Project Close-out Report for:
Open-Source Datum Explorer: Decode, Understand, Build

Name of Project and Project URL on Idea Scale / Fund

- **Name:** Open-Source Datum Explorer: Decode, Understand, Build
- **Project on Idea Scale:** https://cardano.ideascale.com/c/cardano/idea/132630
- **Project Number ID:** 1300151
- **Name of Project Manager:** Roman Majovsky
- **Date Project Started:** Jan 20, 2025
- **Date Project Completed:** July 21, 2025

KPI Results Summary

- **18 submitted schemas** accepted into the public registry
- **6 unique Cardano projects** represented in the registry: Indigo, Lenfi, MinSwap V2, SundaeSwap V3, WingRiders DEX V2, WingRiders Launchpad, Splash V1
- **3 community contributors** successfully submitted and merged **5 pull requests** with schema definitions
- **Over 22,000 post views and interactions** on Twitter, with additional shares across **Telegram, Discord, Reddit, and CoinMarketCap**

List of Challenge KPIs and How the Project Addressed Them

Challenge KPIs Addressed:

1. **Functional Tool:**
   Developed and deployed a fully functional web-based Datum Explorer with CBOR decoding, schema matching, and developer-facing CLI and API features.
2. **Schema Registry Integration:**
   Built a backend system that pulls registered CDDL schemas directly from GitHub and allows local schema management for custom decoding.
3. **Automatic Schema Detection:**
   Implemented logic to attempt parsing CBOR against all known schemas, providing suggestions for potential matches.
4. **Custom Schema Support:**
   Enabled users to define and manage local CDDL schemas within the application. Local schemas can be added, edited, validated, and deleted within a browser.
5. **Community Engagement and Awareness:**
   Project updates and tool features were consistently shared across multiple platforms, including Twitter, Discord, Telegram, Reddit, and CoinMarketCap. In addition to regular updates, extra

community engagement activities were conducted to encourage submission of high-quality schema definitions. This resulted in valuable contributions from community members, with several schema definitions successfully submitted and published to the registry.

6. **Documentation:**
   Detailed developer documentation provided for CBOR parsing library, schema registration standards, API usage, CLI tools, and frontend application behavior. Everything is open-source and maintained on GitHub.

List of Project KPIs and How the Project Addressed Them

Key Project KPIs Addressed:

1. **Functional Frontend Application**
   Delivered a user interface for selecting schemas, entering CBOR data, and viewing parsed datums.
2. **Backend and Registry Integration**
   Created a backend that caches and exposes schema definitions from a public GitHub registry.
3. **CBOR Parsing CLI and Library**
   Implemented a modular CBOR decoder in Rust, accessible via CLI and API endpoints, with testing and documentation.
4. **Public Schema Repository**
   Developed a schema registry with contribution guidelines and multiple CDDL definitions submitted via pull requests.
5. **Automatic Schema Detection**
   Built logic for matching CBOR input against available schemas and presenting best-match results.
6. **Local Schema Management**
   Added frontend capability for developers to define, edit, and store local schemas directly in the browser.
7. **Documentation and Developer Onboarding**
   Provided manuals, architecture diagrams, and contribution instructions for all application components.

Key Achievements

- Released a fully operational open-source web application for datum exploration on Cardano
- Developed CBOR decoding logic in Rust with a supporting CLI interface
- Integrated schema registry with frontend and backend synchronization
- Delivered features for automatic schema detection and local schema editing
- Maintained an open GitHub repository with extensive documentation and examples
- Supported community-driven growth of the datum schema registry

---

Key Learnings

- **Schema-Based Parsing Reduces Complexity**
  Parsing datums through well-defined CDDL schemas improves developer accuracy and tooling compatibility.
- **Automatic Detection Increases Accessibility**
  Automatic matching of CBOR inputs to known schemas enhances usability, especially for external users unfamiliar with internal formats.

- **Local Schemas Are Essential**
  Providing flexibility for developers to test and manage custom schemas locally was widely appreciated during testing.
- **Registry Governance via GitHub is Sustainable**
  Community contributions and version control via GitHub enable scalable and decentralized schema governance.
- **Modular Tooling Encourages Reuse**
  Separating parsing logic, registry caching, and UI concerns has created a system that is easier to maintain, fork, and improve.

Next Steps for the Product or Service Developed

- Continue expanding the public schema registry with additional DApp coverage
- Improve CLI capabilities for integration into larger toolchains and data pipelines
- Explore optional wallet integration for parsing and verifying live on-chain data
- Maintain all components as an open-source foundation for ecosystem tooling

---

Final Thoughts / Comments

Datum Explorer was developed to address a widespread need for decoding and understanding on-chain data in a reliable, transparent, and standardized way.

By combining CBOR parsing, CDDL schema validation, and open registry governance, the tool enhances visibility and usability of datum data across Cardano applications.
The project is designed to be extensible, open-source, and community-driven — with clear utility for developers, auditors, indexers, and explorers.

We thank the Catalyst community for supporting this tooling initiative and look forward to seeing its continued growth and integration across the ecosystem.

Links to Other Relevant Project Sources or Documents

- Application:
  https://datum-explorer.wingriders.com
- GitHub Repository:
  https://github.com/WingRiders/datum-explorer
- README file:
  https://github.com/WingRiders/datum-explorer/blob/main/README.md
- Application Manual:
  https://github.com/WingRiders/datum-explorer/blob/main/docs/app-manual.md
- Architecture Overview:
  https://github.com/WingRiders/datum-explorer/blob/main/docs/architecture.md
- Schema Registry:
  https://github.com/WingRiders/cardano-datum-registry
- CDDL datum schema design document:
  https://github.com/WingRiders/datum-explorer/blob/main/docs/cddlDatumSchemaDesign.md
- Manual tests:
  https://github.com/WingRiders/datum-explorer/blob/main/manual-tests/datum-explorer.feature
- Link to video files:
  https://github.com/WingRiders/datum-explorer/tree/main/catalyst-evidence

---

Link to Close-out Video
https://youtu.be/p57vM1FDOxw