

Indicio

Public Benefit
Report 2022

Introduction

Indicio was founded in 2020 with a mission to provide the infrastructure and software need to drive the adoption and widespread use of decentralized identity and verifiable credentials. A little over a year later, Indicio reincorporated as a Public Benefit Corporation. As we saw rapid customer growth amid increasing global interest in decentralized identity, we wanted to ensure that our founding mission and values were protected as we grew as a company.

Since reincorporation, we have seen even greater growth, which has accelerated the development and deployment of decentralized identity technology beyond our expectations. It is now clear that decentralized identity represents much more than personal identity: it means machine identity, and it means the data associated with human and machine identities. Decentralized identity is a technology for creating verifiable data — data that can be acted upon immediately because it can be trusted.

It is easy to claim that every emerging technology is transformational; but, in 2022, we saw the technology we built win two significant awards from leading research firms. Both recognized that the ability to trust data is both a way out of our chronic, debilitating problems around digital verification and a path toward much broader change affecting every aspect of online interaction. In short, the public benefit of this technology is expanding in scope with each deployment.

Our first Public Benefit Report is an account of how we have striven to advance our public benefit mission over the past year, which is to say how we have advanced decentralized identity and verifiable data as a public benefit and how our values have shaped our business strategy and our company; it also sets out where we can do better and what we hope to achieve in the coming year.

Heather Dahl, CEO



Constellation Research SuperNova Award,

For Digital Safety, Governance &
Privacy

October 22, 2022



EIC Decentralized Identity Award, KuppingerCole

May 22, 2022

Indicio's Public Benefit Mission

“Our mission is to accelerate the creation, adoption, and widespread use of verifiable identity credentials so that people have control over their digital identities and how they share their personal information in a way that is secure and protects their privacy.”

Section 1.1, Indicio Charter and Governance Framework

Indicio reincorporated as a Public Benefit Corporation because decentralized identity is a powerful way to create trust in online interaction when, currently, online interaction is beset by fraud due to infinitely copyable nature of digital information and the structural limitations of the internet for verifying personal and other kinds of identity. As we continuously expand the digital context of business and public life, whether driven by convenience or urgency, solving this trust problem is critical. No society can flourish if information cannot be trusted.

Identity is foundational to digital interaction and verifiable identity is foundational to trusted interaction. We must know and be able to trust the sources of information; we must be able to create trusted relationships; we must be able to trust the information shared within these relationships; and we must be able to verify and share in ways that preserve privacy and enhance security.

These are the dynamics addressed by decentralized identity technology. It provides a verification layer for the internet and a way to share and authenticate data that preserves privacy. It obviates the need for third-party data storage to manage identity verification and information exchange. It provides a peer-to-peer messaging protocol that enables each interaction to be uniquely encrypted.

This combination of authentication, privacy, and security is the most powerful solution devised for the chronic and costly problem of online fraud; it provides ways to comply with increasingly stringent data privacy regulation; and it enables everyone to have permanent, portable digital identities and to have control and consent over who they share their personal data with.

The social benefits of this technology are self-evident: The cost of security breaches and online fraud are measurable in trillions of dollars. Lack of trust erodes social cohesion. Lack of formal identity prevents access to critical services and full participation in society.

Given these benefits, it may seem no heavy lift to make advancing decentralized identity a public benefit mission; yet, nurturing an emerging technology into a universal solution is hardly a small challenge. Not all approaches to decentralized identity delivers these benefits. And for these reasons, Indicio's public benefit mission requires us to make those business and design choices that deliver on the technology's promise.

A Global Network for Decentralized Identity

“Indicio will create and manage an enterprise grade decentralized identity network on a blockchain distributed ledger for the issuing and verification of digital credentials in mission-critical applications.”

“Indicio will support the network through network fees and, where necessary, through profit from its professional service activities.”

Section 1.2, 1.3, Indicio Charter and Governance Framework

Decentralized identity solutions cannot run without a reliable network utility to support them and the availability of such a professionally supported utility is indispensable to those with enterprise grade and mission-critical solutions. The absence of such a network — and the requests for such a network from our customers — led us to create this infrastructure.

A blockchain-based distributor ledger network is a kind of distributed database. A copy of the ledger is hosted on a server, known as a validator node. These nodes are run by companies or organizations on a voluntary basis. The number and geographic distribution of the nodes ensures network resilience — and the way information is written to the ledger prevents it being altered. Unlike blockchains for cryptocurrencies, blockchains for decentralized identity have a low energy profile. Millions of identity credentials can be issued with just one write to the ledger and no proof of work or mining is needed to verify them.

