ICP Developer Community
Decentralized AI Working Group
July, 25th 2024

(very brief) *Briefing on Hypercerts*

Highlighting prospective application(s)
for hypercerts, intersecting with
novel LLM development...
(and, ICP DeAI ?)

Origins of Hypercerts

- David Dalrymple, Protocol Labs
  (https://github.com/davidad/hypercerts/blob/main/content.pdf - for related presentation slides)
  "Hypercerts: on-chain primitives for impact markets with David Dalrymple"
  (YouTube 2022, 1.6K views to date)

- Motivated to overcome challenges in incentivizing "impact investors".

  - Motivate, expand, de-risk and bundle/unbundle investments in public goods.

  - Overcome the barriers to pro-active investment in achieving a desired environmental
    or other impact
    (such as has been sought through mechanism like "Green Bonds")

  - Lends greater flexibility and control in characterizing and coordinating "Impact Assessments" – which verify
    outcomes achieved.

- Conceived of a "Public-Goods-Space" wherein "work-packages" can be iteratively and incrementally
  defined, – as the overall effort proceeds

- When the intended result or product or impact outcome has been substantially completed these
  can be composed into a corresponding more generally meaningful certificate.

Use of Hypercerts

- Enables the composition of an overall/developing scope of work into defined work-packages within a "hypercube"
(read: "cells" in n-dimensional cartesian coordinate system)

- Dimensions include Time interval of work, scope definition, time interval of impact, scope of impact, set of contributors, type(s) of right(s) - intellectual property rights for example

- Each such cell of this "hypercube" can be "NFT-ified" into a certificate
(Thus, "hypercert")

- These Hypercerts represent a unique retroactive "claim" on the value produced:
savings, impact, rights…

- Can be traded as instrument in *Regenerative Finance* (ReFi) marketplaces.

  - "REGENERATIVE CAPITALISM How Universal Principles And Patterns Will Shape Our New Economy, 2015"

Implementation of Hypercerts

- Employs ERC1155 – EVM smart contracts having mini-ledgers tracking ownership attribution for various non-fungible / semi-fungible tokens.

- Enables the necessary hypercert certificate operations – defining scopes, aggregating/composing scopes together, splitting/decomposing scopes, recombining scopes in new arrangements (across the n-dimensions).

hypercert Development and Adoption

Hypercerts creators/collaborators
"PL Summit 23 | LabWeek23 | Istanbul, Türkiye" (YouTube, Nov 2023, ~4k views to date).

- Launched on Optimism

- SDK released

- Along the way, Pilots with GitCoin and Zuzalu pop-up city and Funding the Commons

- https://github.com/hypercerts-org - and infrastructure expanding on core components:

  - https://github.com/hypercerts-org/marketplace-sdk

  - https://github.com/hypercerts-org/hyperboards

Prospective ReFi application of hypercerts with colleagues in Brazil:

- Early prototyping, PWA, Celo blockchain… facing challenges – looking to IPFS storage (ICP?)

- Learning about and overcoming development roadblocks of various kinds as natural so early in the innovation cycle.

