Enterprise Blockchain – Market Forecast & Scenarios 2019-2024

By: Alan Pelz-Sharpe

The Essentials

The Enterprise Blockchain market is relatively new, in our view dating to 2016. In many respects this market is topsy-turvy, driven by user interest and not IT vendor R&D. Most technology markets are created when technology is developed via an IT vendor R&D process, and a sales/marketing team is then built to sell and explain the benefits to potential customers. But so far, Enterprise Blockchain interest and early adoption have been driven less by technology vendors and more by public and private organizations interested in its use.

Though major infrastructure vendors like IBM have been early movers, much of the enthusiasm and impetus for blockchain is coming directly from groups of associated buyers seeking improvements to their business processes. Oftentimes these interested individuals and their associated firms coalesce into blockchain-focused consortiums. Today these consortiums – not technology vendors – are the real market drivers and builders.

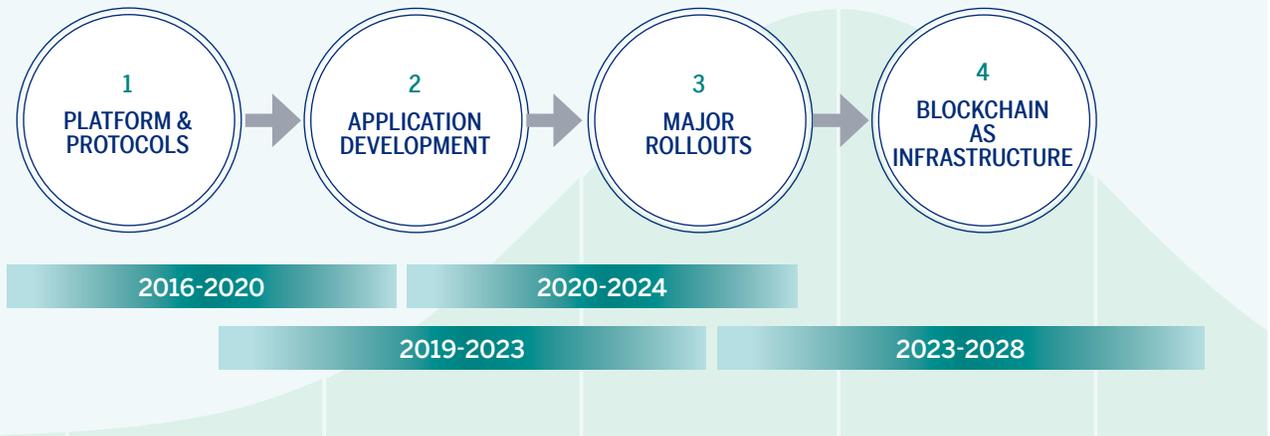Important to note here is that these consortiums represent trillions of dollars of business.

Industries' interest in blockchain is not about marginal improvements or a slim go-to-market advantage over their nearest competitor; the interest in blockchain is driven by the potential for revolutionary new approaches that can deliver huge returns on investment.

We forecast that the total market for Enterprise Blockchain technology sales will grow from $2.9 billion in 2019 to $13.2 billion in 2024, with growth occurring over four phases.
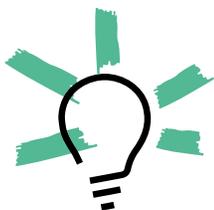
We forecast that the total market for Enterprise Blockchain technology sales will grow from $2.9 billion in 2019 to $13.2 billion in 2024, with growth occurring over four phases.

Figure 1
Market growth phases

| 1 PLATFORM & PROTOCOLS | 2 APPLICATION DEVELOPMENT | 3 MAJOR ROLLOUTS | 4 BLOCKCHAIN AS INFRASTRUCTURE |

2016-2020 — 2020-2024

2019-2023 — 2023-2028

Market Phases

We foresee four phases to the Enterprise Blockchain market expansion, as shown in Figure 1.

