BLOCKCHAIN FOR SOCIAL GOOD

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What is the Blockchain for Social Good project?

Building a Framework Around Privacy & Ethics

Approach

Build Community

Understand the Challenges

Develop an Actionable Framework

Goals of Being Here Today

Lay out where we have been and
where we are going with our project

Bring you into this community
Ask you for input + feedback

Where have we been?

Six months of building community & understanding the potential and the challenges

3 Major Project Convenings

50+

Organizations Engaged

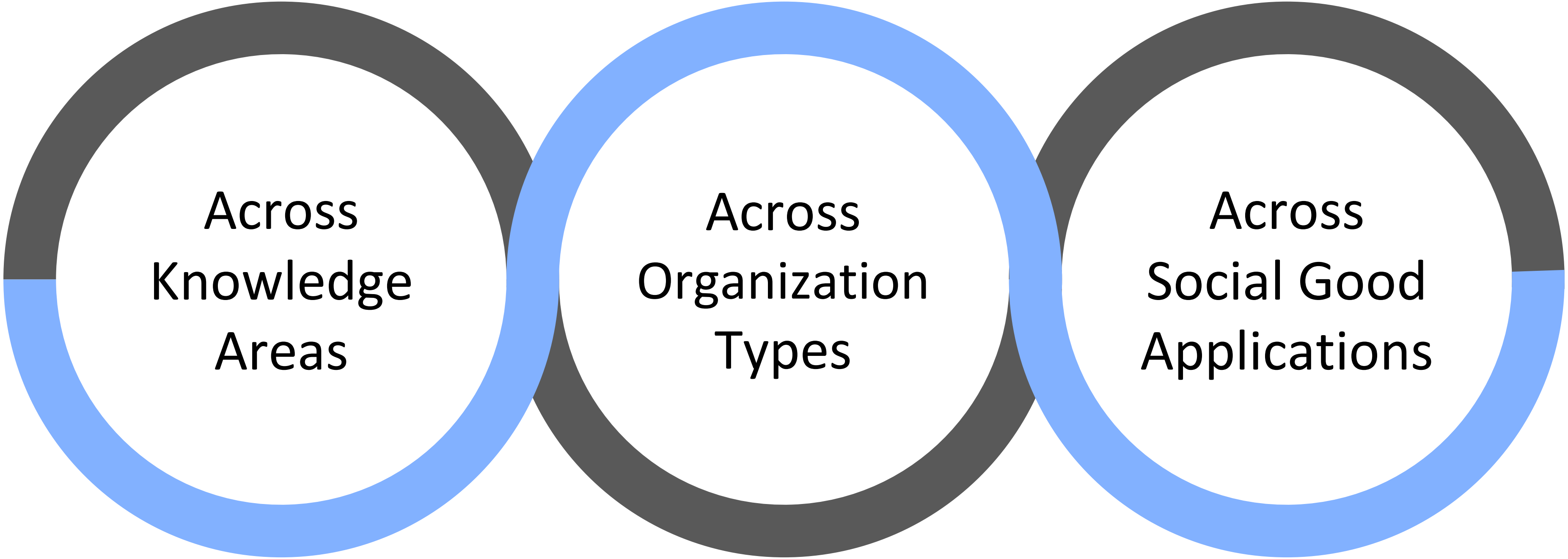
6

Key Academic Collaborations

Discussions with Experts 60+

Across 3 Continents

Building Community

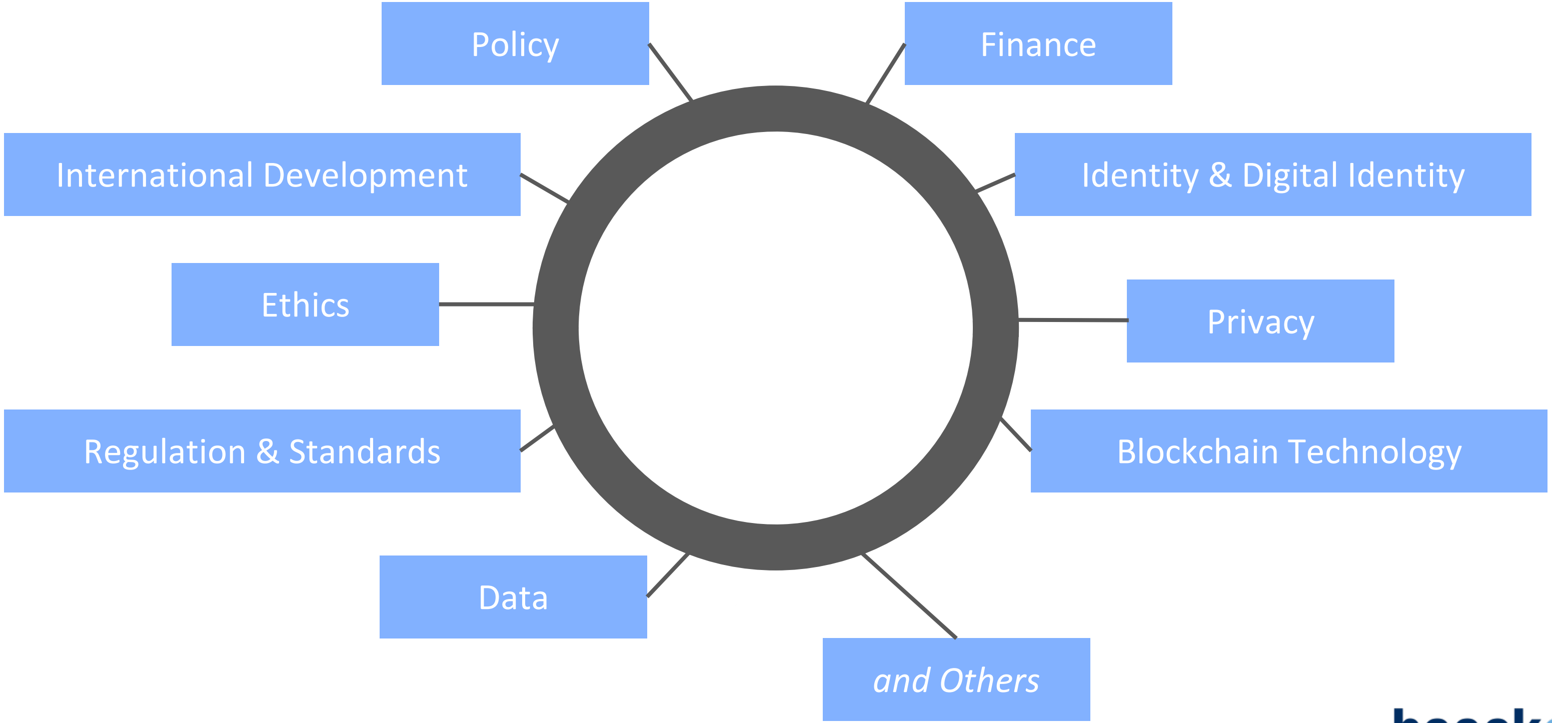


Across Knowledge Areas

Across Organization Types

Across Social Good Applications

Across Knowledge Areas



