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BLOCKCHAIN IN ENTERPRISE PART 2:
Consortium governance and the future of globalization

RESEARCH REPORT
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Executive Summary

The decades of neoliberal globalization that started with the end of the gold standard and the beginning of free-floating exchange rates has created one interconnected marketplace of global supply chains that account for 80% of world trade.

Globalization has also increased the volume of foreign exchange flows from an average of $15 billion per day in 1973 to $5.3 trillion in 2013; however, the global financial infrastructure has not kept up with this pace of internationalization and what we are witnessing now with the rise of digital currencies and blockchain infrastructure is the globalization of money itself. Governance of this new technology and borderless money is crucial to mainstream adoption and multinational corporations (MNCs) are starting to put their weight behind governance in blockchain consortia.

This is happening amid a resurgence in nationalist politics and a deterioration of post-World War II (Bretton Woods) governance and free-trade agreements, leaving a power vacuum in global governance, or a 'G-Zero World'. A move to 1930s style protectionist trade policies would be disastrous for the global economy and MNCs are taking measures to protect their supply chains and influence the direction of future globalization. Alternatives to the Bretton Woods multilateral system are being created and new models of multi-stakeholder governance are emerging, some built around blockchain consortia.

This power shift can be seen in the waning influence of the United Nations which this year faces a funding crisis as member nations refuse to pay fees, and the rise of corporate multi-stakeholder groups such as the World Economic Forum (WEF) which moves closer to global governance after signing an MOU with the UN this year.

Facebook's Libra Association has been the greatest attempt by an MNC to recreate the multi-stakeholder model in a consortium that if successful could become a 'decentralized NGO'. However, as blockchain potentially enables new forms of decentralized organization and co-opetition between rival companies 'decentralization' could also be used as a veil to absolve companies from traditional liabilities, just as no one can be subpoenaed for the consequences of bitcoin or any other permissionless cryptocurrency.

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Part 2 of this research series looks at the governance models of the three prominent blockchain consortia, Hedera Hashgraph, Libra and R3 Corda - and details:

- the possible motivations for joining a consortium
- Blockchain enabling new forms of corporate governance models
- The decline of multilateralism and the rise of multi-stakeholder groups
- The role of tokenized assets (security tokens) in enterprise

Just as blockchain and cryptocurrencies are being used to reorganize the traditional structures within corporations it is also leading to new forms of governance between corporations as industry leaders steer the next phase of globalization and global governance. It is vital for investors and business leaders to understand this next evolution of blockchain as, with a global recession flashing across many macro indicators, we expect more companies to join blockchain consortia to buffer an economic downturn.

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Blockchain and the next era of globalization

It is unsurprising then that we are seeing a rise in corporate consortia in an era when multilateral free trade partnerships of globalization are falling apart: Brexit and the European Union; The Trans-Pacific Partnership; and NAFTA among many others. Furthermore, the non-binding nature of many contemporary agreements means they are ineffective at managing systemically important global issues.

The International Chamber of Commerce (ICC), a non-profit body that represents 45 million for-profit companies - setting agendas and recommendations to guide the future of international trade - is also piloting blockchain in government and enterprise with the company Perlin. The ICC is campaigning for reform of the World Trade Organization (WTO), a Bretton Woods institution, asserting that the multilateral system has reached its limits in a digital world.

> *"Today, nation states and elected politicians are more creatures of corporations than corporations are creatures of nation states."*
> *- Dee Hock, Founder of Visa*

The ICC is currently working with the government of Montenegro to pilot blockchain in the economy to boost its chances of joining the European Union - regarding which it has been in negotiations since 2012. Perlin also has a partnership with the Dubai business chamber.

Perhaps the most significant development of blockchain in trade is China's digital Yuan, the world's first central bank digital currency, which will be released by the end of 2019. The digital Yuan will give China and the PBoC unprecedented oversight and control of offshore loans along its Belt and Road (B&R) initiative as it seeks to expand its currency and influence in Asia, Africa and Europe.

For example, the China Development Bank, the country's biggest lender, is investing $890 billion among 900 projects along the B&R and the Export-Import Bank of China will fund 1000 projects across 49 countries and the digital Yuan would give them real-time data on money flows and credit conditions.

The breakdown of cooperation on trade or climate agreements has created much uncertainty for the future of globalization and with the growing size and importance of MNCs (for example, the close ties between major Chinese technology companies and the government) many are on the path to becoming policy makers and perhaps even superseding governments in future governance.

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We believe blockchain could expedite this trend of post-nation forms of governance and it is not yet apparent who, if anyone, within these consortiums will be providing objective oversight of their inner-workings.

Multilateral governance reaching its limits

The governance systems and institutions set in place since the end of World War II have used a multilateral approach whereby nations reached consensus on global governance, embodied by the United Nations, however, the efficacy of this model may be reaching its limits.

