Blockchain as a force for good

Five principles to build trust and real value

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Good technology is more than just sheer ingenuity: it reflects the determination to do the right thing.

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Talking points

A matter of principle
Blockchain is an innovative technology that has tremendous potential for good, but only if those developing and bringing it to market commit to basic principles and then apply them.

Laying a foundation for good
An approach that favors openness—including common, open standards and shared governance—creates better innovation and helps mitigate the potential for misuse.

Real accountability
Blockchain participants should be known and validated, and must also be able to control their data and who may access it so they can maintain essential privacy.

Encouraging a positive impact

Technology doesn't exist in a vacuum—especially innovations that can transform the world at a scale sometimes difficult to contemplate. Blockchain is one such innovative technology, and just like artificial intelligence (AI) and quantum computing, it has the capacity to deliver both good and "less than good" outcomes.

We've seen both: in its relatively short history, blockchain has helped food retailers track and better respond to salmonella outbreaks, for example. But it's also been used by cryptocurrency fraudsters to carry out elaborate pump-and-dump initial coin offering (ICO) schemes.

How do we obtain the benefits of blockchain, and avoid or deter its misuse? The responsibility rests primarily with innovators—the people and organizations developing it and bringing it to market.

Fortunately, after years of experimentation and with experience from established live networks, we have a clear picture of what a trusted and transparent enterprise blockchain should look like. Networks need to deliver real business value, be equitable to all participants, and promote open innovation and collaboration.

64 percent of the global general population expect CEOs to take the lead in building trust rather than expecting the government to impose it.[1]

Blockchain principles

If blockchain is to move beyond the technological fringe into the mainstream and support a more trusting and transparent world, we must, as innovators, remain committed to a set of practical ideals that guide our actions and how we put our technology to use.

Here is a set of blockchain principles we find really works, as illustrated below:

	1	Open is better
	2	Permissioned doesn't mean private
	3	Governance is a team sport
	4	Common standards are common sense
	5	Privacy is paramount

Open is better

Blockchain networks must foster diverse communities of open source contributors and organizations. This promotes open innovation and strengthens the overall quality of code. An open governance model enables participants to work together under free licensing models such as Apache2 and MIT.

Wherever possible, developers should avoid proprietary technologies in favor of open source frameworks with defined approaches for sharing contributions. Done correctly, open development can increase innovation while hastening time to maturity and decreasing cost.

Permissioned doesn't mean private

Privacy in the form of anonymity often won't support the regulatory and fiduciary responsibilities of enterprise blockchain participants. These blockchains must be designed around the principle of permissioned and trusted access. Permissioned blockchains maintain an access control layer to allow certain actions to be performed only by certain identifiable participants.

Although anonymous public blockchains may afford some powerful capabilities, they aren't suitable for most enterprises, particularly those in regulated industries. Most organizations need to know who they're conducting business with and that no illegal activity is being transacted over the network.

This doesn't mean enterprise blockchains can't be public. Permissioned enterprise blockchains may be open to any party willing to register and cryptographically validate its identity. Common identity standards can help streamline access across multiple blockchain networks using the same set of verified credentials.

For example, Hyperledger Project, operated under The Linux Foundation, is an open source "greenhouse" for growing enterprise-grade blockchain software with strong and diverse code contributors, and liberal licensing.[2] Hyperledger recently added 45 new members and three of its 12 projects are now active.[3] And Sovrin, a digital identity management network and Stellar, a decentralized global payment platform, are public, yet permissioned, blockchain networks. TradeLens, a supply chain management platform built atop Hyperledger Fabric, is another example of a permissioned blockchain that grants participants visibility into who their network peers are.

Governance is a team sport

Enterprise blockchains must embrace distributed and transparent governance so networks can serve the needs of participants and prevent undue concentrations of influence. Enterprises should choose a platform that automatically provides a democratic structure hardwired into the network, with built-in privacy and "permissioning" features.

Rules governing who can join a blockchain network, and how, should be clearly stipulated, as well as guidelines on which participants can play key roles (such as network operators). Trust anchors, members who run nodes in the network and participate in validating transactions, should be distributed across multiple participants.

