GBA

Economic Analysis Working Group Paper Part 2: Outlook for 2020 in Governance, Trade and Enterprise

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Introduction

Despite not making the lead headlines in 2019, global governance and globalization underwent some seismic shifts. The multilateral governance system that has prevailed since Bretton Woods was further undermined by both nations. The United States under President Trump drifts towards unilateralism and corporations as they search for more effective multi-stakeholder alternatives.

One such multialternative is the World Economic Forum which late last year signed a Memorandum of Understanding (MOU) with the United Nations (UN), bringing the WEF further into the realm of global governance. It's annual Davos conference has done a remarkable job over the years at highlighting and elevating the status of global economic risks to both the public and policymakers. This year, for the first time, environmental concerns dominated the WEF *Global Risks Survey* as the top long-term risks.

"What were once givens regarding alliance structures and multilateral systems no longer hold" - ***World Economic Forum, Global Risks Survey 2020***

This trend towards multi-stakeholderism is perhaps the greatest shift in governance that we forecast in coming years as it appeals to businesses. Public-Private-Partnerships are very lucrative and bring with them several apparent advantages as long as the venture is transparent.

New technology is also enabling new forms of governance with blockchain in particular being used by multinational corporations (MNCs) to create a consortium model whereby supply chains and industry verticals are governed by the largest companies using permissioned data configurations in a distributed network. This has been dubbed by proponents as 'blockchain as a team sport' or 'co-opetition', but the trend should be closely watched by policymakers as it has the potential to be a form of self-regulation.

As yet, the thousands of decentralized cryptocurrencies that are traded across hundreds of exchanges are still a long way from any mainstream use case - or 'killer app' - apart from trading. But even exchange-traded volumes appear to be bleeding from the crypto market and the figures are dubious at best as crypto exchanges are renowned for wash trading, volume fabrication and rebate schemes to lure in retail traders. The only venues 'institutional' traders/investors participate in are regulated cash-settled Bitcoin futures and options markets such as the CME.

While there is negligible institutional interest in trading crypto apart from Bitcoin derivatives, the infrastructure of the FX, stock, and bond markets are where the immediate opportunity lies for blockchain companies as it solves a real pain point - counterparty settlement risk.

This report has been broken into two parts, Part 1 is on the shifts in national and global and governance and Part 2 on the growing use of blockchain in enterprise and global trade.

Part 1. Global and Corporate Governance

The deterioration of Multilateralism

In her debut speech as the European Central Bank (ECB) President at the European Banking Conference in Frankfurt in November, Christine Lagarde spoke of the structural changes happening in the global economy due to these new forms of corporate organization and governance.

"World trade is being reordered as new technologies disrupt conventional supply chains and workplace organization" ***- Christine Lagarde, ECB President***

Lagarde added, "Ongoing trade tensions and geopolitical uncertainties are contributing to a slowdown in world trade growth, which has more than halved since last year. This has in turn depressed global growth to its lowest level since the great financial crisis."

Acknowledging the breakdown of multilateral trade agreements, she said that Europe must adapt to this new reality and focus on creating domestic demand by imploring those European countries with surpluses to spend more.

The infrastructure of the foreign exchange markets has not kept up with the pace of internationalization of trade and is now more fragmented and opaque than ever. But what we are witnessing now with blockchain, and particularly stablecoins, is *the globalization of money itself* that enables costless, borderless transactions and near-instant settlement.

Stablecoins and Central Bank Digital Currency to dominate 2020

In December, Christine Lagarde acknowledged stablecoins as an area of focus for her tenure, addressing them in a message that also covered global issues such as climate change.

"There is clearly demand out there that we have to respond to [and] stay ahead of the curve [on]," she said. This has elevated the status of cryptocurrency to a global priority for the ECB in 2020 and beyond. The ECB has also created a proof-of-concept DLT platform, called EUROchain, for bank intermediaries that have access to central bank accounts and can draw on reserve balances held at the central bank to provide central bank digital currency to their customers.

Just a month later, at the World Economic Forum annual meeting in Davos, Switzerland, the ECB alongside the central banks of Britain, Japan, Sweden and Switzerland announced a partnership to assess potential use cases for central bank digital currencies (CBDCs). During Davos, a WEF working-group also unveiled its *CBDC Policy-Maker Toolkit*, a paper detailing a framework for issuing a CBDC. At the same event WEF also unveiled a *Global Consortium for Digital Currency Governance* which may involve Libra.

In the US, the former chairman of the CFTC Chris Giancarlo has set up the The Digital Dollar Project, a think-tank advocating a US CBDC. While officials' interest in blockchain and digital currencies is at its highest in 2020, the 'institutional' investor interest in cryptocurrencies that so many pinned hopes on still hasn't materialized from the heady heights of 2018.

'Global Stablecoins' such have been acknowledged by officials to have the potential to become systemically important and even substitutes for domestic currency. The Financial Stability Board, which is chaired by the Group of 20 nations (G20), sent an urgent letter to G20 leaders about the threat to stability from global stablecoins (GSCs) after the revelation of Facebook's Libra. Finally recognizing the potential threat, the G20 has also asked the International Monetary Fund (IMF) to assess the macroeconomic implications of global stablecoins.

To get a more comprehensive and real-time view of the risks and debts in countries, central banks are moving to digitize their currencies, both wholesale and retail, so they can see the reserves of retail banks in real-time and discern legal tender from bank-credited debt in the system.