The multi-stakeholder governance (MSG) model involves private entities joining forces with public bodies (e.g. Public-Private Partnerships) but also usually comprises of stakeholders from wider civil society such as NGOs and charities. MSG bodies are often used to tackle issues that were formerly the domain of governments but have lost the ability to govern and are often faster and more effective at decision-making.

Evolution of global governance			
Nation-states	**Bretton Woods Institutes**	**Nation multilateral agreements**	**Corporate Multi-stakeholder**
US, UK, China	World Bank & IMF	UN & WTO	WEF & Libra Assoc
Unilateral and Bilateral agreements between nations on trade, still persist though is receding	To rebuild the post-WWII global economy. Consensus on trade & economic decision-making	Non-binding voluntary systems where nations agree to address issues arising from globalization	Brings together corporations, NGO and Civil Society to create more direct, effective action on global issues

There is growing public frustration with the multilateral bodies established after WWII which are seen as bloated, bureaucratic and impotent in tackling global issues in our increasingly complex systems.

In October this year, the UN announced that it faces a cash crisis and would deplete its liquidity reserves by the end of the month due to member states not paying their fees. According to UN Secretary-General Antonio Guterres member states have paid only 70% of the total amount needed for regular budget operations in 2019, with a cash shortage of $230 million. The UN Secretariat employs 37,000 people.

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Previously, Guterres had asked member states to lift their contribution to prevent cash flow problems but they reportedly refused. The United States contributes around 22% of total UN funding but currently owes the body around $1 billion. President Trump has openly renounced the UN saying in a recent address to the UN assembly "the future belongs to sovereign and independent nations."

This decline in the UN, and other multilateral formats such as G7 or G20, a collective of the world's most powerful countries that has taken action for decades, has left something of a 'power vacuum' in what has been dubbed a G-Zero World in which there is no single power or group of powers is willing or able to set the international agenda.

The rise of the multi-stakeholder model

The rise of the corporate consortium model in enterprise coincides with a rise in a new form of corporate MSG globally.

The advent of multi-stakeholderism can be traced to the US Supreme Court's decision to grant personhood to corporations, which accords legally licensed firms some elements of a citizen's right to participate in governance such as electoral lobbying.

> *"The acceptance of multistakeholder governance moves beyond corporate personhood and in effect endorses the concept of stakeholder personhood. In multistakeholderism, corporations and other stakeholders are asserting that they have a legitimate right to participate in global governance."*
>
> *- Harris Gleckman, University of Massachusetts*

The composition of Libra follows the multi-stakeholder model: the fringe involvement of NGOs and charities and the self-appointment of members based on selection criteria that the founding members lay out. The closest real-world analogy we have to a corporate super-council like Libra is the World Economic Forum (WEF), "a platform for the world's 1,000 leading companies to shape a better future", which is the best known and biggest multi-stakeholder body.

The WEF is a multi-stakeholder NGO largely comprised of multinational corporations and executives and can be viewed as the corporate counterpart to the UN. The WEF, famous for its annual meeting in Davos, internally creates policies and recommendations that influence policymakers and governance groups such as the G7/G20 as to the best path forward for globalization and emerging technologies. Many of the "1,000 leading companies" are also involved in blockchain consortia that are defining the rules for the future of their industries. If approved, Libra would effectively become a 'decentralized NGO' whose members are also members of the WEF.

The rise of global governance 'alternatives'

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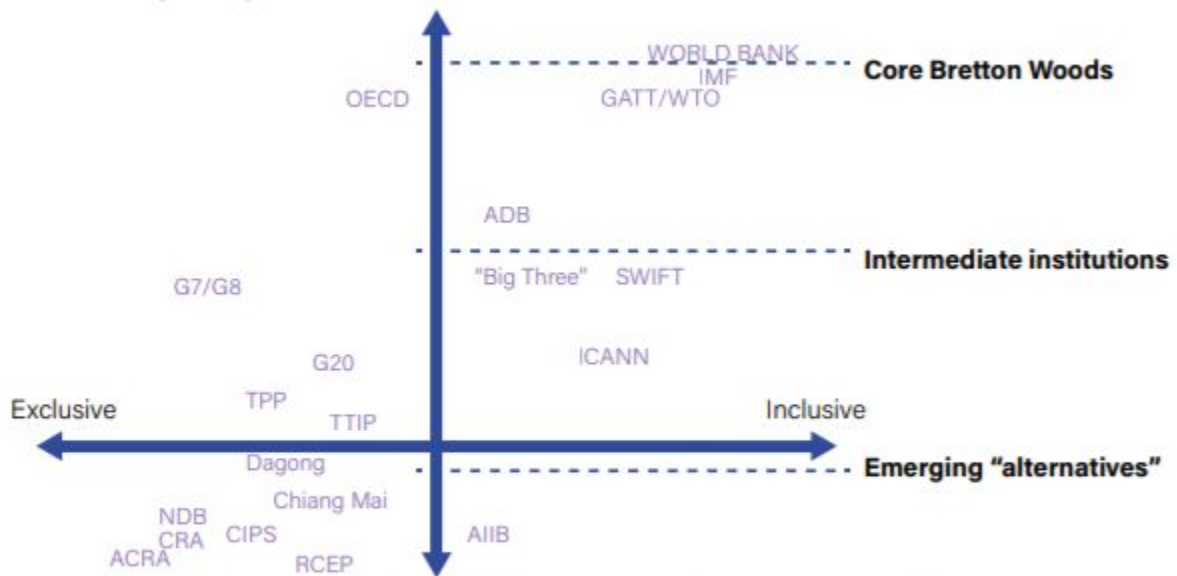
Source: Adapted from Sebastian Heilmann, Moritz Rudolf, Mikko Huotari, James Buckow, Merics, China's Shadow Foreign Policy: Parallel Structures Challenge the Established International Order (2014), Eurasia Group