Policy

Finance

International Development

Identity & Digital Identity

Ethics

Privacy

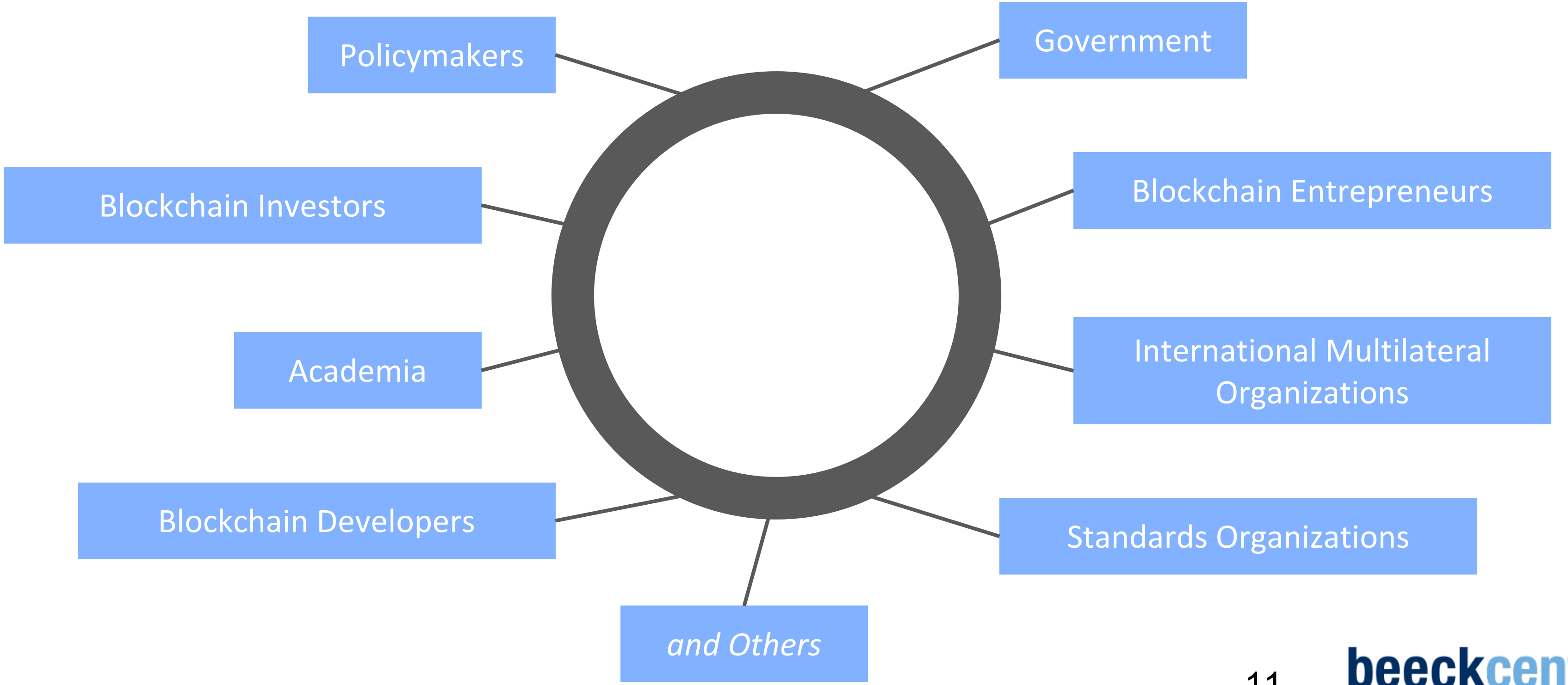
Regulation & Standards

Blockchain Technology

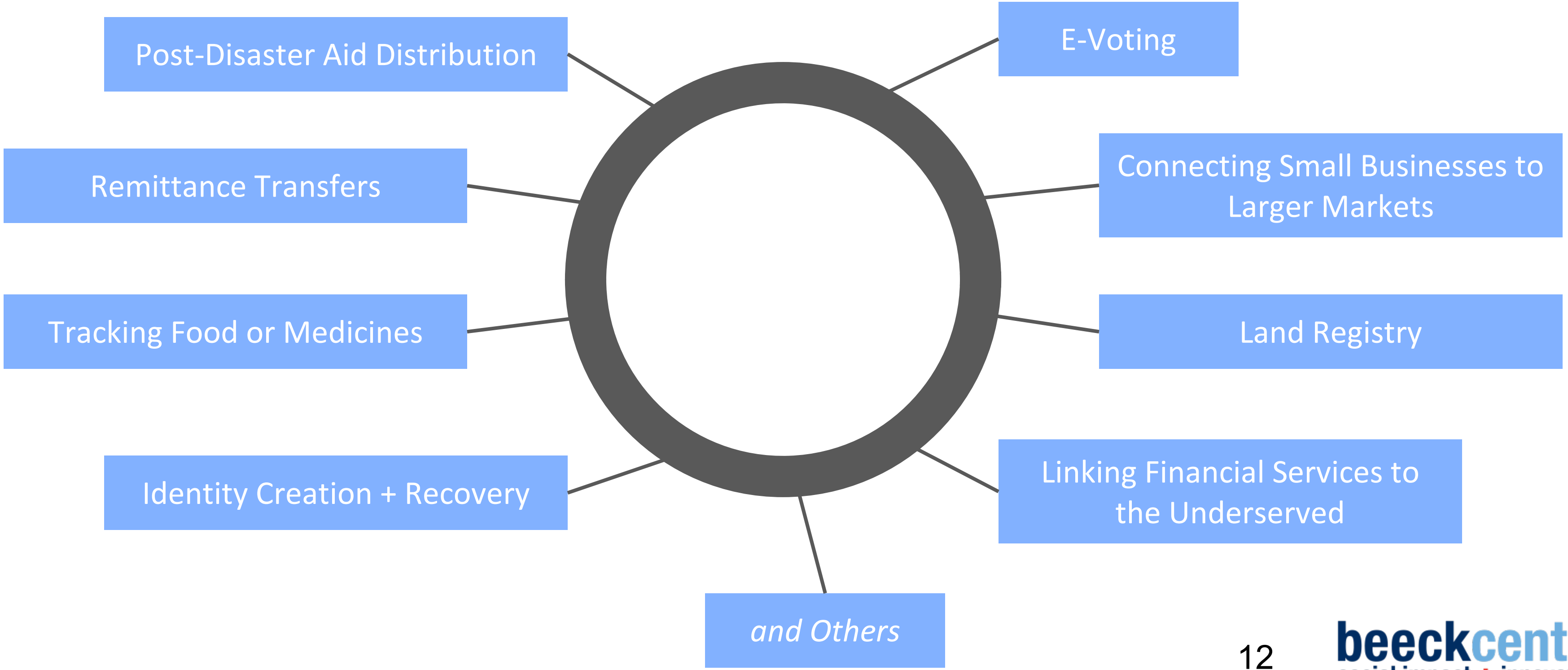
Data

and Others

Across Organization Types



Across Social Good Applications



Post-Disaster Aid Distribution

Remittance Transfers

Tracking Food or Medicines

Identity Creation + Recovery

E-Voting