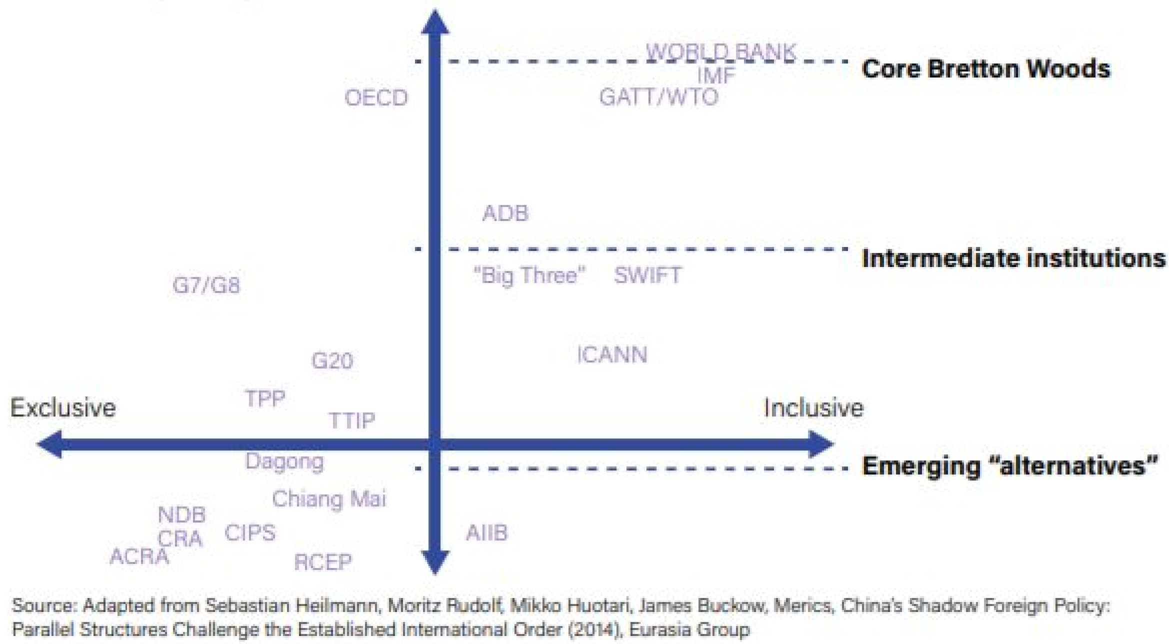
So far the most accurate data on national and global debt is only available in retrospective snapshots by bodies such as the IMF or the Bank of International Settlements whose surveys provide a holistic view of the money markets every few years. According to the latest IMF report, global debt has reached an all-time high of $184 trillion in nominal terms, the equivalent of 225 percent of GDP in 2017. On average, the world's debt now exceeds $86,000 in per capita terms, which is more than 2½ times the average income per-capita.

The rise of multilateral alternatives

Christine Lagarde's comments about global trade disruption in her inaugural speech as ECB president were given more wait after the US' decision in November to veto the World Trade Organization (WTO) budget for 2020, casting a shadow over its existence. Since its creation in 1995 as a multilateral body to replace the Bretton Woods' GATT, the WTO has underpinned 96% of global trade volumes during the busiest days of neoliberal globalization as an appellate body.

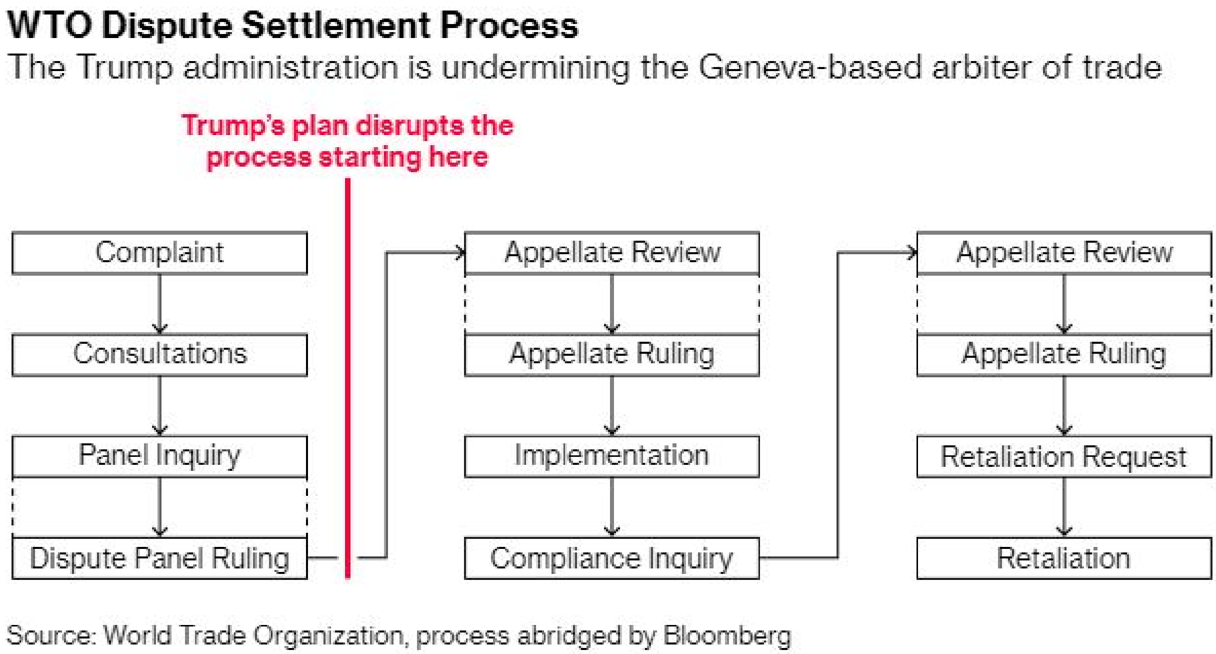
Over the years it has lowered tariffs making global trade cheaper and implemented stricter arbitration for over $23t in international trade annually. It has also brought stability and predictability to global trade which has been a huge boon for multinational corporations. However, the Trump administration has long been critical of the organization, accusing it of overspending and overstepping its remit and this year the administration withdrew its support for the organization by vetoing the budget. The US is the largest contributor of money to the WTO.

The Rise of Global Governance 'Alternatives'



Among the emerging alternatives to Bretton Woods Institutions is the multilateral Asian Infrastructure Investment Bank (AIIB) ***Source: Eurasia Group***

WTO members have agreed to a compromise budget to meet US demands - an 87% cut in spending. However, this will not guarantee its continuance as in December two judges from the three-man WTO judiciary panel retired and the US has, so far, refused to appoint replacements, leaving it unable to hear new cases. Even if the WTO survives the US' threats, the 'sheriff' of global trade will not have the same level of authority when it resumes service and far less firepower.