Source: Eurasia Group

In June this year, the UN signed an MOU to partner with the World Economic Forum on global affairs. This brings corporations into the realm of global governance and may have been done at least in part to ameliorate the funding and membership issues that the UN is facing. The agreement has been compared to a government agreeing with a national business organization to help in governance and raised concerns that the UN is being turned into a PPP. It compounds existing criticisms of the UN for allowing too much corporate influence and funding to creep into its Global Compact.

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The World Economic Forum and blockchain

The World Economic Forum has also established a Centre for the Fourth Industrial Revolution, which is building a 'network for global technology governance' in six key technologies: AI, blockchain, the internet of things (IOT), data, drones and autonomous vehicles.

> *"The Centre for the Fourth Industrial Revolution in San Francisco aims to accelerate cross-sector cooperation for Fourth Industrial Revolution governance."*
> ### - The World Economic Forum

The centre assembles working groups from its partners and members to tackle governance around new technologies. Some of the centre's partners include Salesforce, Visa, Accenture, Deutsche Bank, Deloitte, Amazon Web Services, Huawei, Uber and IBM, among many other industry leaders. It also has government partners and SME members.

The WEF Global Redesign Initiative was a year-long group project that laid the foundations for the centre, which explored and advocated for the use of multi-stakeholder global governance over multilateral nation-state governance.

Following from its Global Redesign Initiative the WEF has created a number of working groups around the theme of Shaping the Future of Technology Governance. Under these it has issued a series of white papers titled Redesigning Trust: Blockchain for Supply Chains which outlines recommendations for blockchain trade and enterprise.

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An overview of blockchain consortia

As covered in Part 1 of this series, the focus of blockchain endeavours has shifted from 'decentralization at all costs' and given way to a more realistic pursuit of effective and practical governance, either as a second layer technology or using off-chain methods.

This report focuses mainly on the off-chain methods of blockchain consortia to govern the technology and corporate governance - the first step for blockchain platform governance is to create a legal entity much in the same way corporations create the limited liability board of directors.

There is a growing trend of companies organizing in consortia to govern and manage permissioned and private blockchains, coming together within (vertically) and across industries (horizontally). Most blockchain initiatives originate from a single entity with a dominant market position, for example Maersk or Facebook; a report by Cambridge University which assessed 67 live enterprise blockchain networks found that 71% are founder-led while 22% are consortium-led and 6% are government led.

R3 Corda, set up in 2015, is perhaps the longest-running blockchain consortium which is focused on investment banking and comprised of 300 of the world's biggest banks; the International Interbank Network (INN) is its JP Morgan-led counterpart which claims to be the largest network of banks using blockchain. JP Morgan's Quorum, using a permissioned configuration of the Ethereum network, is another consortium in the finance industry that seeks to build infrastructure between big banks.

The Libra Association, proposed by Facebook, is the most recent and ambitious corporate consortium, a multi-stakeholder governance council (with similarities to the World Economic Forum) to govern the Libra USD stablecoin built for e-commerce and financial services. Centre is the consortium founded by Coinbase and Circle to govern the USDC stablecoin which has launched in 85 countries. Coinbase recently acquired an e-money licence from the UK regulator FMA.

The potential of digital stablecoins in retail/e-commerce is obvious and also acknowledged by regulators. The European Central Bank has stated that "Stablecoin initiatives with a clear governance framework could be subject to much warranted regulatory scrutiny and recognition."

Hedera Hashgraph is an enterprise-focused technology created in 2017 and governed by a consortium of 39 corporations on the Hedera Council, which the Libra Association closely modeled. The premise of Hedera Hashgraph is not to create and govern a stablecoin per se but the creation of a stablecoin is inevitable and integral to businesses using the Hashgraph.

