HYPERLEDGER
BLOCKCHAIN TECHNOLOGIES FOR BUSINESS

2020
Hyperledger Annual Report

Hyperledger is an open source collaborative effort created to advance cross-industry blockchain technologies hosted by the Linux Foundation.

It is a global collaboration including leaders in finance, banking, healthcare, supply chains, manufacturing and technology. We are a community of many enterprise blockchain technology projects including distributed ledger frameworks, smart contract engines, client libraries, graphical interfaces, utility libraries and sample applications. Hyperledger was first launched in December 2015.

73,000+
Hyperledger Meetup Members

149,590
People Registered for "Introduction to Hyperledger Blockchain Technologies" EdEx Training Course

Hyperledger Overall Growth

Even in the uncertain times we found ourselves in 2020, Hyperledger saw growth in many ways including:

- The releases of Hyperledger Fabric 2.0 and Hyperledger Fabric 2.2 LTS
- Hyperledger Besu's graduation to active status
- The launch of Hyperledger Cactus, which graduated from Hyperledger Labs
- Record member participation in Member Summit
- Swift, worldwide uptake of virtual meet-ups with more than 180 events in 81 countries

10+
Hyperledger Certified Service Providers (HCSPs) added for a total of 20

3,000+
New Twitter followers for a total of 66,500+

1.3M
Web pages viewed in 2020

3,200+
Views on the Hyperledger Blog in 2020

Adoption & End-Users

Prominent Use Cases

Walmart Canada enlisted DLT Labs™ to develop the world's largest full production blockchain solution for any industrial application. The solution, DL Freight™, is now the national standard for freight invoice management for Walmart Canada and its national network of carriers.

Key results:
- Since DL Freight was introduced into its operations, Walmart has experienced a demonstrable transformation of freight management and carrier relations. What was previously an overwhelming number of invoice disputes in the range of 70% has now been virtually eliminated to only a small number of discrepancies, approximately 1.5%.
- After approximately six months of national deployment, the platform has successfully processed over 200,000 invoices totaling payments in the hundreds of millions of dollars.

LedgerDomain

Responding to a FDA request for new, cutting-edge approaches to improve the prescription pipeline. LedgerDomain developed BRUINchain, a blockchain-based system for pharmaceutical dispensers all within a shared-permission yet private ecosystem. While the pharmaceutical supply chain has numerous stakeholders, BRUINChain, which is built on Hyperledger Fabric, establishes one version of the truth for the pipeline that is immutable and invaluable.

Key Results:
- In a trial within UCLA Health's network of 500 pharmacists and technicians, the BRUINchain app's barcode scanning functionality on iPhones was 100 percent effective.
- The Hyperledger Fabric-based system was able to track every dose of the medicine in the trial at UCLA Health, down to which refrigerator each dose was stored in across campus.
- Even before the pilot ended, the team was adding new functionality and products as the network of pharmacists grew more reliant on the BRUINchain system.

The National Bank of Cambodia (NBC) partnered with Soramitsu on a digital payment system that would modernize the country's legacy retail payments. They developed Bakong, the first retail payments system in the world using blockchain technology.

Key Results:
- The pilot project went live in July 2019 and ran successfully with a network of 14 banks supporting more than 10,000 users
- Retail throughput reached up to 2,000 transactions per second
- Interbank transfers improved from twice-daily batches to five seconds or less
- Bakong was fully launched in Cambodia in Q4 of 2020

Addressing the need to streamline regulatory reporting for insurers and ensure timely and accurate reports for regulator, the Chicago-based American Association of Insurance Services (AAIS) introduced openIDL, the first blockchain platform to enable efficient, secure data collection and sharing within the insurance industry

Key results:
- Prototype created and 5 million records tested in less than 90 days
- Mechanism for regulators to see more timely market information
- Efficient, real-time automated data uploads replace rigid, batch data-sharing

To increase confidence among members in credit union transactions and remove friction in the member experience, CULedger launched MemberPass™ as a permanent, portable digital identity for credit union members.

Key results:
- With MemberPass, credit unions can now streamline the initial member identity authentication process across the call center, drive-up and lobby touch points, empowering their members with one seamless way of interacting or identifying themselves with their credit union.
- The call center authentication process has been reduced from 5 minutes to 15 seconds or less
- Credit union's annual fraud expenses in the call center channel will be reduced by an estimated $150,000 per year

Companies Actively Building Products and Services Powered by Hyperledger

Hyperledger Global Forum 2020

Hyperledger Global Forum 2020 had a successful second year.