There is some merit to US' grievances with the WTO. It has done little to temper the rampant rise of China in trade. Chinese objectives have come into conflict with many countries and the multilateral negotiations between the 164 members of the WTO renders the process slow, expensive, and even ineffective. The US has been responsible for over half of all WTO complaints made against China but now it is taking the trade war straight to China and bypassing the body.

The UN funding crisis

In October this year, the UN announced that it would run out of cash by the end of the month as member states were not paying 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, leaving it with a cash shortage of $230 million.

The UN Secretariat employs 37,000 people and there is a perception that it is bloated, slow, and expensive. Participants speculate that the UN is not agile enough to handle the rapid changes and challenges that the technology revolution is causing.

Previously, Guterres had asked member states to lift their contribution to prevent cash flow problems, but they reportedly refused to do so. The United States contributes around 22% of total UN funding but currently owes the body around $1 billion in unpaid fees. President Trump has openly renounced the UN saying in a recent address to the UN assembly, "the future belongs to sovereign and independent nations," and his populist rhetoric evokes 1930s-style protectionism and nationalism.

This decline in the UN and other multilateral formats, such as G7 or G20, collectives of the world's most powerful countries, has left something of a 'power vacuum' in global governance. This impasse has been dubbed a G-Zero World in which there is no nation or group of nations willing or able to set the international agenda - the antithesis of the Group of Nations multilateralism.

As a November article in the Economist pointed out, the end or diminution of the WTO “means that global trade is about to become a lot less predictable and a lot more contentious. Without the appellate body to act as honest broker, disputes between the biggest members may escalate”

This unpredictable environment amid trade wars, raised tariffs, and the general breakdown of international cooperation is driving MNCs to seek new technologies and ways to protect their trade routes and supply chains. With a power vacuum emerging between nations’ MNCs, these corporations are joining in corporate consortia to shape the future of globalization as a form of self-regulation when there is no clear guidance from nations and international bodies are too cumbersome to keep up the pace with global changes. Many of these consortia are being built to govern enterprise blockchain projects.

The World Economic Forum and Multi-Stakeholder Governance

The shift away from multilateral governance can be most clearly seen in the decline of fee-paying UN members and the concurrent rise of the World Economic Forum (WEF) in governance. The WEF acts as a multi-stakeholder body that convenes executives of the world's largest corporations, civil society, and celebrities to influence public policy.

The multi-stakeholder governance (MSG) model involves private entities joining forces with public bodies such as in Public-Private Partnerships to tackle issues that were formerly the domain of governments but have lost the ability to govern. MSG often involves wider stakeholders in the process such as NGOs and charities with the aim of more effective and inclusive decision-making.

The World Economic Forum (WEF), by its own description, is "a platform for the world's 1,000 leading companies to shape a better future." The famous WEF meeting in Davos, which in 2020 celebrates its 50th anniversary, brings together civil society, celebrities, and business elites to create policies and recommendations that influence national and international policy on globalization and emerging technologies. Many of the 1,000 leading member companies of the WEF are also involved in blockchain consortia that are defining the future rules of their industries.

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	Created 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, NGOs, and Civil Society to create direct, effective action on global issues

In a much-overlooked event this year, the WEF moved closer into the realm of global governance after signing a Memorandum Of Understanding (MOU) with the UN in June. This agreement was notable for its lack of fanfare or coverage in the mainstream media.

The contrast between the announcements from both parties was also striking: the UN was particularly tight-lipped about the event with only a paragraph mentioned on its website while the WEF website was more declarative of the occasion. The WEF described the MOU as a 'Strategic Partnership Framework' to outline "areas of cooperation to deepen institutional engagement and jointly accelerate the implementation of the 2030 Agenda for Sustainable Development".

"Meeting the Sustainable Development Goals is essential for the future of humanity. The World Economic Forum is committed to supporting this effort, and working with the United Nations to build a more prosperous and equitable future".

Klaus Schwab, WEF founder and Executive Chairman

Directing and "shaping the future" of humanity is one of the WEF's primary agendas for which it has established the grandly-titled Centre for the Fourth Industrial Revolution. This centre is mostly focused on how disruptive new technologies will impact the economy, particularly blockchain, the internet of things (IoT), robotics, and big data. According to its website, the "Centre for the Fourth Industrial Revolution is a hub for global, multi-stakeholder cooperation to develop policy frameworks and advance collaborations that accelerate the benefits of science and technology."

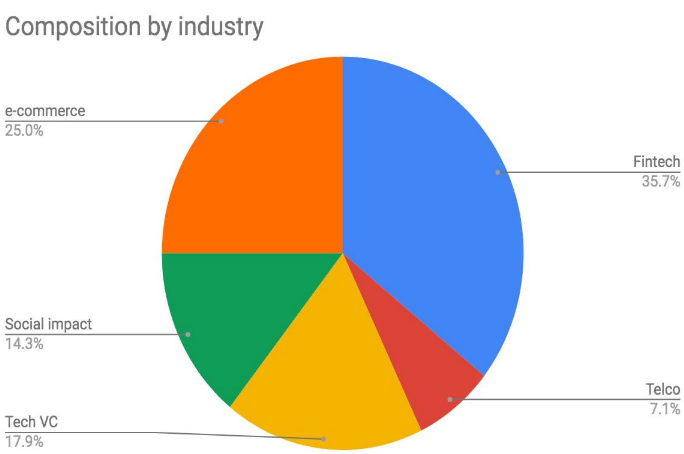
The WEF's approach to governance appeals to big business as it is more realistic for the 21st century. It proclaims "governance must be stable, interoperable, predictable and transparent enough to build confidence among investors, companies, scientists and the general public, but also agile enough to remain relevant in the face of rapid advances in technology."

In recent years, the Centre for the Fourth Industrial Revolution has become a de facto authority on creating frameworks for emerging technologies such as big data, blockchain, artificial intelligence (AI), and robotics. It is unsurprising that WEF has taken such an active role in creating guidance for these new technologies as they are becoming central to business planning and decision-making.