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Other more general enterprise alliances include the Hyperledger Project, a cross-industry consortium of hundreds of diverse companies (primarily involved with supply chains) and, the Enterprise Ethereum Alliance, whose board members include JPMorgan, Bank New York Mellon, Microsoft, Intel, and Santander, is exploring general business uses cases for Ethereum. Hyperledger and Enterprise Ethereum Alliance have also recently begun working in collaboration.

Microsoft has also started offering 'consortium-as-a-service' through the Azure Blockchain Service which provides a platform for companies to "build, govern and expand consortium blockchain networks."

The Motivations for joining a blockchain consortium

Cost reduction and new streams of data and revenue

As globalization has broken down borders and opened up markets it has created a winner-takes-all competition between firms in which one company's gain is another's loss and rarely do rival companies cooperate, in a classic prisoner's dilemma.

According to Deloitte, a major benefit of blockchain consortia is that they promote coopetition between traditionally rival companies which "creates a market that provides opportunity and profit potential for everyone". Deloitte also recommends 'intermediaries' to join consortia to "monitor and shape the disruptive technology".

One way coopetition may be achieved is by breaking down the 'garden walls' or data silos between corporations within a permissioned network (likely open to other symbiotic companies but not necessarily inclusive of a wider business community) to share and create new streams of data. These new streams of data can be invaluable to further develop companies' machine learning and artificial intelligence projects and add to their bottom line.

Securing supply chains against future disruption

Blockchain is being used in the vertical and horizontal integration of the supply chain. Maersk has partnered with IBM to create TradeLens, a logistics and supply chain platform that aims to incentivize the world's largest shipping companies to share their data on one database. This permissioned platform is owned by the two companies, giving them privileged access to the blockchain - and despite Maersk being by far the largest player in the global logistics market, TradeLens appears to be attracting competitors to join.

In another supply-chain integration, Starbucks has partnered with Microsoft to create 'Bean to Cup' to track its coffee. Starbucks already has effective control of its supply chain with its

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alternative to Fair Trade, called CAFE Practices, which it fully controls and enables it to claim its beans are '99.9% ethically sourced'. The added benefits for Starbucks further controlling its supply chain on a private ledger are not immediately obvious (even less so for farmers) but according to the company, it will aid in its IoT and predictive ordering technology.

Creating more autonomous corporations

Since corporations have been accorded personhood under US law, they are considered as an autonomous 'being' and referred to in terms of a singular entity making decisions, building relationships and even expressing emotions. Corporate Social Responsibility (CSR) can further reify companies by building social relationships with a wider range of stakeholders: governments, regulators, communities and minorities.

> *"CSR can be understood as a measure of how far the `corporation' as an entity is capable of continuing and developing its social relationships. CSR has thus been crucial in corporate efforts to enter or extend activities in markets which seek to build the allegiance of consumers, workers and publics and to create new forms of emotional ties to particular companies and brands"*
> - ***The Autonomous Corporation: The Acceptable Mask of Capitalism, David Whtye***

For instance, under the CSR banner of 'financial inclusion' for the world's underbanked population Facebook proposes the Libra Association becomes a non-profit decentralized organization, giving Facebook - along with the world's largest technology firms - oversight of potentially billions of user transactions.

As far as regulation goes, decentralized industry super-councils such as Libra or Hedera Hashgraph could even become a modern-day Hanseatic League, a supranational body that creates and enforces rules in the enterprise network.

Avoiding the innovator's dilemma'

Blockchain consortia also offer a way for incumbent industry leaders to avoid the 'innovator's dilemma' whereby once-dominant firms fall to disruptive innovation which tends to be cheaper and have lower margins.

Instead of being willing to cannibalize their revenues with a cheaper, better technology for long-term market growth, they rebuke the new technology to maintain short-term margins. This allows for nimble startups to freely innovate with this disruptive technology and create products that ultimately make the incumbents redundant.

Sensing the opportunity, major consulting firms are pushing the enterprise blockchain consortium model. Deloitte has released a 'blockchain in a box' product aimed at enterprise which consists of four small compute nodes, such as Raspberry Pis, that can run Dapps and

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connect to external services such as cloud providers. Ernst and Young (EY) is also in the enterprise space, having created auditing software for reporting blockchain companies and assets and a privacy feature Nightfall for Ethereum that allows users of the public blockchain to make transactions in private.

However, as Jack Tatar and Chris Burniske, blockchain investment analysts and co-authors of the book Cryptoassets, point out, large consulting firms may be just preserving old systems:

> *"We view many of these DLT implementations as band-aids to prolong the life of systems that will fade into obsolescence over the coming decades... Some of the major consulting firms may be so entrenched in the incumbent ideology that they too may be blind to the coming disruption."*
> *- Tatar and Burniske, Cryptoassets the innovative investors guide to Bitcoin and beyond*

Although private and permissioned blockchains are less of a departure from traditional databases than public ones, for some industries the streamlined processes will add to their bottom line, while other industries will use blockchain to avoid their 'Kodak moment'.