Starting with four validator nodes, the Indicio Network has now grown to 29 nodes on five continents. There are four separate networks, each serving a different purpose: a public MainNet for hosting products and services; a TestNet for developing products and services; a TempNet for stress testing products and services; and a DemoNet for demonstrating products and services prior to launch.

Each of these networks is fully supported by Indicio’s experienced engineers and custom-developed monitoring tools to ensure reliable support.

The MainNet has, since its launch, maintained 100 percent read uptime. The monitoring tools have been open sourced so that other organizations running Hyperledger Indy-based networks can use them.

The 29 validator nodes supporting these networks are maintained by a diverse group of companies around the world. Indicio has created the “Indicio Network Consortium” to provide these companies with complimentary training and technical support packages in recognition of their service and to build a proactive community for advancing open-source decentralized identity.

Finally, Indicio has created a simple and the — to our knowledge—most-cost effective pricing structure for writing to the MainNet, with limited free writes for early-stage developers. Again, our goal is to lower barriers to start ups and companies entering the decentralized identity space without compromising quality of service.

Open Source

“Indicio will create a full ecosystem for decentralized identity and open source the relevant components so they can be freely used by the developer community to advance decentralized identity adoption.”

“Indicio will support the identity community by open sourcing the tools it creates, whenever practical. This will help spur innovation, access, and adoption. We believe that an open-source approach to technology is the best way to achieve success directly and as a community.”

Section 1.4, 2.5, Indicio Charter and Governance Framework

Mediator Agent, Bifold

When Indicio launched, there were significant technical obstacles to full implementation of decentralized identity solutions. We focused work on two outstanding areas: a Mediator Agent and a Mobile Agent.

Mediation manages the problem of connecting to mobile devices that lack fixed IP addresses—a critical need given that most decentralized identity solutions depend on people being able to hold verifiable credentials on their mobile devices and make connections to share information. Indicio developed on existing code to deliver a robust mediator agent and open sourced the result.

Indicio also contributed the initial code to the Hyperledger Aries community's [Bifold project](#) to develop an interoperable **mobile agent** for using verifiable credentials on mobile devices.

Cardea

Indicio always explains to its customers the benefits of open-source software and donating custom code to the codebase: namely, that this will drive a virtuous cycle of adoption and innovation, which in turn ensures that the codebase is robust and sustainable. In July 2021, [SITA donated](#) the unique parts of the codebase developed by Indicio for the Aruba Health Pass to Linux Foundation Public Health, where it became the [Cardea Project](#), a complete ecosystem for sharing health data in a privacy-preserving and secure way.

Indicio Proven™

While the decentralized identity space is dominated by open standards and driven by open-source codebases, many solutions come with some element of vendor lock-in. Indicio chose to create [Indicio Proven™](#), a fully open-source, interoperable product range for implementing verifiable credentials that allows customers to fully own their verifiable credential ecosystems. This means they are free to build on it and use it in whatever way best suits their needs. We believe this flexibility is critical for widespread adoption.

Indicio Proven also allows users to avail of the the most privacy-enabling credential format currently available, AnonCreds, while also making the ecosystem credential agnostic. Indicio Proven was also designed to make building decentralized identity infrastructure as straightforward as using cloud services to drive adoption.

Interoperability

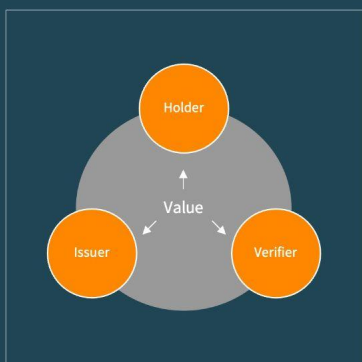
“Indicio is committed to interoperability, so that credentials will be writeable and verifiable on different networks; this will enable decentralized identity to proliferate through a ‘network of networks’ effect.”

Section 2.4, 2.5, Indicio Charter and Governance Framework

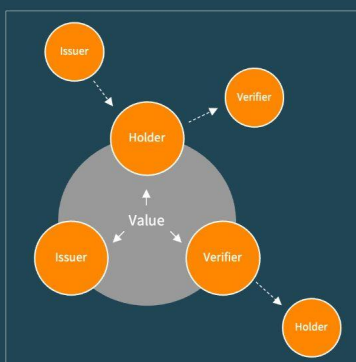
DiD:Indy Method

Indicio developed the code to make it possible for identifiers written on one Hyperledger network to be resolved on a different Hyperledger network. This enables ecosystems built on Hyperledger Indy to interoperate. This technical solution can be applied, in the future, to other distributed ledger networks.