During 2019, the WEF published a series of five separate whitepapers on the application of blockchain in trade and enterprise, from supply chain tracing and industry consortia to global digital identity tracking with input from its stakeholder community. At Davos this year the WEF also revealed a four-model Central Bank Digital Currency framework: a retail currency, a wholesale currency and two hybrid models.

The Corporate Multi-Stakeholder Governance Model

Interestingly, when it was first unveiled in June, the governance model of the Libra Council closely resembled that of the WEF multi-stakeholder model. Although it was comprised of a much smaller stakeholder community (100 in total) which was originally heavily skewed as a technology consortium dominated by payment and e-commerce, around 15% was made up of charitable or social impact organizations.



Source: *Brave New Coin*

While the multi-stakeholder model has 21st century appeal to business leaders, it can be unclear what the process of selection is. It is also uncertain who should oversee the process. 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?

Gleckman believes the integration of corporations in multi-stakeholder governance has a deleterious on democracy as it “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.”

The Libra Council follows exactly this multi-stakeholder model, a mix of major tech companies with fringe involvement of NGOs and charities. At the unveiling of the WEF's *Global Consortium for Digital Currency Governance* at Davos this year, David Marcus head of Calibra said, "We agree that good regulation is important for the success and safe adoption of digital currency platforms and are looking forward to continue to engage in this constructive conversation."

However, there are also many other corporate consortia that are not premised on multi-stakeholderism. Instead they convene the world's largest companies within industry verticals, or as Deloitte sanguinely describes it, using 'blockchain as a team sport' for coopetition between rivals. This is perhaps what President of the ECB Christine Lagarde described as the "reordering of world trade" by disruptive new technologies.

Part 2. Enterprise Blockchain and Consortia

While the 2018 cryptocurrency bear market left many crypto investors disillusioned, enterprise solutions and consortium blockchain projects between multinational corporations (MNCs) strengthened throughout 2019. According to Deloitte, 92% of surveyed firms said they were either already involved or considering joining a consortium over 2019 and 2020.

Just as blockchain is being experimented with to reorganize the traditional structures *within corporations,* it is also leading to new forms of governance *between corporations* as a consortium. The parties involved can use transparent data on a permissioned blockchain (as opposed to public blockchain) as a means to encourage cooperation between rival companies across industries and supply chains. It is vital for business leaders and policy-makers to be aware of this evolution in corporate governance as we expect many more companies to join in consortia in coming years to buffer an economic downturn.

It is significant that MNCs are aligning in industry consortia at a time of resurgent nationalist politics and protectionism while amid a deterioration of Bretton Woods governance and free-trade. If indeed we are trending back to 1930s-era politics and governance, Kristalina Georgieva, head of the IMF, recently suggested it would be disastrous for the global economy and joining an industrial consortium may be one way for MNCs to protect their supply-chains and customer bases against it.

This trend towards consortium and multi-stakeholder governance is concerning in an era renowned for its concentration on industry, power, and wealth.

The Consortium Landscape

The major enterprise blockchain projects and consortia in 2020 are led by IBM, Maersk, Facebook, and JP Morgan. These permissioned and private blockchain projects are a far-cry from the original "permissionless" tenets that Bitcoin was established upon over a decade ago. The permissioned blockchains give private companies the ability to set the criteria for who gets to see what data, and who doesn't.

IBM is the most active in enterprise blockchain, funding and donating most of the code for the open-source Hyperledger Project and co-founding alongside Maersk a consortium for global shipping and supply chain, called TradeLens.

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.

Other more general enterprise alliances include the Hyperledger Project, a cross-industry consortium of hundreds of diverse companies (led by IBM), and the Enterprise Ethereum Alliance, whose board members include JPMorgan, Bank New York Mellon, Microsoft, Intel, and Santander. These groups are exploring general business uses cases for Ethereum. Hyperledger and Enterprise Ethereum Alliance have recently begun working in collaboration. IBM is also a founding member of the Hedera Hashgraph Council, another consortium for enterprise DLT, and co-created the Hedera Consensus Service, a permissioned blockchain service.

Microsoft has also started offering “consortium-as-a-service” through its Azure Blockchain Service which provides a platform for companies to ‘build, govern, and expand consortium blockchain networks.’

Besides Facebook’s Libra stablecoin consortium, Centre, a company co-founded by crypto exchanges Coinbase and Circle, also created a consortium to govern its USDC stablecoin which is available in 85 countries - Coinbase has an e-money licence from the UK regulator FMA.

The potential of stablecoins to improve e-commerce and remittance is now widely accepted by global regulators, and the ECB in a whitepaper on the topic published mid-2019 asserted “stablecoin initiatives with a clear governance framework could be subject to much warranted regulatory scrutiny and recognition.”

Hedera Hashgraph, a Game-Changer in Enterprise?

Hedera Hashgraph is an enterprise-focused distributed ledger technology (DLT) created as an LLC in Delaware in 2017 and is governed by the Hashgraph Consortium. To manage the technology, Hedera has created a unique corporate governance model led by a consortium of 39 corporations on the Hedera Council - on which the Libra Association closely modeled itself.

While the Libra project stole all the thunder last year, Hedera Hashgraph, the self-styled ‘blockchain killer’’, launched in September with little mainstream attention even though it has as much potential in enterprise applications. Many of Libra’s features borrow heavily from Hedera Hashgraph and the CEO of Hedera Hashgraph Mance Harmon has addressed this disclosing the fact that he shared details of Hedera’s governance model with Calibra/Libra lead David Marcus during a meeting in 2018.

Hashgraph is an alternative to blockchain, a self-styled “third generation DLT” that claims to be faster, more scalable, and has higher throughput than anything using Bitcoin’s proof-of-work security algorithm. Hedera Hashgraph is a platform technology for enterprises to build apps, tokens, or secure data upon. It is not designed for stablecoins per se, but the creation of a stablecoin is inevitable.

Hashgraph has a native transaction token, HBAR, which was listed on exchanges in September at around $0.06c, but it’s price by mid-January was just $0.01c.

