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Final Exit Report:

Decentralized Peer-Reviewed Publishing Platform Research

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Project Overview

This Fund 13 project scoped a decentralized peer-reviewed publishing platform for Cardano through three research milestones and a final roadmap. We conducted a literature review of academic peer review, a survey of decentralized publishing platforms, and interviews with academics. These findings were then combined into a strategic roadmap for a potential Cardano-based implementation. All deliverables were completed as proposed. Below we summarize what we learned and how it contributes to Cardano's decentralized science (DeSci) and public goods mission.

Literature Review – Peer Review Challenges

Our analysis of scholarly literature on peer review revealed:

- **Key challenges:** A small fraction of scholars perform most reviews (burnout risk) and receive little recognition or reward. The process is also often slow, opaque, and lacks accountability for biased or low-quality reviews.

- **Reform ideas:** Proposed fixes include open peer review (publishing reviewer comments), reviewer reputation systems, and token-based or credit incentives for reviewers.

- **Overall takeaway:** New models aim for more transparent and fair peer review, but it's hard to achieve decentralization, scale, and rigor at once. This "trilemma" is a core design challenge for any decentralized solution.

Platform Survey – Decentralized Publishing

We surveyed many decentralized publishing projects:

- **Notable features:** Some scholarly platforms implemented transparent peer review and rewarded reviewers with cryptocurrency, while other Web3 platforms offered content ownership and crypto incentives for creators.

- **What worked:** Projects that attracted users focused on real needs. They gave authors more control over their work, provided fair rewards, and ensured long-term preservation of content. They also integrated with existing workflows and kept the experience user-friendly.

- **What didn't:** Many initiatives failed due to poor UX or misalignment with academic culture. Complex onboarding (e.g. requiring crypto wallets) or expecting researchers to change habits led to low adoption. The lesson is that any Cardano-based solution should feel like a natural extension of how academics already work, not a disruptive detour.

User Interviews – Needs and Expectations

Through interviews with researchers and editors, we heard consistent themes:

- **Frustrations:** The current peer review system is overburdened and inequitable. A few reviewers handle most of the work, and reviewing is largely unrewarded. Interviewees also described long delays and opaque decisions that erode trust.

- **Desired improvements:** Academics want a system that incentivizes and acknowledges review work. Ideas included giving formal credit for peer review or requiring authors to review others' work. They also seek more transparency (e.g. seeing reviewer feedback) as long as quality and confidentiality are maintained.

- **Openness to blockchain:** When introduced to a Cardano-based review platform, many liked the idea of tamper-proof review records and small rewards to motivate timely reviews. However, they stressed that any new platform must be easy to use and align with academic norms. In practice, that means protecting anonymity where needed and integrating with familiar tools so participation counts in academic career development.

Strategic Roadmap and Next Steps

Guided by these insights, we developed a strategic roadmap for a decentralized publishing platform on Cardano. Key proposed features include:

- **Transparency:** On-chain audit trails for submissions and reviews, plus open peer review (published reviewer reports) for accountability.

- **Incentives:** ADA rewards and reputation points for timely, high-quality reviews to motivate and credit reviewers.

- **Integration:** Support standard researcher logins (e.g. ORCID) and issue DOI identifiers for published articles, so the platform feels like a conventional journal. The interface will hide blockchain complexity to ensure easy use.

The roadmap lays out a phased 12-month plan, starting with testnet prototyping and a pilot with users. Although our Fund 14 proposal to build the MVP was not funded, we have a clear path forward and plan to pursue it in Fund 15 or with other partners.

Contributions to Cardano: This project's outputs strengthen Cardano's DeSci and public goods landscape by providing a knowledge base and blueprint for decentralized scientific publishing. Our research shows Cardano can support transparent, community-driven innovation in academia, aligning with the ecosystem's values of rigor and openness. We thank Catalyst for support and remain committed to turning these findings into a working platform that benefits both Cardano and the research community.