Phase 1
Platform & Protocol Development (Innovators)

Blockchain's first seven years (2009-2016) were focused almost entirely on its development and use as a platform for cryptocurrency creation and trading. The year 2017 saw a major shift, with many blockchain startups pivoting their work to non-crypto, enterprise uses. This direction is accelerating in 2019 and is set to continue. In 2016 early business cases were identified that leverage blockchain in sectors such as Healthcare, Government, and Supply Chain. More business cases are being identified, and they are increasingly sophisticated and complex. In 2019 the majority of new investments in blockchain are focused on enterprise use cases. During this phase, non-crypto blockchain platforms and protocols have emerged – for example, Hyperledger Fabric, SAP Cloud Platform Blockchain, Oracle Blockchain, and R3 Corda – and have become the preferred choice for enterprises.

A Brief History of Enterprise Blockchain

Blockchain's brief but colorful history originated with a 2008 paper titled "Bitcoin: A Peer-to-Peer Electronic Cash System," written by the mysterious Satoshi Nakamoto. The author was "mysterious" in that – like the artist Banksy – there is dispute as to who Satoshi really is: multiple attempts to identify him have failed to date. In 2009, the source code for the cryptocurrency Bitcoin appeared. Although Bitcoin launched in 2009, it didn't really take off until 2013, as startups interested in leveraging the platform began to attract serious funding and social media turned its attention to this previously obscure technology. From that point on, Bitcoin and its underlying DLT (Distributed Ledger Technology) architecture became a wildly successful currency phenomenon.

Bitcoin's underlying DLT architecture caught the attention of many technologists, most notably a Waterloo University student named Vitalik Buterin, who created the Ethereum Foundation in 2013 to build an alternative blockchain to Bitcoin. This in turn brought IBM into the Ethereum work and later also into its offshoot, the Hyperledger open source initiative. Since then, blockchain activity and investment has skyrocketed far beyond its use as a platform for cryptocurrency, with many in Silicon Valley and beyond believing it to be "*the next big thing.*" The appeal of a distributed network of trust and the promise of data immutability are catalysts to rethink traditional approaches to business and IT.

Phase 2
Standardization & Application Development
(Early Adopters)

Though some applications were developed by startups prior to 2019, the main phase of blockchain application development started in late 2018/2019. As enterprise use cases have been identified and Enterprise Blockchain platforms have become readily available, the development of applications has accelerated. Over 150 startups, along with established major vendors, are developing and piloting blockchain business applications across a wide range of industry sectors. These include applications for medical health records, land registry, automated contract management, supply chain tracking, and identity verification, among others. Though still early days, these applications were built relatively quickly and many have already been tested and piloted. Early adopters have deployed blockchain applications in Insurance, Government, and Supply Chain.

Phase 3
Major Rollouts
(Early Majority)

As of mid-2019 there are thousands of Enterprise Blockchain pilots running, a good number of which are ambitious in scale and well funded. A few have already deployed into production, and many more will go live in 2020 and beyond. We expect the same early adopter sectors (Insurance, Government, and Supply Chain) to lead the way in this third phase. The first products on the market set a competitive benchmark and differentiation point for the early majority. For example, the

American seafood company Bumblebee is now using blockchain (SAP) to track all its yellowfin tuna from their catch in Indonesia to the retail store. As a result, Bumblebee's closest seafood competitors are now in the pilot and early launch stages of their own blockchain tracking projects. Another example is US-based insurance firm State Farm, which is utilizing blockchain to automate its car insurance claims processes. This has spurred on its closest competitors to do likewise. We see parallel examples in multiple industry sectors.

Phase 4
Blockchain As Infrastructure
(Late Majority)

As the use of blockchain for enterprise use cases becomes standard for industry leaders, the need for entire sectors to adopt it becomes critical. From 2023 onward, we see blockchain projects receding from the headlines, and the use of the technology becoming standard (via the use of cloud services) in many industry sectors. At this point blockchain will be repositioned as it moves from the lead message to becoming functionality embedded into business applications. We expect major infrastructure vendors IBM, Microsoft, Oracle, SAP, and Amazon to remain the Blockchain as a Service (BaaS) platforms of choice for major enterprise buyers.