Connecting Small Businesses to Larger Markets

Land Registry

Linking Financial Services to the Underserved

and Others

Why is blockchain so exciting?

What are the Key Characteristics of Blockchain?

DIGITAL

DISTRIBUTED

LEDGER

TRUST

TRANSPARENT

IMMUTABLE

The Potential of Blockchain

CREATING IDENTITY

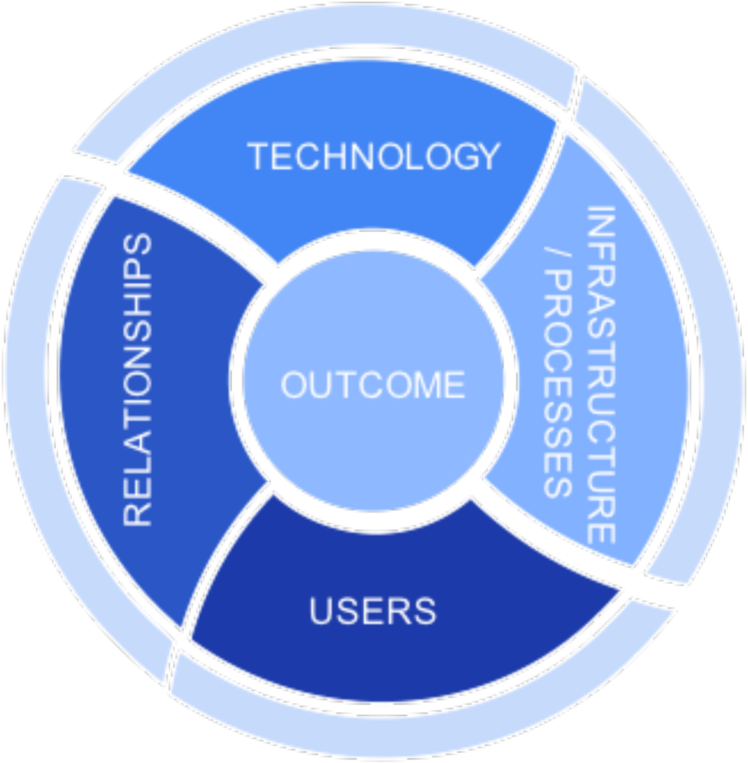
ASSET TRACKING

FINANCIAL TECHNOLOGY

SMART CONTRACTS

What makes blockchain so challenging?