It should be noted, this year's event was hosted during an unprecedented time – as the COVID-19 pandemic began impacting the world. Had the event been scheduled the following week, it would have been canceled as the impact of the coronavirus progressed significantly during the event days. Significant resources were dedicated to ensuring our participating community stayed healthy.

Feedback from attendees was overwhelmingly positive, and 92.5% would recommend this event to an industry friend. The top three reasons that people attended Hyperledger Global Forum were for networking (31%), attending technical breakouts sessions (23%), and attending keynotes/non-technical sessions (23%).

This year's event received more than 300 CFP submissions! The four-day conference featured 27 demo theater sessions, 51 breakout sessions, 8 keynotes, and 11 workshops.

Feedback from attendees was overwhelmingly positive, and 92.5% would recommend this event to an industry friend. The top three reasons that people attended Hyperledger Global Forum were for networking (31%), attending technical breakouts sessions (23%), and attending keynotes/non-technical sessions (23%).
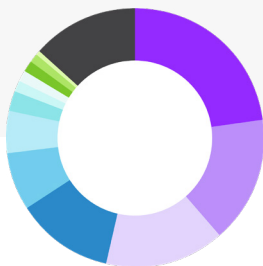

Attendee Job Function
- **27.02%** Executive
- **18.52%** Architect
- **17.65%** Developer
- **14.38%** Sales / Marketing / Business Dev
- **8.50%** Student
- **6.32%** Product Manager
- **2.83%** Professor / Academic
- **1.74%** Media / Analyst
- **1.74%** Program Office Leader
- **1.53%** IT Operations - DevOps
- **1.09%** Legal / Compliance
- **0.87%** IT Operations - Sys Admin
- **15.47%** Other

Job Level
- **21.35%** Individual Contributor
- **19.83%** Director
- **18.52%** CXO / ED
- **18.30%** Manager
- **11.11%** Academic
- **10.68%** VP / SVP / GM
- **17.86%** Other
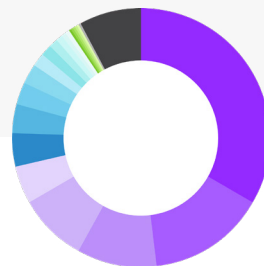
Industry
- **39.43%** Software
- **17.21%** Consulting
- **11.76%** Finance / Banking / Insurance
- **10.24%** Education
- **5.45%** Non-Profit Organization
- **5.01%** Computer Hardware or Consumer Electronics
- **4.36%** Internet or Web Services
- **3.27%** Media / Advertising / Publishing
- **2.83%** Government
- **1.96%** Retail / Wholesale Trade
- **1.74%** Healthcare
- **1.09%** Energy
- **1.09%** Telecommunications
- **0.65%** Agriculture / Forestry
- **0.65%** Industrial Equipment / Heavy Manufacturing
- **0.44%** Aerospace / Defense
- **0.44%** Associations / Trade Groups
- **0.22%** Automotive
- **0.22%** Carrier / Telecommunications
- **0.22%** Construction
- **0.22%** Transportation / Logistics / Warehousing
- **9.15%** Other

Attendee Demographics

80% Male | 18% Female
0% Non-Binary
2% Prefer Not to Answer

Speaker Demographics

75% Male | 17% Female
0% Non-Binary
8% Prefer Not to Answer

539
Total Registrations

37
Countries represented across 6 continents

64%
of attendees came from the United States

Other countries with a sizeable audience at the event include:
6% Canada | **4%** UK
3% India | **3%** Japan

272
Companies Participated

58
Member Companies

10
Diversity Scholarships

125
Attendees at Diversity Happy Hour

Hyperledger Member Summit 2020

The Hyperledger Member Summit took place online this year over the course of two days on September 10-11th. With 427 people registered, 359 attendees, 90 sessions total, and 137 companies represented, this year is the largest Hyperledger Member Summit ever. The overall feedback has been overwhelmingly positive. Our post-event survey showed that 88% of respondents rated their overall experience as Excellent or Somewhat Excellent. Almost 90% rated the quality of content as Excellent, and 88% stated that the information provided during the sessions gave them insight on Hyperledger, Hyperledger Projects, and the future of the community. 379 member individuals were successfully onboarded onto our new Member Portal, which served as a collaboration tool to document the activities and proposals coming out of the Summit and establishes a member-only place for collaboration.