Potential conflicts in blockchain consortia

In a permissioned or private blockchain consortium network, the convenor (or founding members) takes on the gatekeeping function of the network (defining who can enter and on what terms), which can lead to asymmetric power relations between the various stakeholders.

The convenor has a lead role in designating the individuals and organizations assigned to 'represent' categories of stakeholders, and are more likely to designate individuals and organizations that are supportive of the convener's preference regarding the expected outcome of the group. This means categories of stakeholders that are not seen by the sponsors as potentially cooperative - particularly those that may be negatively affected by an MSG process - are generally excluded at the start of the process.

For instance, the implicit criteria to join the Libra Association favors corporations of $1billion+ market capitalization with thousands of customers globally and enough revenue to spare $10m+ per year for membership. Dmitriy Berenzon of Zenith Ventures suggests potential conflicts of interest in a consortium like Libra could be:

- Voting to remove a Board member who is from a competing organization
- Appointing a Managing Director with personal ties to an organization
- Changing the Founding Member eligibility criteria to a higher annual revenue threshold to exclude smaller members
- Changing the governance policy to lower the aggregate voting cap for a particular type of organization

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Libra is perhaps the most ambitious and brash of these consortium models based around a concentrated use-case, global remittances. We expect more to emerge, particularly if Libra receives regulatory approval.

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Governance: A new value-add in blockchain

As mentioned, in the crypto industry there has been a notable shift in focus from decentralization, to how to create effective governance and avoid ongoing contentious hard forks (for more read our report on decentralized autonomous organizations).

Four domains of cryptocurrency/blockchain governance			
Managing treasury funds	**Monetary policy**	**Fiscal policy**	**Protocol governance**
self-issued tokens and/or ICO funds held by founding body	supply and inflation rates of the native token	miner rewards from the coinbase as a form of taxation & stake rewards	technical updates to the protocol such as scaling & consensus algorithm

The value of good governance is increasingly recognized as integral to blockchain projects. Governance may help to resolve the blockchain trilemma, or the inability of blockchains to scale without sacrificing one of three pillars: security, scalability, or decentralization.

To legitimize the industry, Libra and Hedera Hashgraph have taken governance to the echelons of the corporate world. Both have the potential to be the 'first through the door' and will either help take crypto mainstream or be shot down in the process.

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'Decentralized Governance' a conflated term

Libra and Hedera describe themselves as having 'decentralized governance', a term synonymous with decentralized autonomous organizations (DAOs) such as Tezos or Decred. However, there is a gulf between the two in both philosophy and application.

Governance approaches to consensus to avoid public blockchain forks			
Tezos (DPoS)	**Libra (PoS)**	**Hedera Hashgraph (PoS)**	**Decred (PoW/PoS)**
A 'hard-fork-resistant' protocol layer that self-amends the codebase through stakeholder voting conducted on-chain and diplomacy held off-chain. Despite this, there has been a schism between developers and the foundation, resulting in a new network	Avoids forks via consensus of the Libra Association Council, a Swiss-based NGO of corporations, in a permissioned network. Codebase is open source but only to view, not to edit, and changes can only be made through the Libra Association Council	Hedera Hashgraph is a public distributed ledger but its consensus algorithm is proprietary and has a 'no-fork guarantee'. Codebase is open source to view but changes only made through a supermajority of the Hedera Council	Using a hybrid PoW/PoS for mining and PoS for stakeholder voting on changes to consensus protocol and allocation of treasury funds. Mix of mining incentives and stakeholder voting to avoid chain forks

DAO projects such as Tezos, Decred, and Aragon are experimenting with innovative ways to reach consensus on-chain either by requiring stakeholders to stake a portion of their holdings in a vote or variations thereof.

In Part 1 we covered the enterprise opportunities and obstacles for permissionless crypto projects such as Ethereum, Tezos, NEO or NEM that can be adapted for enterprise, one of the largest addressable markets for a permissionless project. Other permissioned variants like Hedera Hashgraph and R3 Corda are specifically made for that use.

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Libra Association Council Vs Hedera Council

While there has been intense media and political interest around the Libra project, Hedera Hashgraph, the self-styled 'blockchain killer'', launched in September with little mainstream attention. Both have the potential to have a huge impact on enterprise.

Many of Libra's features borrow heavily from Hedera Hashgraph, and the CEO of Hedera Hashgraph, Mance Harmon, has addressed the fact that its governance and consensus model has been closely followed by Libra, pointing out that he shared details of the project with Libra lead David Marcus during a meeting in 2018.

