Blockchain and the future of management

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September 2016 - Don Tapscott

The self-governing nature of blockchain could shake up hierarchies for years to come – or even eliminate them altogether.

It was as if the weather knew that something huge was on the horizon. On 30 July 2015, a massive thunderstorm broke over New York's East River, triggering loud and random emergency flood warnings on everyone's smartphones, as a global group of coders, investors, entrepreneurs, and corporate strategists gathered in New York on one of the biggest days of their lives. Moments later, Ethereum, the blockchain platform 18 months in the making, went live. Those who believe that Ethereum is the next big thing, think it's transformative not just for business, but possibly for civilization. Imagine a world where organizations and systems were essentially self-managing: everything from purchase ledgers to online forums are checked and validated by their users. The managers, moderators, middlemen, and hierarchies associated with systems and organizations are superfluous in this new world. That world came closer on 30 July last year.

I witnessed the launch first-hand in the Brooklyn office of Consensus Systems (ConsenSys), one of the first Ethereum software development companies. At about 11.45am, there were high fives all around as the Ethereum network created its 'genesis block' – after which a frenzy of so-called 'miners' raced to win the first block of ether – Ethereum's currency. With the tempest raging outside, the day was eerily suspenseful.

Ethereum is like bitcoin, in that its ether motivates a network of peers to validate transactions, secure the network, and achieve consensus about what exists and what actions have occurred. Its users are its managers and its compliance officers. But, unlike bitcoin, it contains some powerful tools to help developers, and others, create software services ranging from decentralized games to stock exchanges.

Ethereum was conceived in 2013 by then-19-year-old Russian-Canadian Vitalik Buterin. Buterin had told bitcoin core developers that the platform needed a more robust scripting language for developing applications. When they rejected his idea, he decided to craft his own platform. ConsenSys was first off the block and launched to create Ethereum-based apps. Fast forward a couple of years, and the analogy is clear: Linus Torvalds is to Linux what Vitalik Buterin is to Ethereum.

When discussing the rise of blockchain and Ethereum technology, Joseph Lubin, ConsenSys's cofounder, says: "It became clear to me that instead of people wasting their time walking down the street with posters on sticks, we could all work together to just build the new solutions to this broken economy and society." Don't occupy Wall Street. Invent our own street.

Like many entrepreneurs, Lubin has a bold mission, not just to build a great company but to solve important problems in the world. He deadpans that the company is a "blockchain venture production studio, building decentralized applications, mostly on Ethereum". It sounds like pretty low-key, techie stuff. But, if implemented, the applications that ConsenSys is building would shake the windows and rattle the walls of a dozen industries.

Projects include:

- a distributed triple-entry accounting system
- a decentralized version of the massively popular Reddit discussion forum, plagued of late by controversy over its centralized control
- a document-formation and management system for self-enforcing contracts (aka smart contracts)
- prediction markets for business, sport, and entertainment
- an open energy market
- a distributed music model to compete with Apple and Spotify, though those firms could use it too
- a suite of business tools for mass collaboration, mass creation, and mass management of a management-less company

The ConsenSys story

The story of ConsenSys is not so much about its ambitious blockchain-based products or services. It's about its efforts to cultivate a company of its own, pioneering important new ground in management science along the lines of holacracy – a collaborative rather than

hierarchical process for defining and aligning the work to be done. “While I don’t want us to implement holacracy as is – it feels way too rigid and structured to me – we are working to incorporate many of its philosophies in our structure and processes,” said Lubin. Among those holacratic tenets are “dynamic roles rather than traditional job descriptions; distributed, not delegated authority; transparent rules rather than office politics; and rapid reiterations rather than big reorganizations” – all of which describe how blockchain technologies work. How ConsenSys is structured, how it creates value, and how it manages itself differs, not only from the industrial corporation, but also from the typical dotcom.

Joe Lubin is not an ideologue, and certainly not an anarchist or libertarian like some in the cryptocurrency movement. But he does think that we need to change capitalism if we want it to survive, specifically to move away from the command-and-control hierarchies inappropriate for a networked world. He notes that today, even though vast networks enmesh the world and enable us all to communicate inexpensively, richly, and immediately, hierarchies prevail. Bitcoin is the counterbalance: “Global human society can now agree on the truth and make decisions in ten minutes, or ten seconds,” he said. “This surely creates an opportunity to have a more enfranchised society.” The greater the engagement, the greater the prosperity.

The end of managers. Long live management

ConsenSys operates according to a plan that all employees – known as members – developed, modified, voted on, and adopted. Joe Lubin describes its structure as a ‘hub’ rather than a hierarchy, and each of its projects is a ‘spoke’ in which major contributors hold equity.