The global-weighted spot price of Hashgraph's [HBAR] **Source:** *Brave New Coin*

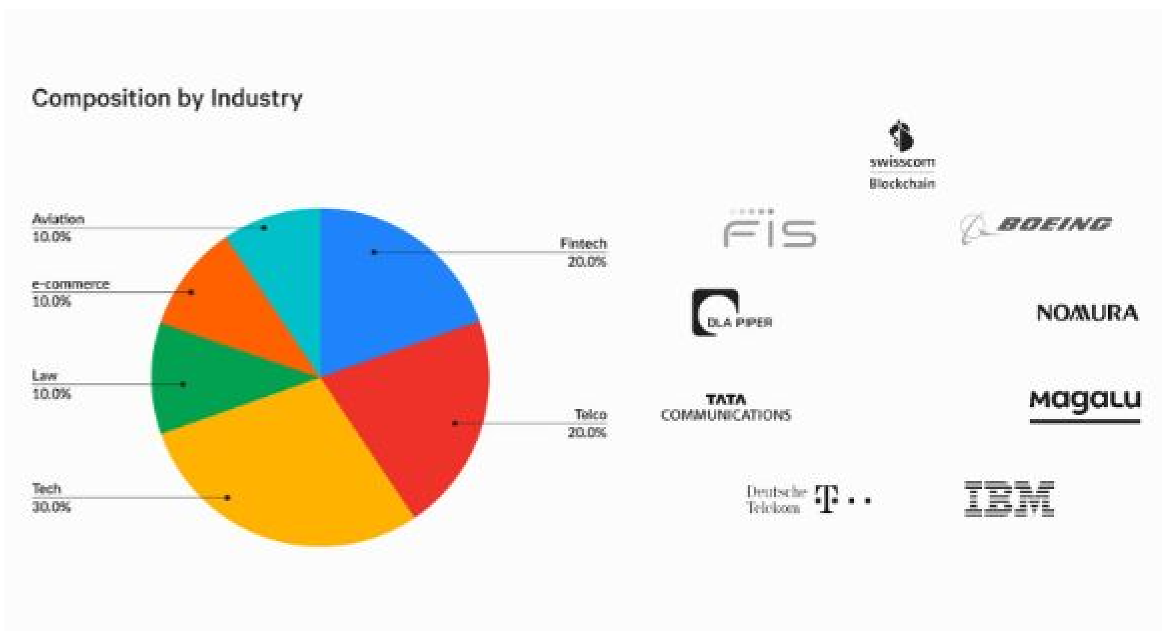
The Hashgraph technology has great potential in the forex and stock markets due to its consensus algorithim's free and fair ordering of transactions (as opposed to Bitcoin and Ethereum's transaction fee hierarchy). It is also better suited for central bank digital currencies.

The Evolution of ‘VISA-Style’ Corporate Governance

The Hedera Council governance model is itself borrowed from VISA’s ‘chaordic’ organization model. Chaordic organization was coined by VISA’s founder, Dee Hock, who achieved the seemingly impossible when in 1968 he convinced Bank of America to give up ownership and control of their BankAmericard credit card program and replace it with a corporation equally owned by other major US banks which eventually became VISA.

While the model has worked well by bringing together the world’s largest banks in cooperation, it also established a successful consortium model to govern the chip and pin technology. The EMVCo consortium (originally Europay, Mastercard and Visa) today comprises the world’s largest card companies; American Express, Discover, JCB, Mastercard, UnionPay and Visa that also govern contactless technology.

To date, the Hedera consortium includes some of the largest industrials from diverse geographies, IBM, Boeing and Tata Communications among them.



The composition of the Hedera Hashgraph Council. **Source:** *Brave New Coin*

Hedera has tried to organize its consortium to be regulatory-compliant from the outset; its co-founders Leemon Baird and Mance Harmon are former high-profile US government employees at the Missile Defense Agency. Hashgraph launched as a permissioned network and plans to ‘reverse decentralize’ through node and token distribution over a multi-year roadmap. Libra had a similar concept for a permissioned blockchain but had compliance as an afterthought to their public hearing.

These evolutions in corporate governance through technology could entrench existing oligarchies and power structures and may well elevate corporations above the remit and become more influential than nations, creating a sort of modern day Hanseatic League, deleterious to democracy.

This is something Visa founder Dee Hock has warned about in recent years and is quite the opposite outcome of the chaordic discipline he pioneered.

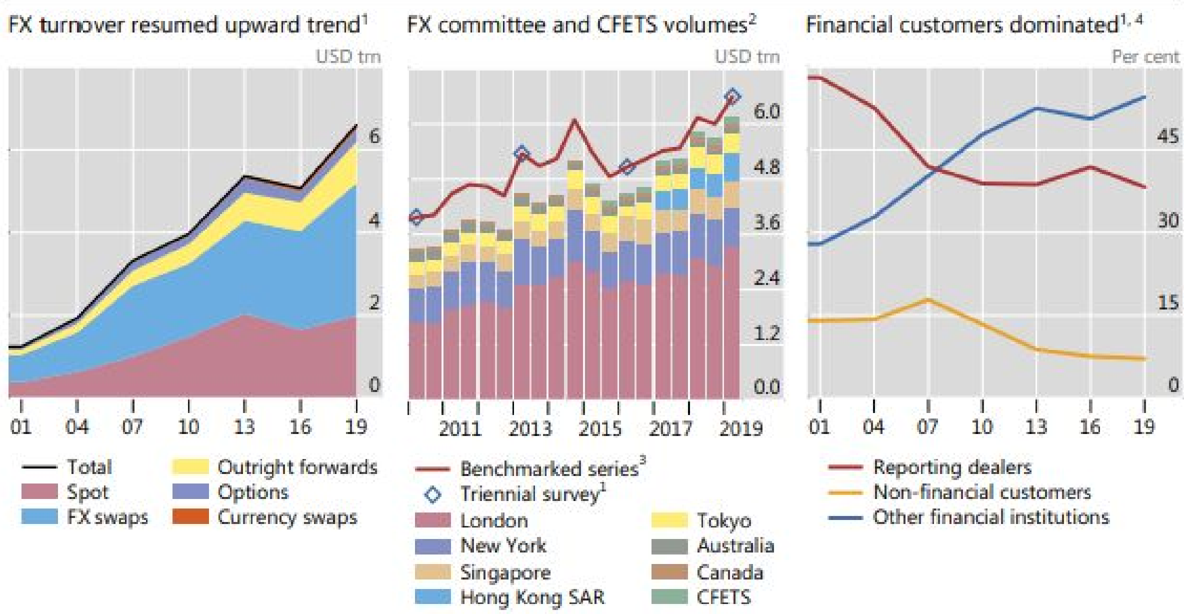
"Today, nation states and elected politicians are more creatures of corporations than corporations are creatures of nation states. Unfortunately, while it was democracy and liberty corporations needed to reach their present dominance, in the main, their governance is the antithesis of democratic, free and just. I do not think it bodes well for the future of democracy" ***- Dee Hock, Founder VISA***

