



ANALYSIS TECHNOLOGY

# Why MIT's new crypto journal matters



by Kollen Post

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## Quick Take

- MIT's Digital Currency Initiative has launched a new academic journal, called *Cryptoeconomic Systems*.
- It's a step toward a more robust academic dialogue around blockchain and crypto topics.

Quinn Dupont was in a bind. While working on a Ph.D. around 2012, he came across this new concept: the blockchain. It caught his eye amid the endless whirl of cryptography and sociology that constituted his intellectual diet.

The problem? For an academic looking to incorporate blockchain into an eclectic range of subject matter interests, there was no scholastic infrastructure to publish or get funding.



way into the mainstream, that is finally changing. But slowly.

“Most academics have looked at the field as something that they expect to go away,” says Dupont, now an assistant professor at University College Dublin. “I think at this point, every human being realizes that's really not the case. But as an academic field, it still doesn't really have a good, solid footing.”

One of the most promising signs that the scene is changing is the emergence of new outlets aiming for new levels of rigor in blockchain research. The latest step forward is a new journal from the Massachusetts Institute of Technology (MIT).

## A fresh approach

In April, MIT's Digital Currency Initiative published the inaugural issue of *Cryptoeconomic Systems*, which aims to be “the premier publication venue for blockchain research.” It includes 13 articles, with titles ranging from *Selfish Behavior in the Tezos Proof-of-Stake Protocol* to *An Analysis of Uniswap Markets* to *Guiding Principles for Ethical Cryptocurrency, Blockchain, and DLT Research*.

MIT's Digital Currency Initiative, which until recently hosted now-SEC Chair Gary Gensler as an advisor, has long served as one of the major intersections between crypto and the academic world. Along with similar bastions of computer science like Carnegie Mellon and Stanford, the DCI has been a leading light for crypto in the most esteemed of scholastic halls.

But similar outlets for related research have been limited. “Up to this point the few outlets that there have been don't resemble your traditional high-impact academic venues,” says Dupont.



to couch that research in other terms when applying for grants or when submitting research to leading publications without a blockchain focus. And the most high-profile journals have definitely been slow to react to the advent of Bitcoin and blockchain technology.

City University London's Andrea Baronchelli is a well-cited network scientist who has had rare success publishing research on blockchain in top-tier journals. But he also acknowledges that there is a holdup requiring specialized academic infrastructure. "The hope is that cryptos become normally accepted everywhere," says Baronchelli. "Specialized journals are a nice first step."

Thibault Schrepel, who teaches blockchain and antitrust law at the University of Utrecht and Stanford's CodeX, agrees. In an email to The Block, he identified three recent trends: "1. There are new blockchain journals 2. More and more established journals are accepting blockchain scholarship 3. I haven't seen (much) blockchain publications in the very, very top journals (such as the Harvard Law Review) yet."

Among long-standing outlets, the Institute of Electrical and Electronics Engineers (IEEE) has put out well over a thousand peer-reviewed studies into blockchain, but largely through the lower-tier of the IEEE's massive stable of journals.

This has been a major disadvantage for academics like Dupont, because scientists and academics must publish to get funding for their research. Without proper funding, it's harder to do cutting-edge research. Prestige brands only want cutting-edge research. But when very few editors at leading publications know how to handle a new field of research, the system falls apart.

According to Dupont, who is working with IEEE to put together educational materials on blockchain, the publisher's top blockchain research output



highest quality materials are coming out of the engineering field, computer science, engineering versus all the other ways you may study the phenomenon.”

That’s also a potential problem, given how interdisciplinary the blockchain field is. Though computer science and cryptography are at the core, the technology also raises new questions about the law, politics, game theory and monetary theory.

*Cryptoeconomy Systems’* will take this into account, says managing editor Reuben Youngblom. “Building in that kind of interdisciplinary nature is definitely something that I’m passionate about,” he says.

The first issue of the new journal includes subject matter ranging from breakdowns of Tezos attacks to a [paper](#) from Dupont laying out standards for ethical blockchain research.

