

# Protocolized Economics

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Protocols guide and shape a staggering amount of human effort and resources. In many of our greatest leaps, from hand washing to networked computing, the essential feature is a protocol. By codifying behavior for complex coordination, protocols disseminate solutions that are simple relative to the problems they address. This generates immense value by enabling more coordination with less effort.

Economics, as a field concerned with understanding productivity and resource allocation, has historically modeled protocols implicitly through more elemental constructs and factors: agent preferences, technologies, social and political trends. But just as historical economic models expanded from agent-focused to include firms and institutions, even though firms and institutions are composed of individual agents, future models need to expand to include protocols, even though their component elements are already represented.

Economic protocols are a tricky concept to work with. They can be so simple, they are ingrained in the way we see the world. Protocols reduce mental labor, and can mimic some of the functions of institutions, firms, and agents, but with a few extra dimensions that are noteworthy.

Though it might be tempting to treat protocolized behaviors as a function of individual preferences, leaving them in the black box of a rational agent, a more nuanced view is necessary, following the modeling trends in modern behavioral economics. Protocols are not as simple as aggregations of individual preferences, because protocols introduce a (desirable) efficiency that cannot be explained through aggregation effects of individual choices alone. Much like firms and institutions, protocols involve additional mechanisms

that reduces mental labor and personal risks. This entices agents to engage with protocols such as traffic protocols, even if those protocols are not always aligned with immediate self-interest.

The simplified view of firms as orienting pools of natural, capital, and labor resources to produce profit can be usefully juxtaposed with a protocols-based view. Collaboration is risky and expensive, firms reduce that risk. Firm-oriented cooperation is often protocol-driven, especially if you see the law as one giant protocol system. Every sort of agreement businesses regularly make with each other becomes a protocol: a codified set of behaviors that enable cooperation. But until recently, protocols could not perform such functions outside the structure of a firm; they were not capable of owning or organizing resources. Blockchains changed this. Cryptoeconomic protocols can now own and organize resources without the need for structures like firms. However, firms are owned, while cryptoeconomic protocols are not necessarily owned.

Protocols, like institutions, generally derive their power from the trust of people that participate in them. Institutions are built upon protocols, big and small, and the two concepts are quite intertwined as institutional memory seems to be a shared set of protocols in many cases. However, while institutions generally have hierarchy and centralization, which are touted as reasons to trust them, protocols often do not have centralization and hierarchy. Protocols, like institutions, span a spectrum of trustworthiness, while generally having decentralized, often non-hierarchical, peer relationships among protocol participants.

We have encountered three noteworthy economic dimensions of protocols so far. First, protocols may be preferred and adopted by individual agents based on a

combination preference alignment and mental efficiency, but are not correctly modeled by preferences alone. Second, protocols can now own and orient resources like firms, but can themselves be unowned. And third, protocols derive their power from the trust of their participants just like institutions and firms, but without hierarchical institutional centralization being necessary for accumulating and maintaining that trust.

These properties are essential as we consider a broader view of the importance of protocols. Protocols might take center stage, since descriptivism in economics is dying. As Donald MacKenzie observed, models are not the camera, they are the engine.<sup>1</sup> Economic models must be designed not only to explain, but with an eye to their potential impact, and protocols offer a class of constructs that can help do that. Economists and their models must engage with their own impact, by considering the protocols that might emerge or be imposed if they were to be adopted. Especially the most famous economists and theories who, by the very nature of their fame, have direct and profound influence on the economy. An example is the doctrine of shareholder value maximization and the corporate governance and fiduciary duty protocols it has introduced.

Leveraging that profound impact is the dream of most economists. Our world is full of incomprehensibly complex problems. How do you solve a problem you don't understand? That the best and brightest among us cannot understand? If you believe you must understand problems fully before solving them, incomprehensible problems remain forever unsolvable.

Economists make models that simplify problems, and then create and propagate model-specific solutions. They make models that change the nature of the problems as they're adopted. Layers of such solutions create new problems of increasing complexity. The grandest problems we face today, especially in climate, poverty, and health, are all a result of the many valuable layers of solutions. We stand on the shoulders of giants who taught us to wash our hands, make plastic, network computers, and live in temperature-controlled houses.

The inclusion of protocols as a fundamental concern and first-class construct in economics is necessary because successful protocols can tackle the most complex problems by appealing to individual preferences for efficiency, especially mental efficiency, while also bringing beyond-individual mechanisms into play, via the evolving technological environment. If a new era of protocol-aware economics is coming, it is going to be a radical paradigm shift that might even include new kinds of public goods that are owned by protocols, greatly expanding the range of economic phenomena. Protocol-based economics must delicately earn and build trust if it is to debut on the stage of global cooperation.

Self-referentially including the impact of an economic model within the model, which is the essence of protocol-aware economics, may entail uncomfortable challenges to model legitimacy. Protocol economics may be fundamentally prescriptive, rather than descriptive because naively describing the intended impact of a protocol may modify that impact, invalidating it. But the prize is the the possibility of "unreasonably sufficient"<sup>2</sup> economic coordination from powerful new protocol elements

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1. Donald MacKenzie, *An Engine, Not a Camera: How Financial Models Shape Markets* (Cambridge, Mass.: MIT Press, 2008). [mitpress.mit.edu/9780262633673/an-engine-not-a-camera/](http://mitpress.mit.edu/9780262633673/an-engine-not-a-camera/)

2. Venkatesh Rao, Tim Beiko, Danny Ryan, Josh Stark, Trent Van Epps, Bastian Aue, "The Unreasonable Sufficiency of Protocols," *Summer of Protocols* (2023). [summerofprotocols.com/research/module-two/the-unreasonable-sufficiency-of-protocols](http://summerofprotocols.com/research/module-two/the-unreasonable-sufficiency-of-protocols)

in economic models. This may lead to powerfully democratizing solutions to complex problems by leveraging the noteworthy new dimensions of protocols in the design of economic “engines.” △

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While working in connection with the Montreal Protocol Scientific Assessment Panel he developed insight into how systems of protocols and their caretakers can accomplish impressive cooperation between peers. His experience in environmental and developmental economics informs his goal of organizing complex decision spaces to improve policy decisions. [www.linkedin.com/in/steve-powers-b8356913a/](https://www.linkedin.com/in/steve-powers-b8356913a/)

ProtocolKit



# ProtocolKit

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