Hedera Council Vs Libra Association Council		
	Hedera Council	**Libra Council**
No of total members	39	100
No of members so far	7	23 (originally 29)
Membership Term	3 years (no more than 2 consecutive terms)	Indefinite, no restrictions (so far)
Vote Weighting	1 vote per member	1% of total or 1 vote
Current Node Access	Permissioned	Permissioned
Fees to run a node	Free	$10m
ETA to decentralization	15 years	5 years
Total Coin supply	50 billion *hbar*	TBA
Structure	Board, Executive, MD	Board, Executive & MD
Member composition	Companies across 18 industries	Multi-stakeholder model

Whereas Libra's target market will initially be financial services and remittances, Hashgraph is for general enterprise use with smart contract compatibility. Swirlds is the parent company of Hashgraph and Hedera Hashgraph is the company rolling out the Hashgraph technology. Recently the major payments providers PayPal, Stripe, Mastercard, Visa, Ebay and Mercado Pago pulled out of the Libra project but have indicated they could join at a later date when regulatory uncertainty is cleared up.

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The Hashgraph technology has the potential to be scalable, fast and cheap. It has the option of permissioned/private settings that focus on fair transaction ordering which would be imperative to forex and stockmarkets and also suited for central bank digital currencies. Libra, which also aspires to be a global currency, takes many technical and governance cues from Hashgraph.

In its legal approach, Hedera Hashgraph has the upper hand on Libra as it was established to be regulatory-compliant from the outset; its co-founders Leemon Baird and Mance Harmon are former high-profile US government employees, working at the Missile Defense Agency. Its framework is designed to legitimize the industry.

Like Libra, Hashgraph will launch as a permissioned network and 'reverse decentralize' through node and token distribution over a multi-year roadmap. It is governed by the Hedera Council, a body of 39 global corporations but while it costs $10m to join Libra as a validator node, it is free to do so in Hashgraph, although criteria need to be met.

Libra Vs Hashgraph: Consortium governance

The governance structure of Libra has been extensively covered elsewhere and we will not repeat it here, however, we recommend reading the Zenith Ventures guide for further information. In short, Libra has taken many of its governance designs from Hashgraph, which itself borrowed from VISA's 'chaordic' organization model.

The goal of Hashgraph and Libra is to create a decentralized public ledger at scale, similar to Ethereum. Despite the many technical similarities, there are key differences in governance design.

Anti-collusion measures

Hedera and Libra seek 'industry experts' to govern the network in the best interests of the community to avoid schisms and hard forks.

The logic behind it is that reputable multi-billion dollar blue-chip companies from different industries will bring a wealth of governance experience and won't jeopardize their reputation with malicious behavior. However, to prevent collusion, membership on the Hedera Council is term-limited to three years and no more than two consecutive terms, whereas, so far, there is no limit on the term length of members of the Libra Council.
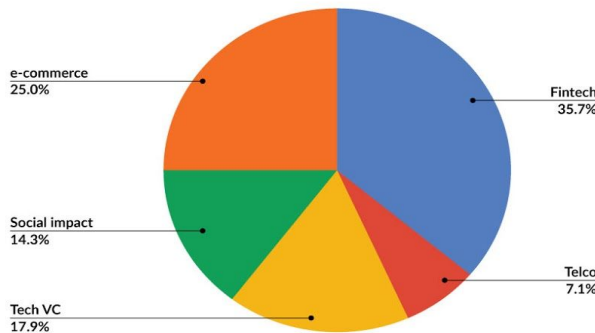
Composition of the Councils

Both Libra and Hashgraph have chosen a mix of on-chain with traditional corporate governance. Both councils are comprised of representatives from their corporate members; both have a board comprised of a subset of the council which elects the managing director and oversees the

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executive team. However Libra has a Social Impact Advisory Board (charities, educators researchers whereas Hashgraph currently does not.