As a rule, a trusted governance model requires at least three designated trust anchors, but networks benefit from scaling the number of members who hold a copy of the distributed ledger. Governance frameworks should also take into account a network's funding model, whether it's financed by membership fees, ledger operators or something in between, or mediated governance bodies.

Common standards are common sense

Enterprise blockchains should be architected around common standards with interoperability in mind. This will help "future-proof" networks, prevent vendor lock-in, and foster a robust ecosystem of innovators. It's critical that interoperability includes cloud platforms: vendors should meet participants where their data already is.

While most blockchain networks presently exist in silos, it's generally accepted that the technology is evolving to support a network of networks. A first step toward this interoperability is to make blockchains visible to one another through a registry, such as Hacera Unbounded.[4] In addition, blockchain networks should define and publish their data models and policies for change. Wherever possible, these should be built on industry standards, or use APIs with permissioned access.

Working for the good of all

TradeLens is setting up an Industry Advisory Board of ecosystem participants to help govern the growing network, shape the platform, and promote open standards. The network is working with bodies such as United Nations Centre for Trade Facilitation and Electronic Business (UN/CEFACT), Digital Container Shipping Association (DCSA) and industry groups such as OpenShipping.org to allow interoperability.[5]

Distributed trust model

The Verified:Me identity network in Canada, convened by SecureKey Inc, has enlisted major Canadian banks to participate as trust anchors to host nodes and validate network transactions. SecureKey has created a governance model that involves ongoing checks and balances among its constituent working groups.[6]

A third of consumers are now buying from brands based on their social and environmental impact. An estimated €966 billion opportunity exists for brands that make their sustainability credentials clear.[8]

Good tech in action: Ethical cobalt mining

Cobalt mining can create serious pollution and health risks, especially in poor countries where discovery of the mineral can lead to opportunistic "artisanal" mining operations that put local communities at risk. But there's currently no surefire way for companies to prove to customers that they've sourced their cobalt from safe mining operations since cobalt, when smelted, is regularly combined with metals from various sources. Today, a consortium comprising Ford Motor Company, IBM, LG Chem, and RCS Global is working on a first-of-its-kind blockchain pilot to demonstrate how materials in the cobalt supply chain can be responsibly produced, traded, and processed from mine to end manufacturer.[7]

Privacy is paramount

Participants on an enterprise blockchain must be able to control who can access their data and under what circumstances. This is essential on a platform that, by definition, distributes data widely across multiple nodes. Furthermore, while no single participant "owns" a blockchain network, the rights to the data that resides on it should always belong to the creator.

Any APIs should extend the same permissioned access programmatically. Blockchain networks must also abide by privacy regulations such as General Data Protection Regulation (GDPR). In most cases, that means any personal data should be kept off-chain.

Decentralized Identity Foundation, for example, has defined a set of specifications on how to identify organizations, people, and digital assets that enable entities to be identified across blockchain (and non-blockchain) networks. Collaboration between Hyperledger and the Enterprise Ethereum Alliance, along with modular blockchain client Burrow and the Token Taxonomy Initiative, is an effort to standardize blockchain tokens, and foster such standardization.[9]

Another example, to enact various supply-chain efficiencies while safeguarding each member's proprietary information, IBM Food Trust, a blockchain network aimed at protecting food safety, freshness and sustainability, enables brands like Walmart, Carrefour, and Driscoll's to leverage shared data.[10]

More than twice as many blockchain early adopters report high revenue growth and profitability compared to those not yet adopting blockchain technology.[11]

Putting blockchain principles to work

Technology can promote societal benefit if those who deploy it, as well as those who develop it, give thought to its use. Blockchain, in particular, offers a way to help us know exactly what is going on across a vast and complex set of transactions and interactions, such as those in a global supply chain. It is therefore well suited to helping companies guarantee provenance, prove adherence to regulations and ethical considerations, and pinpoint quickly potentially harmful issues.

By keeping development and use of blockchains open and equitable, and making sure all participants are known and accountable, organizations can can use blockchain as a positive force. It can help uphold their reputation and integrity and help garner the full trust of clients and business partners.

Are you ready to adopt important principles of blockchain?

– Which of your enterprise processes could be made more trusted and transparent?

– What collaborative efforts to further open both development and governance efforts in blockchain is your organization a part of?

– What measures is your organization taking to enforce integrity and privacy of data?

Notes and sources

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