The Foreign Exchange Markets

Since the end of the gold standard and the start of free-float exchange rates, the volume of foreign exchange flows has gone from an average of $15 billion per day in 1973 to $6.6 trillion in 2019, according to the latest Bank of International Settlements (BIS) triennial report. The BIS survey is the most comprehensive overview of global FX spot and derivative market data. It shows the FX and over-the-counter (OTC) derivatives markets are now larger and more diversified than ever.

The underlying global FX infrastructure has not kept up with this pace of globalization with around half of exchange orders still initiated by phone. The global FX market is also more opaque and fragmented than many other financial markets due to it being organised as an OTC market built upon credit relationships. Thus, while the FX market as a whole grew bigger, the share of trading activity that is "visible" to the broader market declined and an inherently opaque, market has evolved.

FX turnover rises with more trading in FX swaps and by financials | Graph 1



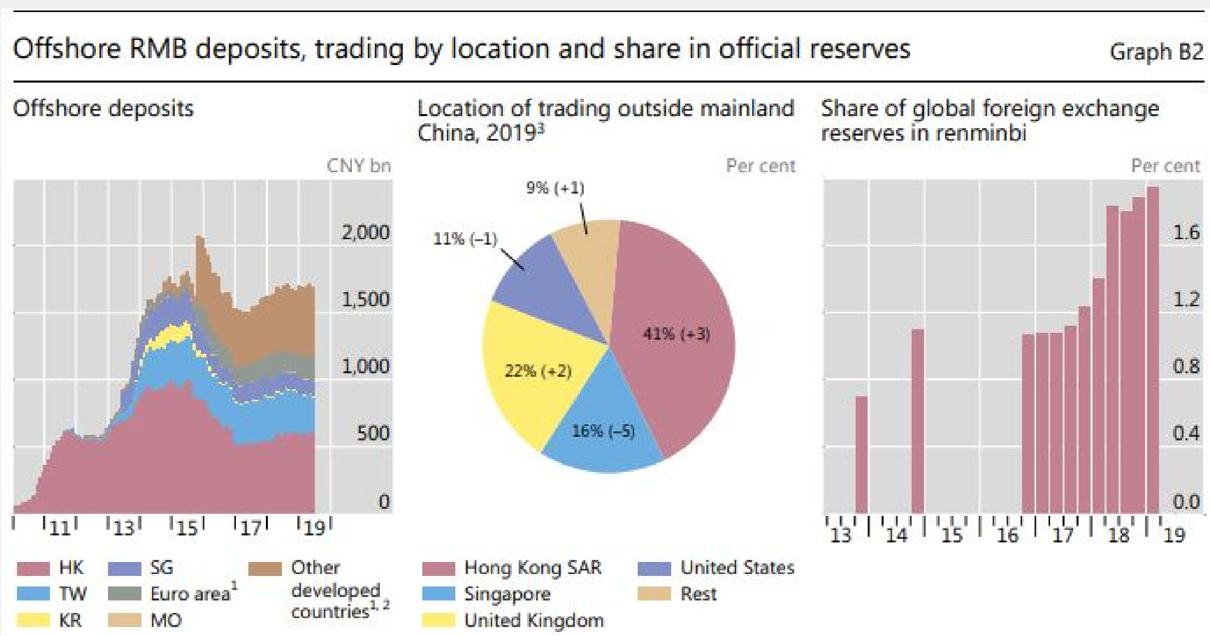
Of all the FX markets, spot and derivatives, the largest growth was in FX swaps and forwards both being derivative contracts, while spot volumes have actually declined (left hand panel in chart above). An [FX swap](#) is an agreement to exchange currency between two foreign parties, including the swapping of principal and interest payments. Banks use FX swaps for managing funding liquidity and naturally favor holding short-term contracts. They are another form of liquidity maintenance alongside the interbank money markets such as the [Federal Funds and repo markets](#) which have been in turmoil recently.

Between 2016 and 2019, the use of FX swaps relative to on-balance sheet funding by foreign bank affiliates in the US increased significantly - this points to the importance of FX swaps in banks' funding liquidity management. The customer segment most closely linked to global trade and productive economic activity is non-financial corporations and in 2019 is a paltry 8% (right panel, chart above), remaining almost unchanged, meaning that 92% of FX volumes are for financial or speculative purposes.

China's declining offshore renminbi volumes and digital currency

The global foreign exchange (FX) market is the stimulant of international trade, and the BIS survey shows that the volume growth in emerging market currencies surpassed that of developed markets.

China, however, was an outlier. Despite its decades' growth in share of global GDP and being the world's second largest economy by share of global GDP it remains just the eighth most traded currency.



Source: *The Bank of International Settlements*

China's renminbi (or yuan) declined in turnover as well as in terms of offshore trading (offshore renminbi is defined by the ticker CNH, while onshore is defined as CNY). According to Packer et al, turnover remained lower than expected, based on its growing trade and GDP per capita. This is partly attributed to capital controls which are working as desired to keep its citizens funds and assets onshore. The capital controls are in accordance with a crackdown by officials on Chinese entities raising RMB funds offshore through bonds ("Dim Sum" bonds).