Understanding the Ecosystem



Key Characteristics of Blockchain

DIGITAL

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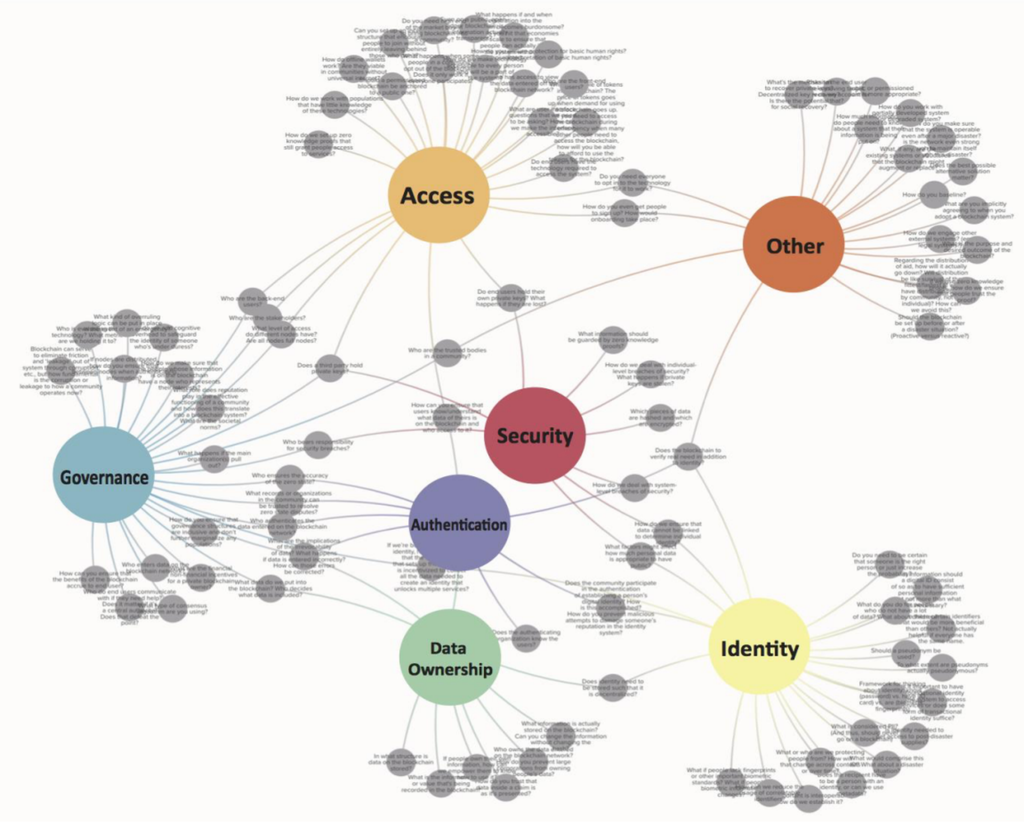
Hundreds of Questions, Concerns, Issues, & Challenges


Access
Other
Security
Governance
Authentication
Data Ownership
Identity
What information should be guarded by zero knowledge proofs?
How do we deal with individual-level breaches of security? What happens if private keys are stolen?
Which pieces of data are hashed and which are encrypted?
Does the blockchain to verify real need in addition to identity?
How do we deal with system-level breaches of security?
How do we ensure that data cannot be linked to determine individual identity?
What factors might affect how much personal data is appropriate to have public?
Does the community participate in the authentication of establishing a person's digital identity? How is this accomplished?
How do you prevent malicious attempts to damage someone's reputation in the identity system?
Regarding the distribution of aid, how will it actually go down?
Should the blockchain be set up before or after a disaster situation? (Proactive versus reactive?)
Do you need to be certain that someone is the right person or just increase the probability?
What is the purpose and desired outcome of the blockchain?

[Challenge Map](#)

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These challenges with blockchain technology cluster around certain centers of gravity.

GOVERNANCE

IDENTITY

ACCESS

AUTHENTICATION

DATA OWNERSHIP
& PROVENANCE

SECURITY

GOVERNANCE

IDENTITY

ACCESS

AUTHENTICATION

DATA OWNERSHIP & PROVENANCE

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GOVERNANCE

IDENTITY

ACCESS

AUTHENTICATION

DATA OWNERSHIP & PROVENANCE

SECURITY

What have we learned?

Key Takeaways So Far

- Building an actionable framework around privacy and ethics is critical
- It is fundamentally important to engage a diverse range of stakeholders in this effort in order to build a robust and actionable framework
- The field of blockchain technology is still rapidly evolving
  - It is too early to commit to any one type of blockchain solution
- Developers, program managers and policymakers need to thoroughly understand the ecosystem around the desired outcome
  - Seemingly small design choices in blockchain technology have significant effects on the ultimate outcome

Where are we going?

We are continuing to build this community because privacy and ethics are universal concerns.