Infrastructure, Services & Applications

Infrastructure

Though there are many blockchain infrastructure options available in the marketplace (see Appendix), as of today two options dominate: Hyperledger Fabric and Ethereum. Though both are sound options, Hyperledger has become the dominant choice in Enterprise Blockchain because it was designed from the ground up as an enterprise solution and meets all the privacy and security needs that enterprise demands. Ethereum, on the other hand, is best known in the cryptocurrency world. Even so, Ethereum has sound enterprise options, most notably shown through its work with JPMorgan and the subsequent release of Quorum. As noted above, Hyperledger is the dominant enterprise option today. Variations of Hyperledger are utilized by IBM, Amazon, SAP, Cisco, Salesforce, Microsoft, and Oracle in their Enterprise Blockchain offerings and by default, support from such major vendors has driven its adoption.

Until 2019 most enterprises that wanted to utilize blockchain services had to build and maintain their own infrastructure and applications. This situation is changing rapidly as BaaS options from the likes of Microsoft Azure, Amazon AWS, SAP, and Oracle now provide fully maintained cloud-based offerings.

Definitions

Hyperledger

Hyperledger is an open source hub for enterprise blockchain development hosted by the Linux Foundation. Its focus is on enterprise innovation, cross-industry collaboration, and leveraging IoT. Multiple flavors are available, most notably Fabric, which is widely used for smart contracts and records transactions. Hyperledger transactions are only visible to permissioned groups via encryption keys.

→ Key takeaway: Hyperledger is optimal for B2B situations, for developing components and integrating them with existing business applications and components.

Ethereum

Ethereum is a highly popular open-source option that has a major footprint in the cryptocurrency marketplace. Ethereum Ether currency is second only to Bitcoin. Ethereum's focus is on smart contracts for secure digital transactions. Ethereum keeps all transactions and details in the public domain.

→ Key takeaway: Ethereum is optimal in financial services and B2C situations to facilitate smart contracts.

R3 Corda

R3 is an open source blockchain platform that is becoming popular in financial services and the supply chain. R3 focuses on automating complex legal contracts between tightly controlled and trusted parties. Technically, it is more of a secure shared network than a blockchain. Corda, the company behind R3, has announced Corda Enterprise, a commercial version that comes with full support services and features.

→ Key takeaway: Though Corda is less well known than its rivals, the release of Corda Enterprise as a fully supported commercial platform will likely result in its popularity growing substantially.
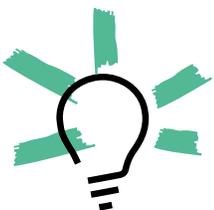
From 2023 onward, we see blockchain projects receding from the headlines, and the use of the technology becoming standard (via the use of cloud services) in many industry sectors.

Services

This shift to BaaS is beginning to impact service revenues, with the number of multimillion-dollar projects starting to shrink. Buyers are now aware that lower-cost options are available and that they no longer have to engage a services firm to build a product from the ground up. In our research we encountered many enterprises that complained about overly aggressive and costly approaches by major system integrators touting their ability to build private blockchain services.

Most notable in terms of pushback is IBM Global Services, which has carved out a lucrative business from the IBM Blockchain technology business. Pushback is growing for two key reasons:

1. The perception that IBM Global Services is using blockchain as leverage to sell ambitious and costly digital transformation projects, and

2. The fear of vendor lock-in: buyers do not want to become reliant on any one vendor, be it IBM, Microsoft, or Oracle.

Applications

As of 2019 most business applications running on Enterprise Blockchain are proprietary and were built for use by a specific company or government department. However, a growing number of startups are bringing blockchain-enabled applications to the market. We have identified applications in the legal, government, media, and supply chain sectors (see Appendix).

Many new business applications built by more established technology vendors are coming to the market from late 2019 onward.