This is particularly interesting as China moves towards digitizing its currency through a form of DLT-based central bank digital currency (CBDC) that would give the People's Bank of China yet more capital controls and insights to the split of offshore and onshore currency. The US struggles with implementing a similar system due to the complexity of the Eurodollar system. It is interesting to think what RMB turnover will be over the coming decade.

The Chinese fintech giants Alipay, WeChat, which now also operate as digital banks, have grown to such a size that, along with being bigger by AUM than most Western banks, also have reserve accounts at People's Bank of China. The moot plan is to roll the digital Yuan out to those fintechs first as their digital payment technology is already years ahead of legacy banks.

Blockchain in FX markets and settlements

R3 Corda, the financial consortium built around the Corda blockchain, has been making headway in the FX settlement space. The Depository Trust and Clearing Company (DTCC), the world's largest securities processor, has been testing the R3 platform alongside interbank technology companies Fnality and Finteum.

Together they are developing new technology for intraday FX swaps that settle using the digital Utility Settlement Coin (USC), built on distributed ledger technology. It is intended to improve the liquidity of intraday lending markets (e.g. the repo market or Federal Funds in the US) as well as drastically reduce settlement times and counterparty risk. This would be hugely beneficial for banks who use FX instruments to manage their reserves and duration risk. Different FX instruments give rise to different numbers of payments: spot and outright forwards result in two payment obligations, whereas swaps result in four payments of principal, two at inception and two at settlement. With something like a USC there is the potential for "T-0" or near-real time settlement and even the obviation of clearing houses.

Fnality International is the venture established to build the USC by some of the world's biggest financial services including Barclays, Nasdaq, and UBS. As an asset-backed digital cash instrument USC is a form of peer-to-peer interbank stablecoin denominated in five currencies: CAD, EUR, GBP, JPY, and USD.

These variously denominated USC stablecoins will each be 100% backed by fiat currency held at the respective central bank with convertibility into fiat at par guaranteed at all times. Beyond the FX markets, Fnality is aimed at digitizing markets more broadly.

Banco Santander, BNY Mellon, CIBC, Commerzbank, Credit Suisse, ING, KBC Group, Lloyds Banking Group, MUFG Bank, Sumitomo Mitsui Banking Corporation, and State Street are all backing the new Fnality International operation.

The blockchain company Ripple and associated cryptocurrency XRP has also been challenging the FX markets but with little success and much controversy than the Fnality project.

Blockchain in the Stock and Bond Markets

The stock and bond 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, thus indirectly interest rates. In addition, the true volume and location of the bonds is unknown, as it is impossible to track the paper trail. Last year, after a successful trial, the World Bank issued a second tranche of its bond-i, the world's first bond to be created, allocated, transferred, and managed using blockchain technology in collaboration with the Commonwealth Bank of Australia. It raised $160m in total.

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

The Australian Stock Exchange (ASX) is one of the first legacy stock exchanges to migrate to a distributed ledger database which is slated for the next year. The Swiss Stock Exchange, SIX, also had plans to launch a digital trading platform, the Swiss Digital Exchange (SDX).

Blockchain in Remittance Markets

According to World Bank data on migration and remittances, African diaspora populations sent US$37b back home to relatives and friends in 2017. Remittances fees at wire transfer services can be as much as 10% and can take up to a week or more for the money to reach the beneficiary - as well as taking a week's worth of salary from the beneficiary's remittance.

Of the 8% of global FX volumes mentioned earlier that is used for non-financial (speculative) use, a large share of that is for individual remittances. However, due to the market fragmentation and number of intermediaries, foreign exchange is most expensive and slowest for those who use it most productively.

A single transaction may involve several parties amid different correspondent banking networks that involves manual processes, long wait times, and exchange rate losses which results in high transaction costs. Inefficiencies are also compounded by different country practices, message formats, time zones, and laws. Despite regulators' concern with cryptocurrencies, they have a limited but valid use case in the remittance markets in emerging countries whose currencies are ravaged by inflation.

The global payments rails have been a target of Ripple's XRP cryptocurrency for many years but there are others more seriously challenging this enterprise space.

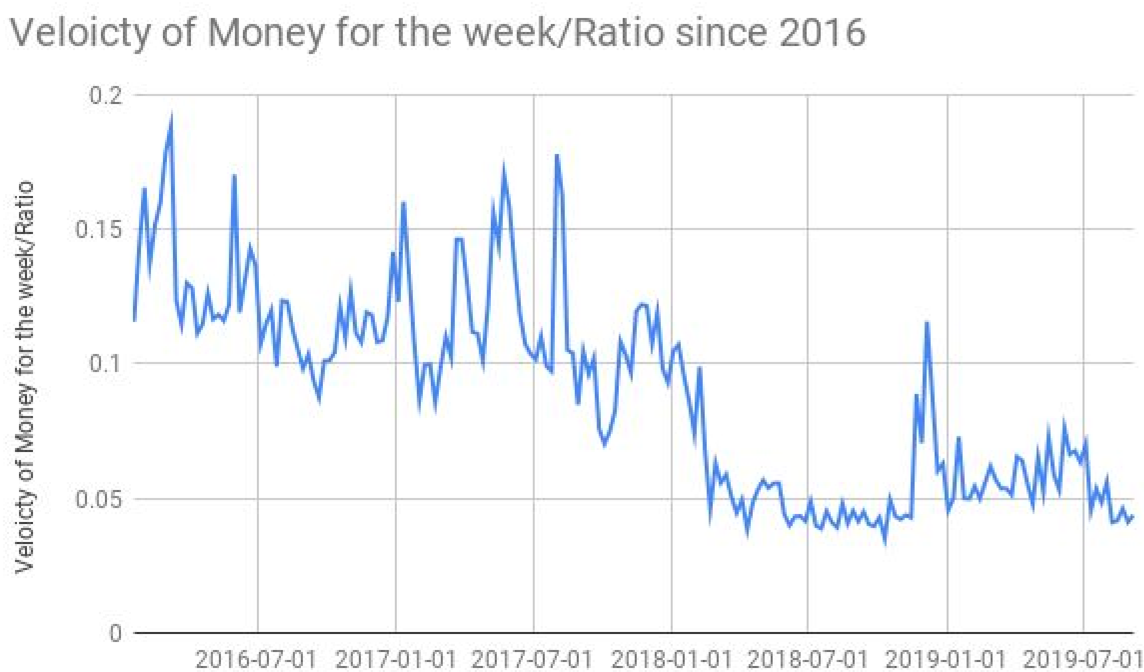
The adoption of an international non-sovereign digital currency such as the IMF's Special Drawing Rights or even Libra could mitigate foreign exchange speculation, which plagues national currencies, and reduce the FX volatility in international trade.