This year, for the first time, we had local language sessions to allow broader participation and inclusivity in our member community. There were a total of five Chinese language sessions and two opportunities during the breaks for the Chinese, Korean, and Japanese community to meet with each other. Our aim in planning this year's virtual event was to find numerous ways to weave in opportunities for the spontaneous conversations between attendees that an in-person event offers by default. At the International Summit kick-off happy hour, 77 members joined us, and we brought levity and fun with four rounds of breakout groups, each with prompts to encourage sharing and conversation.

The collaborative and interactive nature of this year's event included completing a SWOT analysis in breakout groups across three regions and prioritizing those into a Global SWOT document. Proposals from session discussions were collected into a prioritized list of ten proposals that we will engage our members on throughout the next year.

Member Quotes highlighting their overall experience:

- "This is the second member summit I am attending, and every time I have walked away making new industry contacts and learning a bit more about all Hyperledger projects. Well worth the investment of time and effort!"

- "The Member Summit was an engaging and collaborative experience that introduced me to new people, industries and technologies. It's inspiring to see adoption happening out there."

- "The opportunity to meet all global members in a single place and connect with them is priceless."

- "Experience was excellent! A great summit to educate, participate and influence the next evolution in permissioned blockchain technology."

- Hyperledger staff and community members have traveled to or spoke at 30+ conferences and events in 2020.
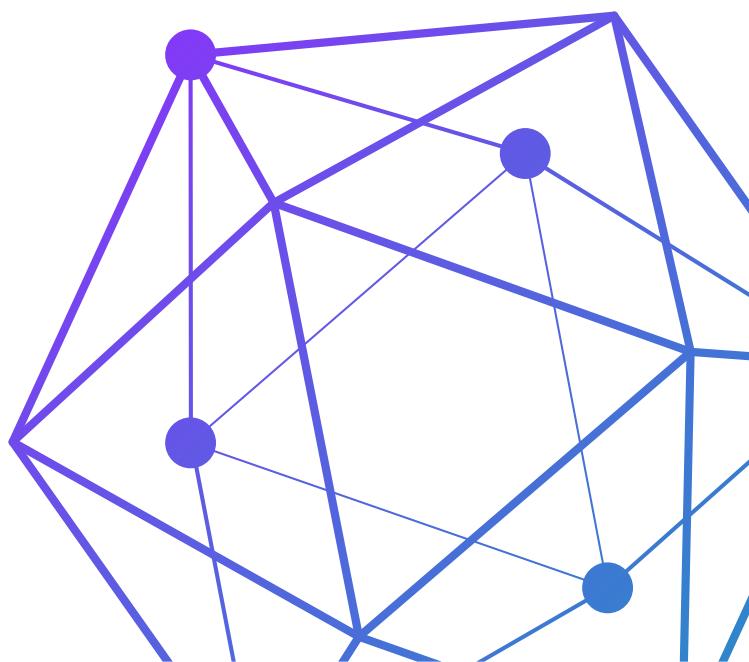
Training & Certification

Official Hyperledger Certified Service Providers

Hyperledger announced its Certified Service Provider (HCSP) program in November 2019 to support the work of organizations that are helping enterprises adopt Hyperledger. The HCSP program offers service providers from around the world training and professional certification that ensures each member has the mastery to install, configure, operate, manage and troubleshoot networks built on Hyperledger distributed ledger technologies (DLTs). HCSPs for Hyperledger Fabric include:

accenture Accenture — MCap: $161.84B — Accenture	**蚂蚁金服 ANT FINANCIAL** Ant Finanical — MCap: $700.81B — Ant Group	**BSOS** BSOS — BSOS	**CHAINYARD** Chainyard — Chainyard - An IT People Company	**creativehill.** Creativehill — Creative hill	**deep dive technology** Deepdive Digital Technologies International — Deepdive Digital Technologies International
HITACHI Inspire the Next Hitachi — MCap: $39.04B — Hitachi	**IBM** IBM — MCap: $112.59B — IBM	**KompiTech Blockchain** KompiTech — KompiTech	**LG CNS** LG CNS — LG CNS	**Mindtree Welcome to possible** Mindtree — MindTree	**Orchestrating a brighter world NEC** NEC Corporation — MCap: $14.42B — NEC Corporation
众享比特 PeerSafe Peersafe — PeerSafe	**PROINSIGHT 远景视点** Proinsight — Beijing Proinsight Technology	**SAP** SAP SE — MCap: $147.68B — SAP	**E·BaaS 不动产联盟链** Shanghai TianJi Network — Shanghai Tianji Network Co.,Ltd	**swisscom** Swisscom AG — MCap: $27.65B — Swisscom	**Tech Mahindra** Tech Mahindra — Tech Mahindra
Tencent 腾讯 Tencent — MCap: $706.39B — Tencent Holdings	**Xooa** Xooa — Xooa	**纸贵科技 www.zhigui.com** Zhigui — Xi'an Zhigui Internet Technology Co. Ltd			