Forecasts

Assumptions and Definitions

The Blockchain market as defined in this report is growing out of three segments: infrastructure, applications, and services. These segments are not solely focused on Enterprise Blockchain. Accordingly, we have estimated the revenues in this report based on our understanding of their specific focus and business models, for example:

→ Infrastructure vendors such as IBM are also involved in cryptocurrency and finance trading.

→ Application vendors are divided between those that focus only on blockchain-driven applications, and traditional application vendors that are also developing blockchain options.

→ Service vendors typically serve broad markets. Outside of boutique blockchain specialists, most larger service organizations have dedicated blockchain centers-of-excellence practices that either work alone or support other service practices within the organization.

→ Many private organizations do not declare revenues, and if they do, they do not always split their gross revenue into easily quantifiable sub-categories. We estimated these revenues based on our discussions and analysis.

→ The forecasts in this report start from a baseline of 2019. These baseline figures are not actual revenues, but are our estimates based on declared revenues where available, and using the assumptions described previously. Starting from this baseline clearly illustrates the rapid growth that we expect over the forecast period.

→ While many organizations have been executing on blockchain initiatives for several years, 2019 saw the first year of significant major market presence for most of the vendors focused on blockchain.

The Enterprise Blockchain Market: 2019-2024

The worldwide market for Enterprise Blockchain technology and related services will grow from an estimated $2.9 billion in 2019 to $13.2 billion by 2024 (see Figure 2). The market hardly existed in 2016-17, hence it is important that rapid growth will follow this already rapid start. Growth will be fueled initially by large organizations looking to transform critical existing operations. Future high levels of growth will be maintained initially by large competitors catching up to rivals, broader use of blockchain by these large organizations, and the expansion of blockchain use into the SME market.

Revenue growth will slow in 2024 as the result of increased commoditization of the underlying blockchain infrastructure, competition in the application space, and lower service costs as blockchain moves into the mainstream.

As Figure 3 illustrates, it is important to note the change in market dynamics as the growth rate of the investment in services and infrastructures declines and the application spend increases over time.

Figure 2
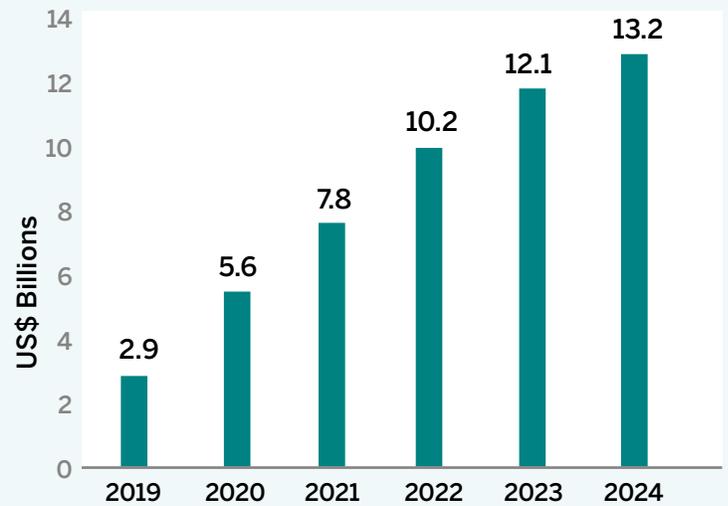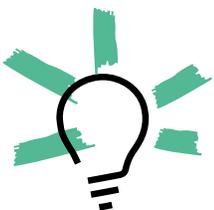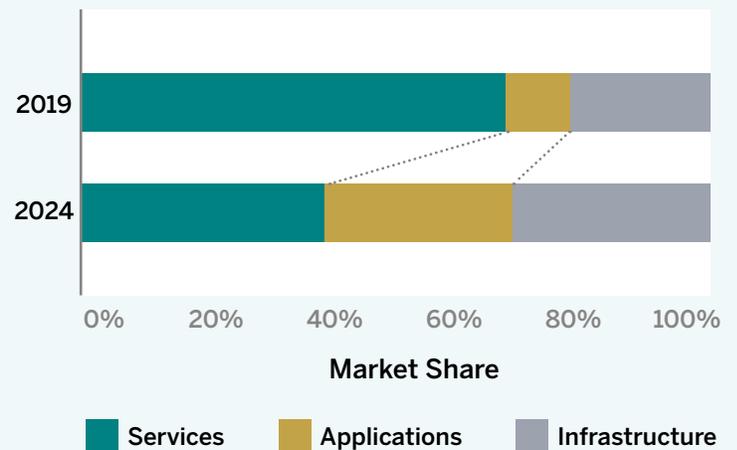**Enterprise Blockchain market growth, 2019-2024**