For the most part, members of ConsenSys choose what they work on. No top-down assignments.“We share as much as possible, including shared software components.” says Lubin. “We build small agile teams, but there is collaboration among them. We have tons of immediate, open, rich communication.” Members choose to work on two to five projects. When someone sees a piece of work that needs to get done, he or she jumps in and pushes it a little or a lot farther in a valuable direction, as appropriate for her role. “We talk about things quite a bit so people are aware of the many things that could be pushed forward,” he says. But these many things can and do change constantly. “Part of being agile means that priorities are dynamic.”

Lubin is not the boss. His main operational role is advisory: “In many cases, individuals ask me or others what would be good to work on,” he says. Through Slack and GitHub, he suggests directions they might pursue “to build all the services and platforms that we want to build, and many that we want to build but don’t know it yet”.

Member ownership explicitly incentivizes this behaviour. Everyone owns a piece of every project directly or indirectly: the Ethereum platform issues tokens that members can exchange for ether and then convert into any other currency. “Our goal is to achieve a nice balance between independence and interdependence,” Lubin says. “We view ourselves as a collective of closely collaborating entrepreneur-like agents. At some point, it may prove necessary to suggest that a certain thing really needs to get done and, if nobody steps up, to hire someone initially for that role or incentivize internal people to do it. But, overall, everyone is a self-managed adult. Did I mention that we communicate a lot? Then we all make our own decisions.”

The watchwords are agility, openness, and consensus: identify the work to be done, distribute the load among the people eager and able to do it, agree on their roles, responsibilities, and compensation, and then codify these rights in “explicit, detailed, unambiguous, self-enforcing agreements that can serve as the glue to hold all of the business aspects of our relationships together”, Lubin says. Some agreements pay for performance, others mete out annual salary in ether, and still others are more like “requests for participation”, with bounties attached to task completion such as writing a line of code. If the code passes the test, then the bounty is automatically released. “Everything can be surfaced and appropriately transparent. Incentives are explicit and granular,” he says. “This leaves us free to communicate, be creative, and adapt based on these expectations.”

Dare we coin the neologism blockcom – a company formed and functioning on blockchain technologies? That’s the goal, to run as much of ConsenSys as possible on Ethereum, from governance and day-to-day operations, to project management, software development and testing, hiring and outsourcing, compensation, and funding. The blockchain also enables reputation systems, where members can rate one another’s performance as collaborators, thereby syndicating trust in the community. These capabilities blur the boundaries of a company. There are no default settings for incorporation. Members of the ConsenSys ecosystem can form spokes by reaching consensus on strategy, architecture, capital, performance, and governance. They may decide to launch a company that competes within an existing market or provides an infrastructure for a new market. Once it is launched, they can adjust those settings.

Decentralizing the enterprise

The blockchain will reduce friction for companies everywhere. “Lower friction means lower costs as the price of valuable intermediation is determined via the most efficient price discovery mechanism: decentralized free markets,” Lubin says. “No longer will incumbents be able to leverage legal, regulatory, informational, and power asymmetries to extract far more value from a transaction in their role as an intermediary than they add to it.”

Could ConsenSys build some kind of truly decentralized autonomous organization, owned and controlled by its nonhuman value creators, governed through smart contracts rather than human agency? “All the way!” says Lubin.

Going rogue?

Is there a risk that radical decentralization and automation removes human agency in decision-making – the risk of rogue algorithms? “I am not concerned about machine intelligence. We will evolve with it, and for a long time it will be in the service of, or an aspect of, Homo sapiens cybernetica. It may evolve beyond us, but that is fine,” Lubin says. “If so, it will occupy a different ecological niche. It will operate at different speeds and different relevant timescales. In that context, artificial intelligence will not distinguish between humans, a rock, or a geological process. We evolved past lots of species; many of which are doing fine – in their present forms.”

ConsenSys is still a tiny company. Its grand experiment may or may not succeed. But its story provides a glimpse into radical changes in corporate architecture that may help unleash innovation and harness the power of human capital for not just wealth creation, but for prosperity. Blockchain technology is enabling new forms of economic organization and new portfolios of value. There are distributed models of the firm emerging – ownership, structure, operations, rewards, and governance – that go far beyond enhancing innovation, employee motivation, and collective action. They may be the long-awaited precondition for a more prosperous and inclusive economy.

Business leaders have another opportunity to rethink how they organize value creation. They could negotiate, contract, and enforce their agreements on the blockchain; deal seamlessly with suppliers, customers, employees, contractors, and autonomous agents; and maintain a fleet of these agents for others to use, and these agents could rent out or license any excess capacity in their value chain.

Seven business uses for blockchain

Again and again in the digital age, large corporations have consolidated – created, processed, and owned or acquired – applications on their own large systems. Centralized companies have begotten centralized computing architectures that have concentrated technological and economic power. With single points of control, companies themselves are vulnerable to catastrophic crashes, fraud, and security breaches. Systems within a company still struggle to communicate with one another, let alone with those outside the firm.