edX Course Enrollment

Introduction to Hyperledger Blockchain Technologies (LFS171x)

149,590

Enrollments
(launched October 2017)

Blockchain: Understanding Its Uses and Implications (LFS170x)

72,873

Enrollments
(launched August 2018)

2 New eLearning Courses Launched in 2020

Becoming a Hyperledger Aries Developer (LFS173x)
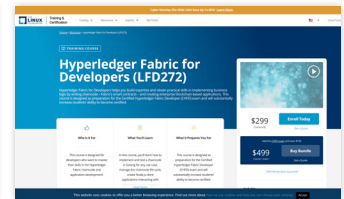
Hyperledger Fabric for Developers (LFD272)

ALTOROS TRAINING

B9 lab

BLOCKCHAIN TRAINING ALLIANCE

CONSENSYS

FORFIRM
THE FUTURE, DELIVERED!

K B A

LIMAR GLOBAL TECHNOLOGY
ليمار للتقنية

众享比特
PeerSafe

REGOV
TECHNOLOGIES

Hyperledger Project Updates & Milestones

At a Glance

Top Contributing Companies
IBM 3,631 Commits
Bitwise 1,149 Commits
Other 1,102 Commits
Intel Corporation 819 Commits
DSR Corporation 777 Commits
ConsenSys AG 740 Commits
Monax 653 Commits
ソラミツ Soramitsu 642 Commits
Accenture 640 Commits
Absa Group Limited 639 Commits
Perun Networks 600 Commits
SecureKey Technologies, Inc. 527 Commits

16
Projects

11K
PRs Merged

Milestones

HYPERLEDGER FABRIC
V2.2 LTS

HYPERLEDGER BESU
V20.10

HYPERLEDGER SAWTOOTH
V1.9

HYPERLEDGER TRANSACT
V0.3.4

HYPERLEDGER QUILT
V1.3

HYPERLEDGER INDY
Production Ready

HYPERLEDGER IROHA
Production Ready

Hyperledger Labs Data

20
Labs proposed

Top 10 Most Active Labs by Pull Request

blockchain-automation-framework 556 pull requests
solang 252 pull requests
business-partner-agent 182 pull requests
fabric-private-chaincode 163 pull requests
fabex 87 pull requests
minifabric 62 pull requests
perun-node 62 pull requests
private-data-objects 49 pull requests
minbft 32 pull requests
eThaler 26 pull requests

16
Labs accepted

Blockchain Automation Framework

Whether developing an early stage PoC, late stage pilot, or scaling for production, Blockchain Automation Framework can reduce the time required to bring up the network from days to hours. The secure, fault tolerant framework helps to ease onboarding of new organizations and accelerate testing or production deployments in multicloud or multiparty systems.

Solang

Solang is a compiler for the Solidity language that can target ewasm (used by Hyperledger Burrow, future ethereum and others), Sawtooth Sabre, and Parity Substrate. It is written in rust and uses LLVM as the compiler backend. The aim is for full compatibility with the Solidity language where possible.

Community Events

Meetup Events

180
Meetup Groups

81
Countries that Host Hyperledger Meetups

180+
Virtual Meetup Events in 2020

5
Regional Chapters (Africa, Brazil, India, Latinoamerica)

73K+
Meetup Members

Speaker Bureau Highlights

122 Active Hyperledger Member Speakers

Hyperledger's speaker bureau program has more than doubled in size in the last year. Community speakers spoke at more than 10 events, including American Film Market Conference, BlockDown, Blockchain Expo North America, MoneyNext, Open Source Summit Europe, Open Source Summit Japan, Open Source Strategy Forum and TieCon.