Figure 3
The shift from Enterprise Blockchain services to applications

The nature of blockchain-related services will change over time, moving away from blockchain development toward addressing the need for organizational change and process management.

The low spend on applications in 2019 to some degree masks the application-related work undertaken by services providers in building organization-specific solutions. For the purposes of this forecast we defined applications as products that will be used by more than one organization. These broader business applications are coming to market and will see rapid growth, as the appeal of preconfigured and business-ready applications will replace the need to build one-off applications and reduce the spend on integration and associated consulting services. As major vendors build up their presence at the infrastructure layer and begin to bundle blockchain functionality into their product offerings, the revenue generated directly from infrastructure will continue to grow, but that growth will be dwarfed by services and applications. The nature of blockchain-related services will change over time, moving away from blockchain development toward addressing the need for organizational change and process management.

Market Segmentation

Our analysis focuses on six key segments that make up the majority of the Enterprise Blockchain market: Legal, Healthcare, Media, Supply Chain, Government, and Insurance. Though other markets such as CPG, E-commerce, Energy, and Manufacturing are exploring blockchain, these remain very small today.

Figure 4 illustrates how the balance between market segments shifts significantly over the forecast period. While Insurance is the largest segment today, over time Government, Legal, and Media spend will increase rapidly to take the largest slice of the market share.

Figure 4
Enterprise Blockchain growth by industry sector
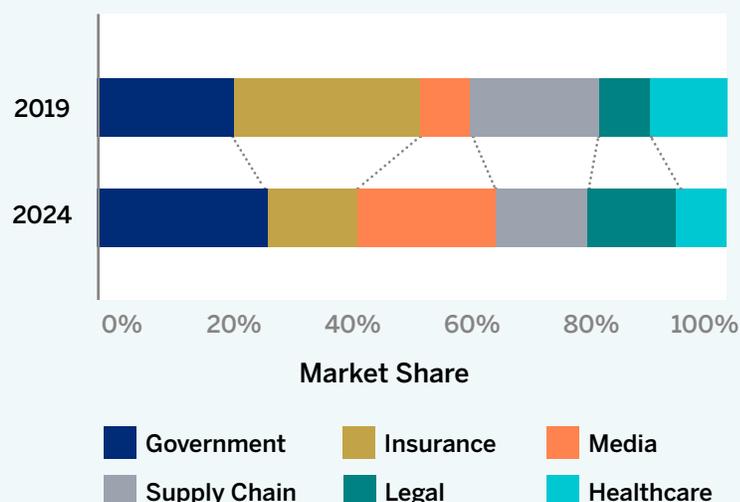
Although Healthcare is showing a great deal of interest in blockchain to improve (among other things) electronic health records, that segment faces steep opposition in the form of market fragmentation, internal resistance to change, and regulatory hurdles. Therefore, although we see Healthcare remaining active in this market, its growth will be significantly slower.

The biggest shift over the next five years will be the adoption of blockchain by different elements of Media. Similar to Supply Chain (where operating margins are often slim) the Media industry faces not only pressure on its bottom line, but also major challenges to combat piracy as well as trust issues. It has much to gain from adopting blockchain, and little to lose. Early Media adopters in Asia and the Middle East are already creating and proving out business cases that will impact and drive growth in other global media operations over this time period.