We are still gathering feedback on our research to date.

We are translating the collected data and feedback into an actionable framework.

Questions? Thoughts?

Email: Cara.LaPointe@georgetown.edu

Complete our survey: tinyurl.com/beeckfeedback

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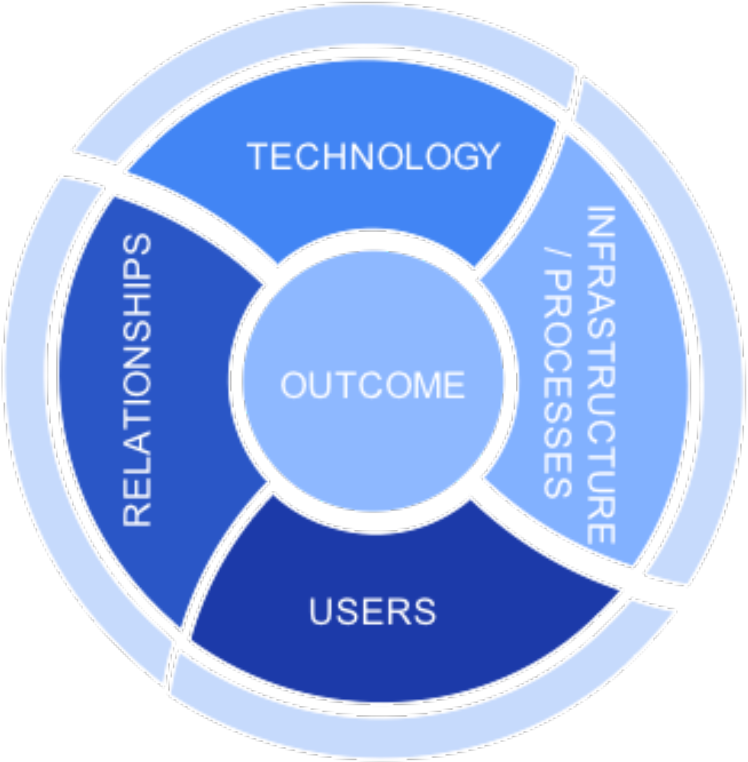
[BACKUP]

Understanding the Ecosystem



What is Blockchain?

DIGITAL

DISTRIBUTED

LEDGER

TRUST

TRANSPARENT

IMMUTABLE

Examples of key questions and concerns

GOVERNANCE

- TECHNICAL:
  - What are the rules that govern the system?
  - Do different nodes have different levels of authority in the system?
- HUMAN:
  - Who are the nodes?
  - Who decides the nodes?
  - How do you ensure representation of the community?
    - How do you ensure that community representation doesn’t exacerbate existing inequalities?

IDENTITY

- What level of identity is needed?
    - Foundational OR Transactional?
- Which identifiers are most useful in establishing that 1) the identity claimed is real and unique and 2) the user claiming the identity is the rightful owner of that identity?
    - Do we need to be certain that someone is who they say they are, or only increase the probability that they are?
- Which identifiers make people in the community particularly vulnerable if they were to be exposed?

ACCESS

- How do we make technology accessible to every person who will be a part of the system?
  - **PHYSICAL ACCESS:** Do end users have the technology required to access the system?
  - **EDUCATIONAL ACCESS:** How much information do people need to know about a system that their information is being put on?
- How transparent is the information on the system?
  - And if it is transparent, is it transparent in a way that is easily accessible?

✓ AUTHENTICATION

- Who authenticates the data entered on the blockchain network?
- How is authentication done?
  - For the zero state?
  - For follow on transactions?
- How do you ensure that all relevant stakeholders trust the authenticators and the method by which it’s done?

DATA OWNERSHIP & PROVENANCE

- Who owns the data on the blockchain?
  - If end users own their own data, how are they empowered to use it?
- What data actually goes on the blockchain? Which pieces are just referenced?
  - Is the data that's referenced centrally stored?
  - How can the data be stored in a disaggregated way?
- How do you correct incorrectly entered data or transactions?

SECURITY

- INDIVIDUAL-LEVEL
    - How do you create private keys that aren’t vulnerable to attacks, but also aren’t easily lost or forgotten?
        - How are private key and key recovery managed? By whom?
- SYSTEM-LEVEL
    - How do you ensure that vulnerable data is protected as hacking technologies evolve?