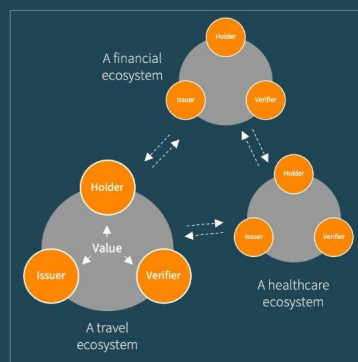
Interoperability creates network effects that increase the value of a single, use-case ecosystem. Indicio builds its solutions so that all its customers can take advantage of interoperability.



A single, closed ecosystem of Issuers, Holders, and Verifiers. The entity issuing the credential is the entity verifying the credential.



Interoperability opens the ecosystem to other verifiers and then to other issuers and holders.



Verifiable credential ecosystems that show value drive links with other ecosystems, creating value for all.

Interoperability Labeling & Interpathons

While decentralized identity adoption will be driven by interoperability between ecosystems, credentials, and networks, it's not always clear what is meant by interoperability and which products actually do interoperate with others. Indicio is driving [interoperability labeling as a solution](#) to this issue and has committed to creating interoperability labels for all its products.

Indicio has also hosted three hackathon-style interoperability events, dubbed “Interpathons,” for companies and organizations to test their agents and networks against each other. These events were held with [Hyperledger Aries](#) and the [Cardea Project at Linux Foundation Public Health](#).

Community Participation

“Indicio will be an active member of the decentralized identity standards community in order to advance the business, governance, and technical standards supporting the adoption of verifiable digital credentials.”

Section 2.6, Indicio Charter and Governance Framework

- ❖ Member, Hyperledger Foundation Governing Board
- ❖ Co-Chair, Hyperledger Aries Working Group
- ❖ Chair, Hyperledger Aries Bifold
- ❖ Co-Chair, Linux Foundation Public Health Cardea
- ❖ Co-Chair, DIF DIDComm Working Group
- ❖ Co-Chair, DIF Interop Working Group
- ❖ W3C Credentials Working Group
- ❖ Steering Committee, Linux Foundation CCI
- ❖ Vice Chair, Hyperledger Marketing Committee
- ❖ Co-Chair, Trust Over IP Utility Foundry
- ❖ Contributor, W3C DID Working Group
- ❖ Presenting member, OECD Blockchain Advisory Policy Cmte.
- ❖ Co-Chair, Hyperledger Indy Contributors Working Group
- ❖ Co-Chair, Hyperledger Implementers Working Group
- ❖ Contributors, Hyperledger Identity Working Group
- ❖ Contributors, IEEE Spatial Web Working Group
- ❖ Steering Committee, Decentralized Identity Foundation
- ❖ Steering Committee, Linux Foundation Public Health Cardea
- ❖ Vice Chair, Hyperledger Marketing Committee
- ❖ Contributors, Trust over IP Governance Architectural Task Force

Training

“Indicio is committed to communicating its work clearly and comprehensively so that the concepts and technology that constitute decentralized identity are accessible and comprehensible to as wide an audience as possible. Such communication will ensure that we, as a business, align our operations with our public benefit mission, and that the public is capable of evaluating those benefits.”

Section 2.6, Indicio Charter and Governance Framework

Indicio has developed an extensive range of [training courses](#) on decentralized identity technology for all skill levels. Given our expertise in this area, we were chosen by the Hyperledger Foundation as a training partner.

Workshops and Webinars:

[Build Your Identity Solution Using Hyperledger Aries](#) November 10, 2022

- ❖ 464 registrations, 181 attendees
- ❖ Third funded workshop engagement
- ❖ Indicio tapped for knowledge of code and
- ❖ 1,046 views on YouTube to date

[Hyperledger Foundation In Depth](#): Indicio Proven: Scaling verifiable digital credentials using open-source technology, October 5, 2022