Methodology and Assumptions

We used the following methodology to forecast the market opportunity for Enterprise Blockchain:

→ Measure the existing market for Enterprise Blockchain in terms of global IT budget attributed to software license/subscriptions, project fees, and costs.

→ Forecast patterns of types of projects adopted, based on market scenarios.

→ Assess annual percentage adoption rates for types of projects and associated products and services.

→ Review available third-party market sizing data.

→ Combine existing market numbers with those percentages to give actual values.

All value forecasts are in US dollars. No allowance is made for the future effects of geopolitics, inflation, or exchange rate mechanisms.

Appendix: Blockchain Infrastructure

Table 1
Selected Enterprise Blockchain Business Applications

Vendor Name	Product Name	Company Info	Product Description
Advoretto	Advoretto	Founded in 2015. HQ in Zurich, Switzerland.	Legal document transactions
Attestiv	Attestiv	Founded in 2019. HQ in Natick, MA.	Fraud- & tamper-resistant rich media
Cryptyk	Vault	Founded in 2015. HQ in San Francisco, CA.	File management
DocTailor	DocTailor	Founded in 2017. HQ in London, UK.	Legally enforceable smart contracts
FoodLogiQ	FoodLogiQ	Founded in 2016. HQ in Durham, NC.	Food safety and traceability
i-House	i-House	Founded in 2017. HQ in Beijing, China.	Real estate
KeeeX	KeeeX PR & Photo Proof	Founded in 2014. HQ in Marseille, France.	File integrity
LegatumX	LegatumX	Founded in 2017. HQ in Los Angeles, CA.	Documents to smart contracts (wills & trusts)
Mattereum	Mattereum	Founded in 2017. HQ in London, UK.	Legally enforceable smart contracts
Medicalchain	Medicalchain	Founded in 2017. HQ in London, UK.	Healthcare records
MyDocSafe	Product yet to be launched	Founded in 2013. HQ in Bedford, UK.	Document integrity testing
Patientory	Patientory	Founded in 2015. HQ in Atlanta, GA.	Health information exchange
Railz	Railz	Founded in 2018. HQ in London, UK.	IoT
RecordsKeeper	Mainnet	Founded in 2016. HQ in Gibraltar.	Records management
Rye Holdings Inc	KodakOne Image Rights Management Platform	Founded in 2017. HQ in Venice, CA.	Digital rights management
Scrive	eSign & eID Hub	Founded in 2010. HQ in Stockholm, Sweden.	E-signature
ShelterZoom	ShelterZoom	Founded in 2016. HQ in New York.	Real estate
ShipChain	ShipChain	Founded in 2017. HQ in Los Angeles, CA.	Logistics – supply chain
Signatura	Signature/Signatura Core	Founded in 2015. Buenos Aires, Argentina.	E-signature
SIGNiX	MyDox, PharmaDox etc	Founded in 2002. HQ in Chattanooga, TN.	E-signature
Sony	Product yet to be launched	Founded in 1946. HQ in Tokyo, Japan.	Digital rights management
Sphereon	Sphereon	Founded in 2015. HQ in Utrecht, The Netherlands.	Connectors for ECM systems to blockchain
SyncFab	SyncFab	Founded in 2013. HQ in San Leandro, CA.	Order tracking for supply chain