“There's a problem — not that this is happening in blockchain research — but it easily could shape up to the point where everything is very siloed, where you have finance people only looking at finance and only communicating with other finance experts. Same thing with economics, same thing with law,” says Youngblom. “An open forum where everybody can interact and you can really get that cross-pollination would be a huge boon to the industry and to the space in general.”

## The upside of academia

You may be asking why crypto needs traditional academic research at all. Doesn’t Bitcoin exist to dislodge trusted third parties?

In the absence of a strong academic ecosystem, crypto and blockchain research has mostly relied instead on a combination of corporate-funded research and social-media-driven observations. Seldom do those entail publication of financial conflicts of interest.



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The idea that industry dominates research is problematic because it introduces bias," says Dupont. "My worry is that we can very quickly follow other problematic research fields such as pharmaceuticals, or go back and look at tobacco research."

"Not to say that everyone's a charlatan, but a lot of them are," he says. "A lot of the people who are interested in [blockchains] aren't biting off big, meaty, difficult problems. They're just looking at superficial moment-by-moment, minute-by-minute types of analysis."

The absence of peer-reviewed outlets for blockchain research also leaves the industry more vulnerable to manipulation by unfounded claims or information. Much of what qualifies as blockchain research news is based on preprints. It was a preprint, for instance, that first catalyzed the discussion around Tether and Bitfinex's alleged manipulation of Bitcoin.

Preprints allow writers to lay claim to their findings before other research goes public with the same conclusions. Sites like arxiv.org are valuable repositories. But a good portion of these preprints would not stand up to robust peer review. That makes them open to direct contradiction by other invested parties.

## How MIT's journal will be different

Besides the interdisciplinary focus and rigor of *Cryptoeconomic Systems*, the journal's approach to two critical issues of open access and peer review are likewise important steps forward.

These issues are related to how a journal is funded. Nature and Science are the first and second most-cited multidisciplinary journals in the world. Both use traditional funding models that depend on subscriptions from institutions. But despite the unparalleled brand recognition that these journals have, they make little in revenue from this model, which is declining in popularity.



THE OPEN-ACCESS WINGS OF THOSE BRANDS, *SCIENCE ADVANCES* AND *NATURE COMMUNICATIONS*, are more indicative of where the field is going. Both run on an increasingly popular monetization model that requires authors to pay the publication. It's lucrative, but also somewhat controversial, especially because authors without institutional funding often can't meet the bar.

Meanwhile, MIT's DCI is funding the entirety of *Cryptoeconomic Systems'* needs.

"There are a lot of benefits to being an independent journal. The problem is that when you try to stay open access you have to take funding from who knows where," says Youngblom. "You have to take it where you find it, or you have to charge authors to submit."

"That's a big reason why we are with the DCI," Youngblom adds. "Having MIT behind it gives us a little more financial flexibility to keep it open access and not charge authors and not nickel and dime people in weird ways."

The journal is labeled "diamond" open access, in contrast to "green" or "gold." Green open access means that authors may choose to publish their research elsewhere for free, but the journal can put it behind a paywall. Gold means that the authors themselves pay, sometimes up to \$5,000, but readers do not pay to read it. Diamond means every article is available publicly for free and the authors don't have to foot the bill.

With only two issues per year planned, the journal is not exactly a huge operation at this point. The masthead, including Youngblom, all work other positions at the same time. And operational staff? "At the moment, my M.O. is to try to entice undergrads to give me their free labor with the promise of candy. It's gotten me some weird nicknames," Youngblom chuckles.



principle of peer review. Typically, journal editors conscript reviewers who are also respected researchers to point out potential flaws or gaps in submitted research. The reviewers commonly do so pro bono, on the understanding that the whole ecosystem depends on review.

Uniquely, *Cryptoeconomic Systems* aims to set up so-called double-blind reviews. The standard in modern publishing is single-blind, in which the authors of a paper are visible to a reviewer, but those authors never know the name of that reviewer. Here, that anonymity goes both ways in an effort to keep reviewers judging a paper on its own merits, rather than on the reputation of the people behind it.

In traditional scientific research communities, peer review can be a way an academic discipline holds itself accountable. The blockchain research community lacks a traditional network of reviewers. Will that be a problem? "There hasn't been a ton of peer review, but that doesn't mean that there aren't a ton of experts," says Youngblom.

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