their people and of the global citizenry. In nations with democratic traditions, the rise of the administrative state and opaque intelligence operations hidden from public view have widened the chasm between decision-making agents in government and the very people whom those decisions effect. Blockchain is hailed as a shift towards distributed governance, but has yet to be implemented meaningfully beyond its use in administrative tasks. Not only are citizens excluded from decision-making by governance institutions, but they are also alienated from the full participation in and the design of their economic systems. Economic decision-making at the multi-trillion dollar scale is being authorized by institutions which lack democratic oversight. Wealth is increasingly concentrated amongst institutional investors who effectively rubber-stamp executive decisions.

This political and economic fragility -- and the ascendancy of populism -- can be traced to the inefficient, attenuated mechanisms for public participation in political, economic, financial, and governance systems.

To improve the design and engineering of these global systems, we propose an ecosystems approach -- a methodology present in several scientific disciplines, including conservation biology, that uses large-scale systems equitably and sustainably by analyzing the components, processes, structures, and relationships amongst their many parts and levels of complexity.[1] This method, integrated with digitized, distributed tools and modern information systems, can enable large-scale participatory governance of economic and political systems.

An ecosystems approach to governance acknowledges the interconnectedness and interdependence of interactions at all scales of the economy and polity, and uses information from every part of the system to guide its design. This approach is enabled by civic and economic technologies that utilize crowdsourcing; distributed data collection and analysis; and decentralized yet synchronized participation to improve the design, engineering and governance economic systems. Crowdsourcing connects architects of economic and political systems and the individuals that live in them. By its nature, the approach is democratic, empirical, and holistic. Further, on-the-ground data collection improves the quality and quantity of information available for decision-making, while empowering individuals and elevating their role in systems design and engineering.[2]

Individuals and institutions require adequate tools and infrastructure to harness the rich, multi-scalar data generated through this approach. Tools must enable agents to draw insight across scale, geography, language, structure, function, technology, industry, among other attributes. They must also render arcane economic, demographic, and political insights accessible and actionable beyond Davos to the global *demos*. New information systems, modeled based on innovations in genomics, bioinformatics, computational linguistics, and network theory, provide such a transcendental schema.[3] The standardization of global economic interactions in a unified, machine-readable artificial language enables rapid collection,

[1] *The Ecosystems Approach*, Secretariat of the Convention on Biological Diversity, UNEP, 2004

[2] E.g. Noveck, Beth Simone. *Smart Citizens: Smarter State*, Harvard University Press, 2015

[3] c.f. e.g. Riggs, Rory *et al*. *Proximity Search and Navigation for Functional Information Systems*, US Patent Application 20170220603A1, 2017

organization, and analysis of crowdsourced data. In practice, the methodology provides a common language for individuals and institutions to dissect relationships that define their economic system by commonality of function. It is a harmonized digital framework for community organizing and distributed design, carving a path towards the collaborative understanding and engineering of systems.

This ecosystems approach to economics and governance aligns with a democratic vision of sustainable economic system development. With digitally-optimized participatory tools, this approach can empower the global *demos* to augment and surpass the work of existing institutions in economic, political, regulatory, and financial systems design and engineering. The approach enhances legitimacy and accountability by utilizing distributed, transparent mechanisms with multi-factor verification. A continuous feedback loop between data collection, data-driven conclusions, and interactivity among all participating actors is required for effective supranational self-governance by billions of individuals.