Table 2
Cloud Enterprise Blockchain Platforms

Vendor Name	Product Name	Company Info	Product Description
Alibaba	Alibaba Cloud Blockchain as a Service	Founded in 1999. HQ in Zhejiang, China. Blockchain service launched in 1999.	Blockchain as a service supporting Hyperledger Fabric and Ethereum.
Amazon	Amazon Managed Blockchain (AWS) – also QLDB (Quantum Ledger Database)	Founded in 1994. HQ in Seattle, WA. Announced Blockchain services in 2018.	Blockchain as a Service supports Hyperledger Fabric, Ethereum, BlockApps & Kaleido.
Baidu	XChain	Founded in 2000. HQ in Beijing, China. Announced XuperChain (XChain) in 2018.	Runs its own proprietary XChain protocol. Initially focused on IP protection.
BigchainDB	BigchainDB	Founded in 2017. HQ in Berlin, Germany. Version 1.0 launched in 2017.	Scalable blockchain proprietary database platform.
Block.one	EOSIO	Founded in 2017. HQ in Hong Kong, HK.	Open Source blockchain building blocks.
Cisco Systems	Cisco Blockchain Platform	Founded in 1984. HQ in San Jose, CA.	Network-oriented blockchain platform supporting Hyperledger Fabric.
CoinSciences Ltd	Multichain Enterprise	Founded in 2014. HQ in London, UK. Version 1.0 launched in 2017.	Blockchain system built on Bitcoin platform.
ConsenSys	Kaleido	Founded in 2015. HQ in Raleigh, NC.	Ethereum-based blockchain integrated with Microsoft Azure.
Factom	Harmony Integrate & Harmony Connect	Founded in 2014. HQ in Austin, TX. Launched Blockchain system in 2016.	Blockchain system built on Factom's own protocol. (Factom is also a member of Hyperledger.)
Google (Alphabet)	Google Cloud Platform	Founded in 1998. HQ in Mountain View, CA. Blockchain services announced in 2018.	Blockchain as a Service supports Hyperledger Fabric and Ethereum.
HPE	HPE Mission Critical Distributed Ledger Technology (DLT)	Founded in 2015 (out of previous HP structure). HQ in San Jose, CA.	Partnering with R3.
Huawei	BCS (Blockchain Service)	Founded in 1987. HQ in Shenzhen, China. BCS announced in 2018.	Hyperledger-based, running in the Huawei Cloud as a service.
IBM	IBM Blockchain Platform	Founded in 1911. HQ in Armonk, NY. Blockchain service announced in 2017.	Hyperledger-based Blockchain platform.
Microsoft	Microsoft Azure Blockchain Service; also Azure Blockchain Workbench	Founded in 1975. HQ in Redmond, WA. Ethereum Blockchain service announced in 2015. Added support for Hyperledger Fabric in 2019.	Fully managed Ethereum-based Blockchain service. Also offers support for Hyperledger Fabric and R3.
Oracle	Oracle Blockchain Cloud Service	Founded in 1987. HQ in Redwood Shores, CA. Blockchain service announced in 2018.	Fully managed, Hyperledger Fabric-based blockchain service.

Table 2
Cloud Enterprise Blockchain Platforms, continued

R3	R3 Corda	Founded in 2014. HQ in New York City. Consortium of 40 financial institutions.	Blockchain-like secure smart contract network.
SAP	SAP Cloud Blockchain Platform	Founded in 1972. HQ in Weinheim, Germany. Blockchain service announced in 2018.	Blockchain as a Service supporting Hyperledger Fabric.
Salesforce	Salesforce Blockchain	Founded in 1999. HQ in San Francisco, CA. Blockchain service announced in 2019.	Blockchain development tools supporting Hyperledger Sawtooth.
Stratis Platform	Stratis Blockchain	Founded in 2017. HQ in London, UK. Blockchain platform launched in 2016.	Blockchain system built on Bitcoin platform.
Tencent	TrustSQL	Founded in 1998. HQ in Shenzhen, China. Blockchain service launched in 2019.	Proprietary blockchain platform.

About Deep Analysis

Deep Analysis is an advisory firm that helps organizations understand and address the challenges of innovative and disruptive technologies in the enterprise software marketplace.

Its work is built on decades of experience in advising and consulting to global technology firms large and small, from IBM, Oracle, and HP to countless start-ups.

Led by Alan Pelz-Sharpe, the firm focuses on Information Management and the business application of Cloud, Artificial Intelligence, and Blockchain.

Deep Analysis works with technology vendors to improve their understanding and provide actionable guidance on current and future market opportunities.

Yet, unlike traditional analyst firms, Deep Analysis takes a buyer-centric approach to its research and understands real-world buyer and market needs versus the "echo chamber" of the technology industry.

Contact us:

info@deep-analysis.net
+1 978 877 7915