- Surfacing and assessing legal issues and implications of their application to regenerative finance.
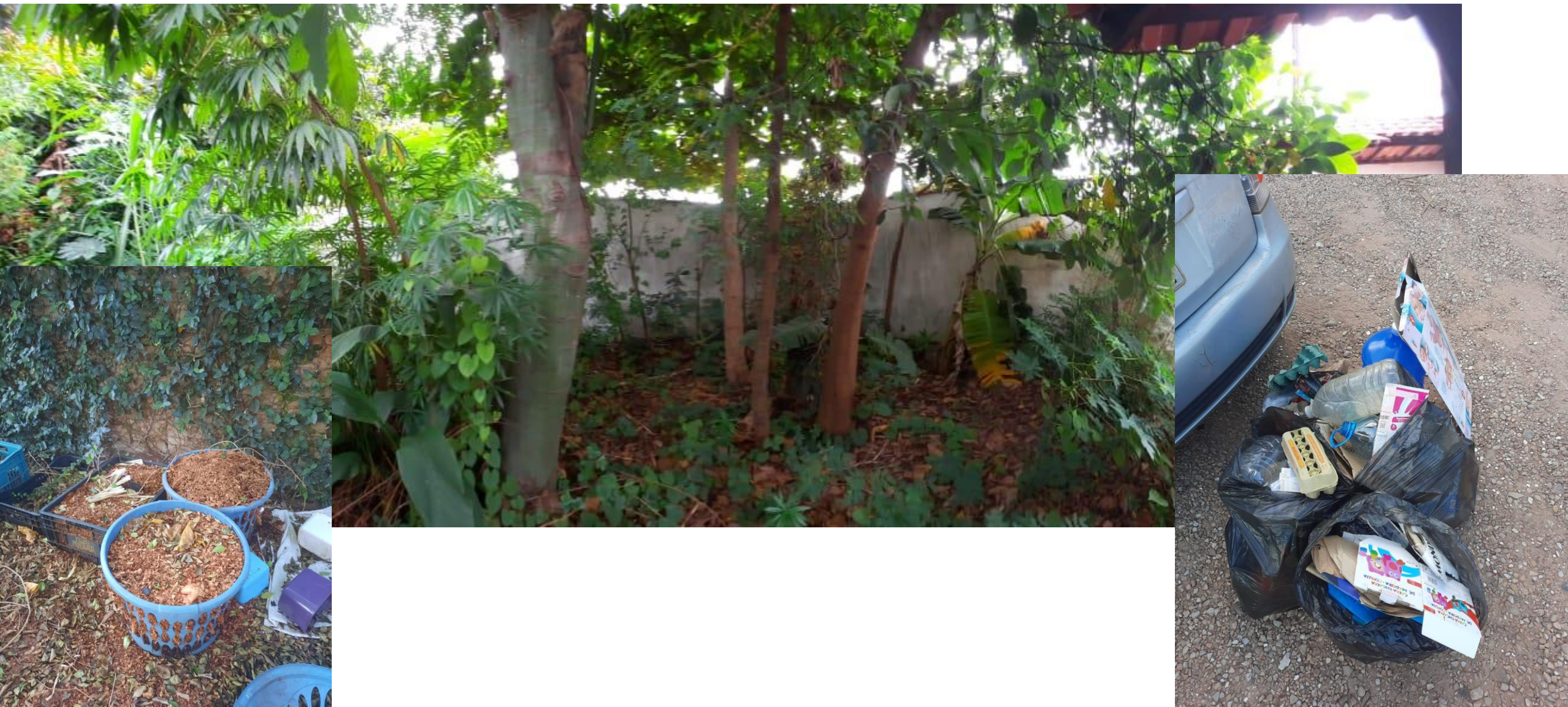
Prospective application of Hypercerts

- Community-focused initiative dedicated to making a tangible difference in the Brazilian ecosystem

- Better facilitate small, manageable projects and educational efforts to collectively contribute to larger environmental goals.

- Ecosystem, Environmental, Biodiversity data onchain
  - Measure, track and reward the impact on green spaces

- Simple and intuitive, providing a friendly platform for:
  - Gardeners to nurture garden spaces, Data scientists to generate biodiversity assessments, and Community members to determine rewards for gardeners.

- Empowers the community by linking garden spaces to a community NFT,
  - Allowing members to have a say in a garden's impact.

- Initial focus is in Rio Claro, Brazil, where controlling and monitoring the invasive species Leucaena Leucocephala is crucial to improving soil health and biodiversity.

Prospective application of Hypercerts

- Incentivize LLM development related to – augmenting and accelerating ecosystem regeneration efforts

- The LLM trained on the relevant data and impact assessment and verification activities and expertise, across disciplines.

- LLM that enables members of the public to inquire into and "dialogue with" avatars through which the ecosystem communicates it's history, conservation status, priority actions promoting conservation and regeneration, instructions on how to contribute, etc.

- Conceiving and experimenting with suitable ethos, principles, methodology… which does not make a facile, misleading, otherwise-distorted or undermining caricature-of the natural (ecological) entity "avatar".

And many more…

Decentralized, "right-sized" action and impact

Early days, perhaps a place for ICP

Proceeds from recent Gitcoin funding round being directed toward:

- Software Services - Tools such as Github, Figma and Miro to support our development process, making product iteration faster.

- Infrastructure Hosting - Assets and APIs for products hosted by a cloud provider to ensure uptime and a quality user experience.

- Development Work - Funds to pay for product, engineering, and design work by individuals within the guild

Activation Cycle II – Consolidation (Q2-2024)

Evaluate and refine Community Goals

Internal Regen Campaigns

Deepening Current Partnerships

Increase Educational

QF and RetroPGF round