If the world adopted such a non-sovereign unit as the global reserve currency, whose stable unit is backed by a reserve of other countries' national currencies, it could act to balance trade between economies. Such a reserve currency was proposed by the Bank of England Governor Mark Carney who floated the idea of a Synthetic Hegemonic Currency (SHC) - a stable unit backed by a basket of central bank digital currencies of the largest nations.

For instance, a European company buying cars from Japan could settle in the SHC rather than the current reserve system in which the USD (e.g. EUR -> USD -> JPY) is used to settle trade even between non-US companies - all commodities are priced in USD. The net result is an exceptionally strong USD and exported inflation.

The 'decentralized' cryptocurrency trading market

As for the 'decentralized cryptocurrency' market itself, we see both exchange volumes and general trading volumes to remain flat or dwindle as it currently fixes no retail or institutional pain points and in fact creates many of them. Apart from speculative trading, at best 'crypto' currently has only one tenuous store of value use case in Bitcoin, which velocity as a transactional currency will further diminish in May this year after the 'halving' of Bitcoin miner rewards.



The velocity of Bitcoin as a transactional currency has fallen steadily from 2016 and throughout 2019. ***Source*** *Brave New Coin*

At the start of 2019, much hype in the industry was built on 'institutional investment', Fidelity, Goldman Sachs and others were reported to be entering, however, with the worry in the money and repo markets it's very unlikely big institutions (apart from bespoke funds and money managers e.g. Swiss) will take on the additional risk of crypto - even Bitcoin - any time soon. Moreover, there are many other contrarian bets in the legacy markets, such as European banks stocks, that offer similar risk-to-reward profiles without the reputational risk.

The false dawn of security tokens offerings (STO) which was the latest hype story after ICOs has also left many STO investors and trading platforms as ghost-towns, with only a handful of deals made and little interest. Hundreds of millions of accredited investor money poured into the compelling case of "digitizing and democratizing illiquid assets" which hasn't eventuated.

Whether they were simply too early or whether there even is demand for "tokenized real estate" beyond REITs which already fractionalize ownership, only time will tell. However, it seems the entire industry was built on a blunt equation that digitization = liquidity = demand.

The global traded volumes and price for Bitcoin on the most liquid exchanges, Brave New Coin's BLX Index, shows volumes continuously being siphoned since the start of '18. The red line, bottom right, shows volumes making lower highs and are now at levels last seen in 2014.

The crypto exchange landscape is still a frontier industry and remarkably fragmented, with no industry standards, nor any agreement on the size of the market where estimates range from 1500-6500 coins and between 240-400 exchanges in existence - depending which data vendor you ask. We expect many of the hundreds of crypto exchanges (dominated by highly centralized big players) to struggle for survival over the coming years as the 'institutional interest' remains elusive. All the exchanges are competing for a slice of a decreasing pie with pyramid marketing offers, 'trading rebates' and the addition of new gimmick functions such as crypto lending and Initial Exchange Offerings (IEOs).

The latest 'innovation' from exchanges is crypto derivatives to entice yet another wave of speculators, more sophisticated than the first wave of retail traders with crypto options and futures. Expect these to proliferate in 2020.

The exchange business model, and the wider cryptocurrency industry for that matter, is laden with conflicts of interest, from Bitfinex and Tether printing, the involvement of Venture Capital influencers who promote their investments on social media, PR firms who often are paid in the cryptocurrency of the project they are promoting and the lack of separation of powers at the biggest financial service providers.

For instance Binance, in addition to its roles as the largest global exchange, custodian, clearinghouse and lender, now also acts as a form of underwriter and investment bank via its IEO 'Launchpad' service.

These conflicting crossovers are not in the interests of the retail public, and in US legacy finance these powers were separated by the Glass-Steagall Act in 1933

While decentralized cryptocurrencies may again have their time in the sun it will be a much longer wait than the crypto-committed expected, save a Black Swan event, as the new digital economy in which they are built for is in a very nascent stage. We expect many crypto exchanges and even crossover currencies (for example, Litecoin, Bitcoin Cash, Bitcoin SV) which share similar codebases and use cases to be subsumed.

Conclusion

The next ten years should give us a good indication of whether or not corporations will supersede nation states in global governance, as the WEF encroaches on the UN's remit as corporate personhood is elevated to a higher plain. Regardless, the axis of power appears to be shifting from multilateralism to multi-stakeholderism.

The 50th WEF conference at Davos was the most critical to date as we enter a new decade of unprecedented financial, social, and economic uncertainty with limited runway to change direction. It has gone the right way about raising systemic issues to the foreground of public attention, particularly with central bank digital currencies and climate change.

The rise of blockchain and digital currencies has necessitated a multi-stakeholder framework to address their potential benefits and dangers. We could expect to see more PPPs in this area as governments don't have the expertise or staff to proceed with them. We should, however, keep a more watchful eye on the intersection of corporate governance with technology.

Into 2020, we expect to see a flurry of central bank digital currency pilots and trials. The e-commerce and point-of-sale space will also have a shake up as digital banks and digital currency startups look to break the oligopoly of EVMCo and big retail banks, offering both lower transaction fees to merchants and better user experience for customers. Enterprise will also continue its momentum from 2019 as global growth slows and the uncertainty in money markets remains (repo markets for example).

As for the 'decentralized cryptocurrency' market, we expect to see both exchange volumes and general trading volumes to remain flat or dwindle as it currently fixes no retail or institutional pain points. Apart from speculative trading, at best 'crypto' currently has only one tenuous store of value use case in Bitcoin, whose velocity as a transactional currency will further diminish in May this year after the 'halving' of Bitcoin miner rewards.

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