Hyperledger in Multiple Languages

9
Languages Used to Host Meetups
(English, French, German, Italian, Japanese, Korean, Malayalam, Portuguese, Spanish)

8
Translation Projects for Fabric Documentation
(Chinese, Portuguese, Japanese, Malayalam, Spanish, Russian, Tamil and French)

6
Translations to Hyperledger Home Page
(Chinese, French, Japanese, Malayalam, Portuguese, Spanish)

11
Sessions of a Free Online Spanish Language Fabric Training Course
created by the Hyperledger Latinoamerica Chapter

Hyperledger Mentor/Mentee Program

15
Successfully Completed
Mentorship Projects

22
Mentors

15
Mentees

The Hyperledger Mentorship Program is in its 4th year and provides a structured path to raise awareness of Hyperledger technologies at academia, and onboard young diverse developers. Additionally, it offers the mentorship opportunity to those in the community who desire to teach and guide new developers. Some statistics to note:

- With this year's cohort, 52 mentees have been accepted into the program since its inceptions. Over 700 students have applied.
- More than 70 mentors, including ones from ConsenSys, Oracle, State Street and Wipro and as well as from IEEE, the Linux Foundation and Técnico Lisboa, have designed and managed summer projects.
- Mentees have participated from 20 different countries, namely Brazil, Canada, China, Cyprus, France, Hungary, Italy, India, Iran, Mexico, Pakistan, Portugal, Romania, Russia, Singapore, South Korea, Sri Lanka, Sweden, Taiwan and the United States.
- They have contributed to 12 of the Hyperledger Projects and Labs.
- Three of our mentees have become mentors.
- 13 mentors have participated two or more years.
- 20 mentees have traveled to present at Hyperledger events.
- Mentees have gone on to get jobs at a range of companies, including effx, DFINITY, Facebook, Provectus, Red Hat, Salesforce, SAP, Wavestone and White Metrix, while others are pursuing advanced studies in computer science. A couple have founded their own startups.

Mentorship plays a vital role in bringing new talent and diversity into the open source community. Hyperledger's program is part of a larger, ongoing commitment to mentorship within the Linux Foundation.

Community Engagement

A Hyperledger Special Interest Group (SIG) is a community focused on a particular industry sector or activity with a shared interest in advancing a common understanding of how blockchain technology in general, and Hyperledger technology in particular, may be applicable. SIGs differ from Hyperledger Working Groups (WG) in that WGs are focused on the development of the Hyperledger software projects and are not tied to a specific sector.

2,408
Participants Across All SIGs

16
WGs & SIGs

2,264
Participants Across All WGs

1
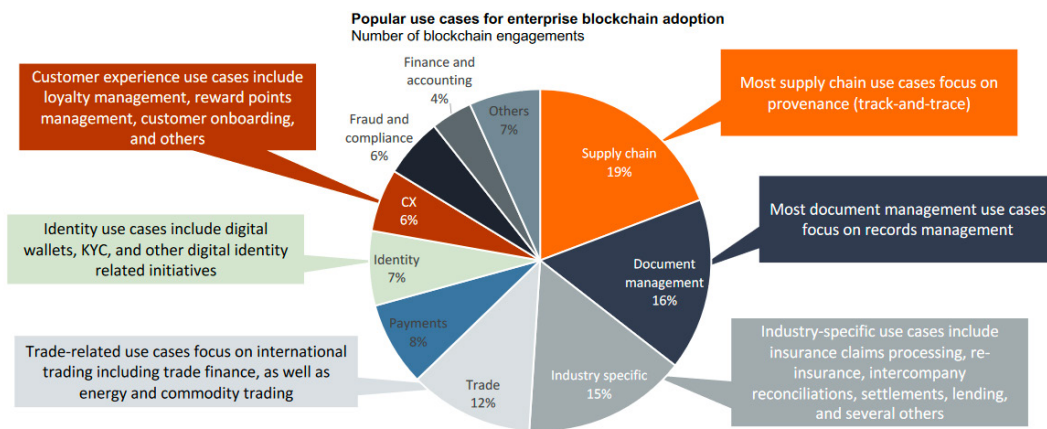New SIG Launched in 2020: Climate Action & Accounting

Blockchain Industry By the Numbers

Supply chain has emerged as the hottest use case for blockchain followed by document management, industry-specific use cases, trade management, payments, identity, and customer experience

TOP 10

Popular use cases for enterprise blockchain adoption
Number of blockchain engagements

Customer experience use cases include loyalty management, reward points management, customer onboarding, and others