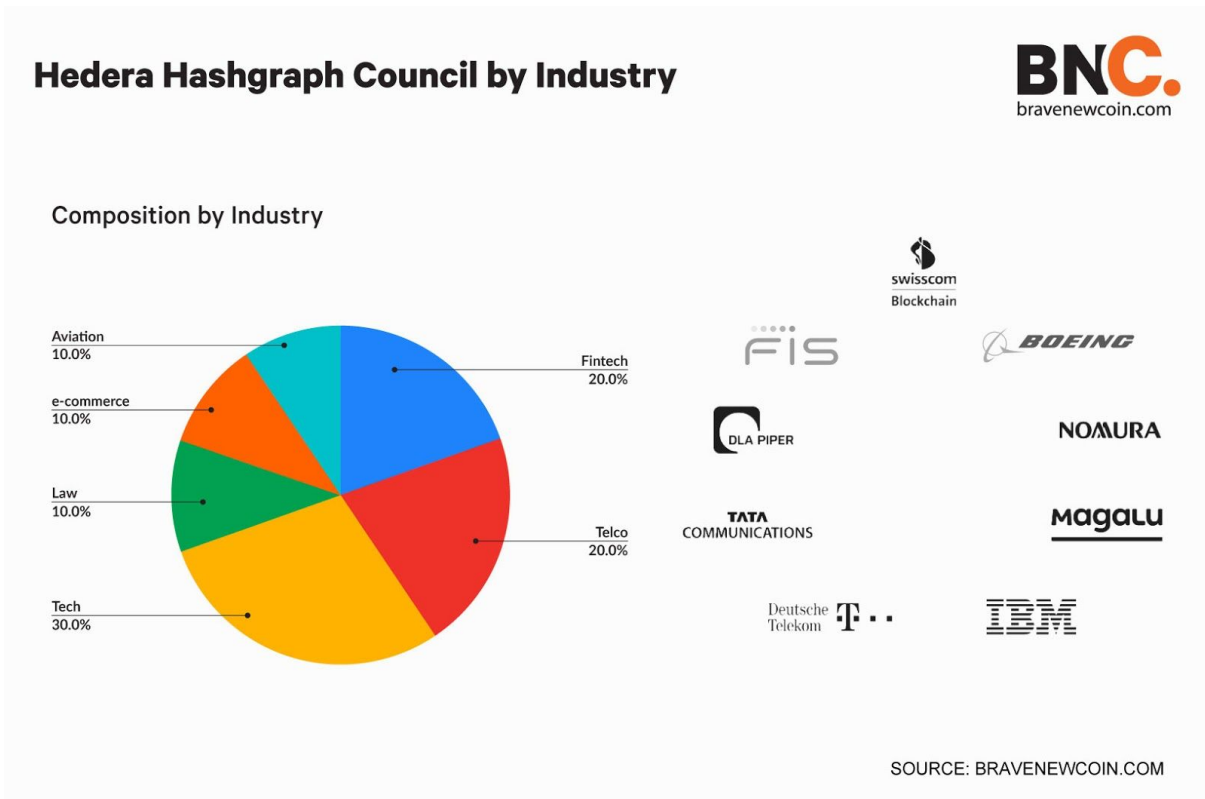**Libra Association Composition by industry**

This was the original composition of Libra. However, the payments providers Visa, PayPal, Mastercard, eBay, Mercado Pago, and Stripe have since deferred their membership for now.

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Hedera Hashgraph Council by Industry

Composition by Industry

SOURCE: BRAVENEWCOIN.COM

Considerations for a fair multi-stakeholder consortium

According to Harris Gleckman, a senior fellow at the Center for Governance and Sustainability at the University of Massachusetts, there are key considerations in creating a fair multi-stakeholder organization.

1. Are all the appropriate categories of participants reflected in the group?
2. What internationally recognized criteria are being used to select a legitimate organization to represent a stakeholder category or select an individual representative within these organizations?
3. How should an organization be designated for each stakeholder category?
4. How should individuals be selected to represent each participating organization?
5. What should be the overall diversity balance for the group?

The criteria for membership to both councils is something of a black box and not even half-way complete so we cannot compare the fairness or integrity of stakeholder representation yet. However, as New York Democrat Alexandria Ocasio-Cortez pointed out at the Libra Senate Hearing in July, Libra constitutes "a currency controlled by an undemocratically selected coalition of largely massive corporations."

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The road to decentralization

Hedera Hashgraph and Libra share a similar roadmap to decentralization: both start with a public permissioned network that gradually decentralizes to a permissionless public network where anyone can become a node by staking a certain amount of tokens. The network becomes more decentralized the more distributed the native token is - both envisioning millions of nodes across the world.

Hashgraph has begun to distribute its HBAR token. There has been no exact date given for reaching decentralization but the supply (distribution) of the Hashgraph HBAR token takes place over 15 years so conceivably it may take that and longer.

When it reaches a permissionless state, every Hashgraph node will be equivalent in weight, or importance. There is no masternode, leader, co-ordinator or 'block producer', unlike other decentralized governance models such as DASH which uses Masternodes, or EOS which always has 21 select block producers at any one time.

Hedera has also partnered with IBM and Hyperledger to create the enterprise-focused Hedera Consensus Service. This enables businesses to set up Hyperledger Fabric permissioned and private blockchains but uses Hashgraph's public consensus layer for speed and transaction ordering.

The R3 Consortium

Similar to Libra and Hedera Hashgraph, R3 Corda established the Corda Foundation as a governance system elected by participants on a one-identity, one-vote basis. The Corda Network is the governance layer of the Corda R3 blockchain which operates on behalf of any legal entity in the network and has been operational since January this year.

Similar to the Libra Association and Hedera Hashgraph, the Corda Foundation bodies include:

- Governing Board
- Technical Advisory Committee
- Governance Advisory Committee
- Network Operator

R3 is governed by a not-for-profit foundation (Stichting) based in Holland, as opposed to many other crypto projects which are based out of Switzerland. A Stichting is a Dutch legal entity with limited liability but without members or shareholders, and exists for a specific purpose. This form of entity makes it possible to separate functions of ownership and control.