- ❖ YouTube livestream
- ❖ 40 registrations, 24 attendees

[Hyperledger Indy Technical Deep Dive](#) February 3, 2022

- ❖ 200 attendees
- ❖ 2,167 subsequent views on YouTube

[Build Your Identity Solution Using Hyperledger Aries](#) January 20, 2022

- ❖ 200 attendees
- ❖ 1,483 subsequent views on YouTube

HYPERLEDGER FOUNDATION

Build Your Identity Solution Using Hyperledger Aries

Thursday, November 10, 2022
8 AM - Noon PST / 11 AM - 3 PM EST

WORKSHOPS Co-developed with **Indicio**

Instructors:

- Sam Curren
Senior Architect and Engineer
- Lynn Bendixsen
Director of Network Operations
- Daniel Blum
Software Engineer
- Scott Harris
Chief Operating Officer
- Chae Howland
Software Engineer

HYPERLEDGER FOUNDATION IN DEPTH:

Indicio

Indicio Proven: Scaling verifiable digital credentials using open source technology

James Schulte
Vice President of Business Development
Indicio

Mike Ebert
Strategic Software Team Lead
Indicio

MEMBER Wednesday, October 5th, 2022
10:00am PT | 5:00pm GMT | 1:00am HKT, SGT

Environment

“Indicio promotes use of distributed ledger technology that is energy efficient.”

“As a company, Indicio will encourage policies and practices that limit environmental impact and minimize our carbon footprint.”

Section 5.1, 5.2, Indicio Charter and Governance Framework

One of the major misconceptions about decentralized identity is that verifying a credential will consume a similar amount of energy to the proof-of-work or “mining” on blockchains for cryptocurrencies. This is not the case. For Hyperledger Indy blockchains, verifying a credential consumes no more energy than a web search and millions of credentials can be issued with a single write to a distributed ledger.

Indicio has [written](#) and held a [Meetup](#) about the environmental aspects of decentralized identity.

We are committed to finding new ways to reduce energy consumption with respect to the technology we develop, and we will publish our progress and success in this for adoption by the wider decentralized identity community.

Company Culture

“Indicio is committed to the growth of a skilled and strong professional community in decentralized identity through internships and training programs.”

“As part of their job responsibilities, the Indicio team will participate in company mentorship programs for interns and employees.”

Sections 1.10, 4.3, Indicio Charter and Governance Framework

Indicio's Associates Program is for early-career professionals and those who want to make career transitions. The [program](#) provides each associate with an experienced mentor who helps the associate develop their skills, learn to work with clients, and advance their career goals as part of one of Indicio's technical teams. Associates are also able to access any of Indicio's 21 training programs.

All Associates are paid, work remotely, and avail of flexible hours to fit in with school or other responsibilities. Associates are given the opportunity to graduate into full-time employment with Indicio.

Testimonials

“The associate program at Indicio has been great for me. I got the position while I was still in school, and I was able to work while I finished my degree. When I started, I only knew javascript and I'd never worked on a mobile app before. I learned React Native on the job, and now I work on apps every day. After school, I went from associate to full-time without missing a beat, so the Indicio associate program totally jump started my career.”

— **Sabrina Jensen, Mobile Software Engineer, Indicio, former associate**

“My associate experience at Indicio has been phenomenal. Initially, I was a little nervous; this was my first time programming for work, rather than just for school. Beyond that, it was my first “office job,” and my first time working from home. A few weeks into the program, after I'd gone through the orientation and trainings, I was given what turned out to be my favorite project I've ever worked on. Without going into too much detail, I was given a very basic structure and some project requirements and told to get to work. Of course, the team was super willing to offer help and guidance when I ran into snags, but in large part, I was given responsibility for the project. I've been working on that project as time permits ever since, and there's always more to polish and update with it, but the bulk of the project is functional and working smoothly. I can't think of anything I've done that I've been more proud of.”

— **Micah Peltier, Software Engineer Associate**

Next Steps

Our Public Benefit goals for 2023 are:

- ❖ Expand and deepen our educational activities around the technology (what can be done now with all currently available tools) and with a focus on those outside the “identity” community. A key message in this activity is that the current array of technology options are not, as individual solutions, mutually exclusive.
- ❖ Continue to drive interoperability to support the advancement of decentralized identity technology, both in open source code development (as a company and in collaboration with our clients) and open standards advocacy through our leadership and membership roles in the standards groups.
- ❖ Expand the geographic diversity of the Indicio Network Node Operator Consortium.
- ❖ Continue to build a diverse workforce within Indicio and to provide the resources to existing employees to take on leadership roles within the organization and in related community organizations.
- ❖ Work within the open source, open standards, and identity communities to create opportunities for greater diversity and inclusion, especially in terms of leadership roles.