Identity use cases include digital wallets, KYC, and other digital identity related initiatives

Trade-related use cases focus on international trading including trade finance, as well as energy and commodity trading

Finance and accounting 4%

Fraud and compliance 6%

Others 7%

Supply chain 19%

Most supply chain use cases focus on provenance (track-and-trace)

Most document management use cases focus on records management

CX 6%

Identity 7%

Document management 16%

Payments 8%

Trade 12%

Industry specific 15%

Industry-specific use cases include insurance claims processing, re-insurance, intercompany reconciliations, settlements, lending, and several others

Sample: ~640 blockchain engagements across 12 service providers (Accenture, Cognizant, DXC, EY, IBM, Infosys, KPMG, LTI, Mphasis, NTT DATA, TCS, and Wipro)
15

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HFS Research

Nearly 40% of companies surveyed in Deloitte's 2020 Global Blockchain Survey have blockchain in production on their organizations.

IDC reports that worldwide spending on blockchain solutions may reach $4.1 billion this year, up by 50% compared to the same period in 2019. Further, the analyst firm forecasts that blockchain spending will be nearly $17.9 billion market in 2024.

Source

APAC & International Growth

APAC Premier Member Snapshot

HITACHI Inspire the Next

FUJITSU

NEC

675
Registrations
garnered for Brian Behlendorf of Hyperledger and Joe Lubin of ConsenSys "Meeting the Blockchain Minds" fireside chat

28
Member Webinars in China
50 to 1500 attendees joined in each webinar, generated 8500+ views on Tencent videos

Hyperledger Fabric 2.0 Bootcamp hands-on workshop by Chainstack

22
Industry Events
where members presented 3 virtual booths: Consensus, Singapore Blockchain Week, Open Source Virtual Summit China 2020

10
Webinars together with Hyperledger India Chapter

PR and Media Highlights

14,439
Articles mentioning Hyperledger

Hyperledger in Action

Telefonica

[Telecom Giant Telefonica Pilots Blockchain Access on 8,000 Spanish Firms](#)

NIKE

[Auburn RFID Lab works with Nike to combat counterfeits](#)

Yale

[Yale University Researchers Leverage Hyperledger Blockchain for Carbon Emissions Tracking](#)

Honeywell

[Honeywell Is Now Tracking $1 Billion In Boeing Parts On A Blockchain](#)

Tech Mahindra

[Tech Mahindra Employs IBM Blockchain in New Platform to Combat Digital Piracy](#)

Walmart

[Walmart Canada's blockchain freight supply chain proving its value](#)

BCI

[Thailand blockchain issues $300 million in bank guarantees](#)

RENAULT

[Groupe Renault, partners develop XCEED blockchain project to certify compliance of vehicle components](#)

ALEXANDER McQUEEN

[Fashion house Alexander McQueen joins blockchain trend with new lab](#)

FQX

[FQX processes promissory notes using Swisscom blockchain](#)

Hyperledger Projects in the News

HYPERLEDGER FABRIC

[Hyperledger Fabric, the open-source distributed ledger, reaches release 2.0](#)

HYPERLEDGER BESU

[Hyperledger Besu moves to active status as enterprise blockchain cases rise](#)

HYPERLEDGER CACTUS

[Hyperledger Cactus: blockchain integration project initiated by Accenture, Fujitsu](#)

HYPERLEDGER BESU

[CoinDesk 50: Besu, the Marriage of Ethereum and Hyperledger](#)

State of the Ledger

Hyperledger turned five in December 2020. It first launched in 2015, supported by 21 founding members.

In the last five years, we've seen an entire ecosystem coalesce around the mission of advancing blockchain for business and, as a community, have built the multiple platforms and tools that are at the center of critical systems around the world. We now have a community of over 200 members with 16 named projects, 20 labs projects, five regional chapters and 20 Hyperledger Certified Service Providers (HCSPs).

In 2020, the focus has shifted from proving the value of blockchain to scaling, governance and managing blockchain networks. COVID-19 has given digitization of trust-based process a new urgency, driving deeper interest in identity and supply chain use cases.

Hyperledger's role has always been to champion both development and deployment of these technologies, and everyday we see the impact our work is having. This anniversary is a great opportunity to look back at the specific achievements of the last year and our overall accomplishments. We arrive at this milestone with the same focus on community building and blockchain's potential that started us on this journey in 2015.