Along comes blockchain technology, the vast, global distributed ledger or database running on millions of devices and open to anyone, where not just information but anything of value – money, titles, deeds, music, art, scientific discoveries, intellectual property, and even votes – can be moved, stored, and managed securely and privately. On blockchain, trust is established, not by powerful intermediaries like banks, governments and technology

companies, but rather through mass collaboration and clever code. It presents countless opportunities to construct open-networked enterprises that blow centralized models to bits by activating native digital payments, reputation systems, censor-proof publishing, smart contracts, and autonomous agents – the key innovations of the blockchain revolution. Consider seven new business models that can innovate better and create better value at lower cost.

1. Peer producers

There are thousands of dispersed volunteers who brought you open-source software and Wikipedia. By enabling reputation systems and other incentives, blockchain technology can improve their efficiency and reward them for the value they create. Just as IBM embraced Linux, firms can tap into self-organizing networks to co-create or peer-produce value.

2. Rights creators

Many musicians, photographers, artists, designers, scientists, architects, engineers, and authors have not received proper compensation for their intellectual property on the internet. Blockchain technology solves the IP world's equivalent of the double-spend problem (see box) – piracy – better than existing digital rights management systems. Consider the digital registry of artwork, including the certificates of authenticity, condition, and ownership: artists could decide whether, when, and where they wanted to deploy it.

3. Blockchain cooperatives

The trust protocol supercharges cooperatives – autonomous associations formed and controlled by people who collaborate to meet common needs. With blockchain technology, they can translate their willingness to cooperate into reliable accounting for rights, assets, and skills that displaces platforms like Uber, Airbnb, and TaskRabbit.

4. Metering economy

With blockchains we can rent our excess capacity for certain commodities – wifi hotspots, computing power or storage, extra mobile minutes, even our expertise – by metering a counterparty's usage and microbilling on the blockchain. Our subscriptions, physical space, and energy sources can now become sources of income.

5. Platform builders

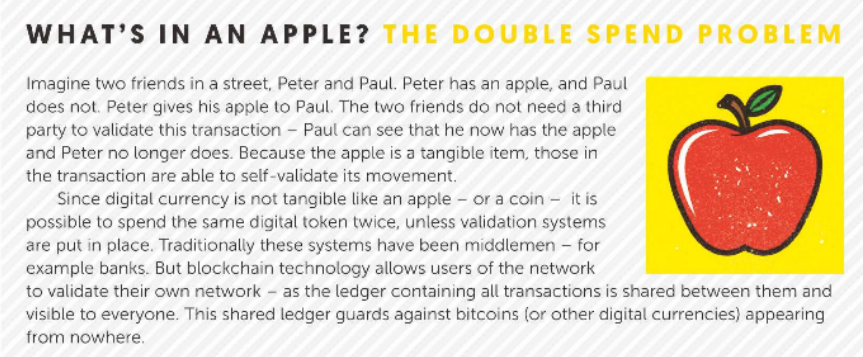
Enterprises create platforms when they open up their products and technology infrastructures to outsiders. Blockchain technology makes platform building cheaper and manageable. It provides a standard common database and standard common contracts, which increase data transparency and portability. Users can pursue the best terms and cooperate with the best talent to create their own platforms, rather than using the applications of traditional companies.

6. Blockchain makers

Blockchain technology supports the ‘internet of things’ used in manufacturing. It can automate, not only the coordination of machines, but the tracking of inputs and outputs. We could, for example, monitor our beef from birth to burger, buying animals that were raised humanely, fed quality ingredients, and butchered under sanitary conditions.

7. Enterprise collaborators

Today, commercial collaboration tools like Salesforce Chatter are changing knowledge work, but there are clear limitations. Users often cannot port their ideas from unit to unit, let alone from job to job, yet vendors and corporate IT can eavesdrop on collaborations. To attract talent, firms need to respect employee security and privacy. The blockchain enables individuals to establish and decide how, where, and what to contribute to a commercial project.



WHAT'S IN AN APPLE? THE DOUBLE SPEND PROBLEM

Imagine two friends in a street, Peter and Paul. Peter has an apple, and Paul does not. Peter gives his apple to Paul. The two friends do not need a third party to validate this transaction – Paul can see that he now has the apple and Peter no longer does. Because the apple is a tangible item, those in the transaction are able to self-validate its movement.

Since digital currency is not tangible like an apple – or a coin – it is possible to spend the same digital token twice, unless validation systems are put in place. Traditionally these systems have been middlemen – for example banks. But blockchain technology allows users of the network to validate their own network – as the ledger containing all transactions is shared between them and visible to everyone. This shared ledger guards against bitcoins (or other digital currencies) appearing from nowhere.

–Don Tapscott is author of *Blockchain Revolution.*

An adapted version of this article appeared on the Dialogue Review website.

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