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According to R3:

It is critically important that a commercial entity should not control Corda Network going forwards, and that it should be governed transparently, with a fair and representative structure that can deliver a stable operating environment for its members in the long term

The Stichting model can be used by large corporations to mitigate taxation, financial disclosures, and takeovers. Swedish furniture behemoth IKEA is set up as a non-profit Stichting in Holland through the INGKA Foundation, a charity 'for the advancement of interior design.'Yet it has been criticized for donating only a fraction of its billions in income to that cause. Holland, like Ireland, is renowned for its low corporate tax rates.

The R3 technology

In testing, Corda claims its blockchain can scale to handle the average daily trading volumes of the US equities markets, large scale trade finance networks, and the world's largest reinsurance blockchain network. Corda is honing in on the tokenized asset market - tokens that are traded for the physical asset without the physical transaction of that asset.

Corda has recently released its Token SDK (software development kit) and the tokens come in two different forms:

1. Fixed Token Types: which remain constant and don't change over time eg currency.

2. Evolvable Token Types: which have the tendency to change over time.

The tokens issued on Corda can be fungible (such as a currency) or non-fungible (such as a collectible or property) and fractionalized i.e. broken down into several decimal places of sub-units.

"Corda's unique point-to-point transaction architecture means there isn't a need for every node to process every transaction, which is significantly more efficient and scalable. Therefore, Corda is automatically optimally sharded."
- R3 Corda

The role of tokenized assets (security tokens) in enterprise

Traditional databases still serve their purpose and are not necessarily inferior to blockchains for storing data. So why would institutions or corporations be interested in implementing a token on a blockchain?

1. Tokens that represent a claim on an underlying asset e.g. precious metals held by a custodian
2. Tokens that represent a claim against or interest in an entity, e.g. a bond or share's value is derived from the credit and of the company standing behind it

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3. Investment in an asset which price is derived from supply and demand or scarcity, such as Bitcoin
4. Security tokens make traditionally illiquid assets on company balance sheets (e.g. property) more liquid.

Fractionalizing ownership of assets is one of the main value propositions of security tokens, although this is not exactly revelatory as we have long been 'fractionalizing' securities whether commodities or company shares in ETFs or property in REITs. However these aren't a new asset class but product 'wrappers' around the underlying assets - the holder of a company ETF doesn't have voting rights in the company but a right to the dividends and capital gains provided by the fund provider. The main benefit of tokenizing assets apart from unlocking illiquid markets is that it also accords rights to the underlying asset (physical or equity) and even new streams of revenue or debt.

Cryptocurrency and security tokens could be considered a new asset class, which melds together the three traditional asset classes: capital, consumable and store of value. Security tokens and stablecoins are going to become major markets and requirements for enterprise in the years ahead; the former for the ability to transfer ownership of assets (imagine the more illiquid assets on company balance sheets becoming more easily transferred and sold) and the latter for the ability to transfer value over the internet and settle in real-time.

It is therefore vital that a platform blockchain has the software development kits (SDKs) which make it easy to deploy these tokens.

Transaction ordering and the Forex markets

The bond and stock markets are one of the most immediate applications for blockchain as they are still largely a paper-settled market which requires the physical delivery of bond contracts and signed paperwork. Many trillions of bonds such as US treasuries are also kept offshore in central banks and institutions around the world. This affects dollar liquidity and indirectly interest rates, although the true volume and location of the bonds is unknown as it is impossible to track the paper trail.

Improving the settlement and transaction efficiency of foreign exchange markets and stock markets is a massive opportunity for cryptocurrency/blockchain. Hedera Hashgraph with its focus on fair transaction ordering - rather than the incentivized transaction ordering in Bitcoin and Ethereum - is positioning to become an all-in-one platform for global markets.

R3 is building relationships in the market settlement space, with the Depository Trust and Clearing Company (DTCC) and Fnality and Finteum testing the Corda platform for settlement.

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Conclusion

So far blockchain consortia have focused solely on the benefits it would bring to multinational corporations.

'Co-opetition' sounds healthy for the industry but not if it is an exclusive club which fortifies the moats of those within it, to the exclusion of small-medium enterprises. This was pointed out by the Rep. Senator Duffy at the Libra Senate Hearing when he noted that Libra would give Facebook and its members the authority to sanction who does and doesn't get access to the Calibra wallet and USD stablecoin, a privilege not even the US government has over the USD.

 If approved, such a council would elevate the billion-dollar companies that sit on Facebook's Libra Council to a position of power above most nation-states and perhaps even supranational bodies like the UN.

The implications of 'decentralized' super-councils such as Hedera Hashgraph and Libra that are ultimately beholden to the shareholders of individual members are difficult to foresee but it will have a profound effect on the future of enterprise and globalization while there is a power vacuum between states multilateral bodies.

With a global recession now flashing across many macro indicators we expect more companies to consider blockchain consortia to buffer an economic downturn.

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Author Bio

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