

HFS Top 10: Enterprise Blockchain Service Providers, 2021

December 2021

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The pandemic may have forced enterprises to temporarily reduce their blockchain investments, but as we move deeper into 2021, the enterprise blockchain services market is growing exponentially. However, there's one key difference: the proof-of-concept game is well and truly dead. Enterprises are looking toward production-grade initiatives that can provide genuine business value, be it helping achieve their ESG goals, driving efficiency in existing processes, or underpinning critical ecosystems.

As enterprises move away from the beautiful “white elephant,” a useless proof-of-concept that provides no value. It's an exciting time to be involved in enterprise blockchain services.

- Sam Duncan, Associate Practice Leader, HFS



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Introduction

Introduction

- The pandemic meant enterprises adjusted their spending to ensure they survived this period of uncertainty. As we entered the pandemic, blockchain was merely an experiment to many enterprises. Engagements rarely made it beyond the proof-of-concept phase—making it an obvious place to reduce spending. However, as the pandemic pressures ease, the enterprise blockchain market is exploding. Enterprises are looking toward production-build initiatives to drive value throughout their business and move beyond useless proofs-of-concept.
- The *HFS Top 10: Enterprise Blockchain Service Providers, 2021* report investigates the blockchain space to provide a comprehensive and foundational analysis of the blockchain services market for enterprises.
- From an enterprise or B2B adoption perspective, HFS assessed 12 leading blockchain services providers based on detailed discussions with their leadership teams, inputs from their enterprise clients, and analysis of thousands of blockchain engagements across industries worldwide.

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Executive summary

Summary points

- 1 Enterprise blockchain service winners**

The enterprise blockchain space continues to grow; however, the leading three service providers—Accenture, IBM and EY—remain the same, although not in that order. These leaders are differentiated by their size, scale experience, and ability to innovate in the enterprise blockchain market.
- 2 Industry expansion**

Blockchain is well established in banking and financial services (BFS), even more so after the explosion of decentralized finance. However, we're beginning to see blockchain gain significant traction in a growing number of industries, particularly insurance, healthcare, and the public sector.
- 3 Demystifying blockchain**

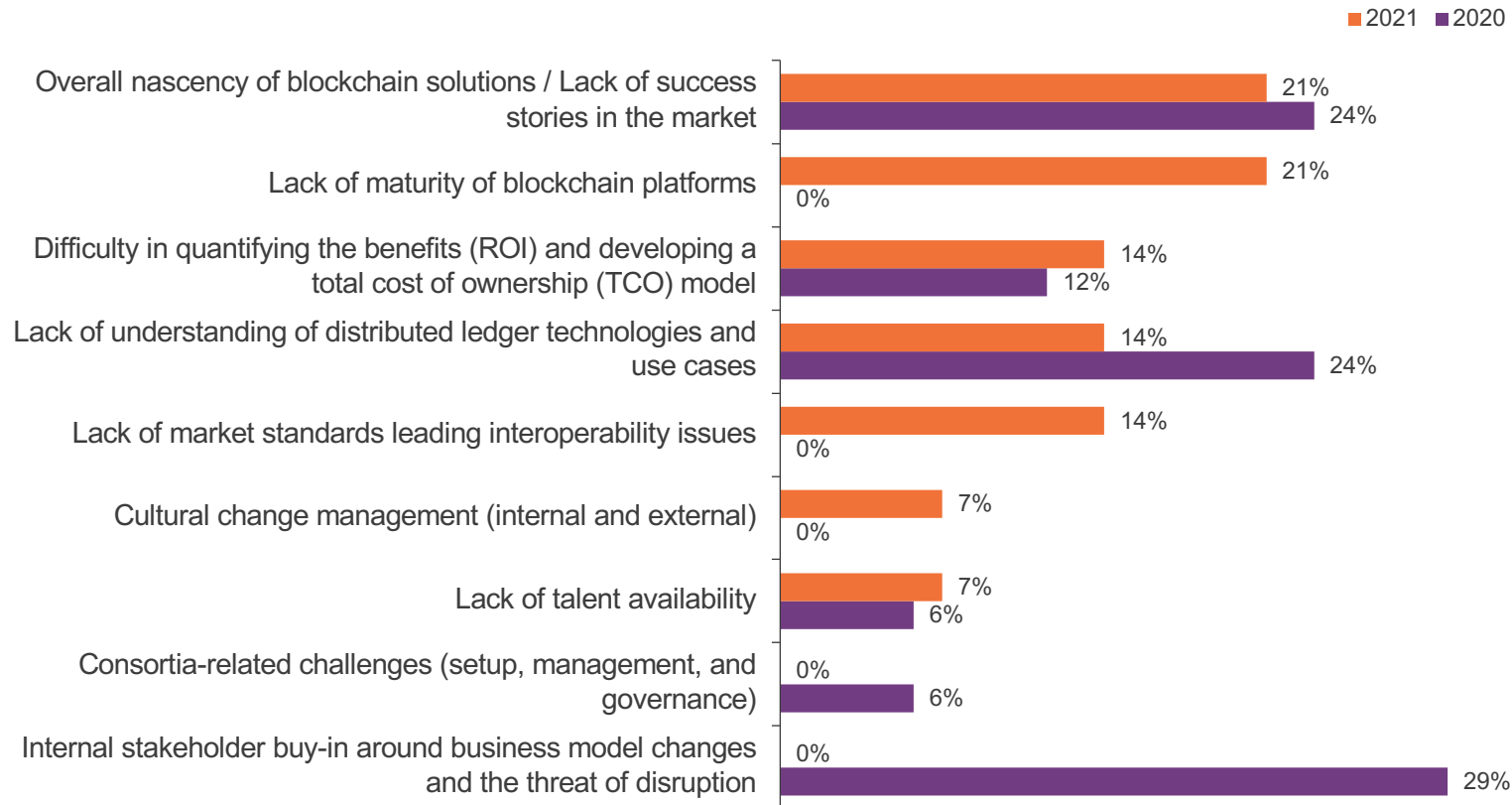
Enterprises and service providers alike still struggle to demystify blockchain, but more enterprises are slowly moving further and asking their partners how they can get started with distributed ledger technologies.
- 4 Voice of the customer**

Voice of the customer scores across the enterprise blockchain industry were very strong, particularly for providers' innovation capabilities. However, enterprise clients advised there is room for improvement in talent and pricing models.
- 5 OneOffice alignment**

As the market matures, we see more service providers establish dedicated blockchain practices and make the technology a strategic priority. They are also embedding blockchain across the entire business, allowing them to weave in other emerging technologies and industry expertise.

Enterprises are slowly moving beyond understanding blockchain and are now asking how to get started

Q: What are the top three challenges you face in implementing blockchain? (rank 1 only)

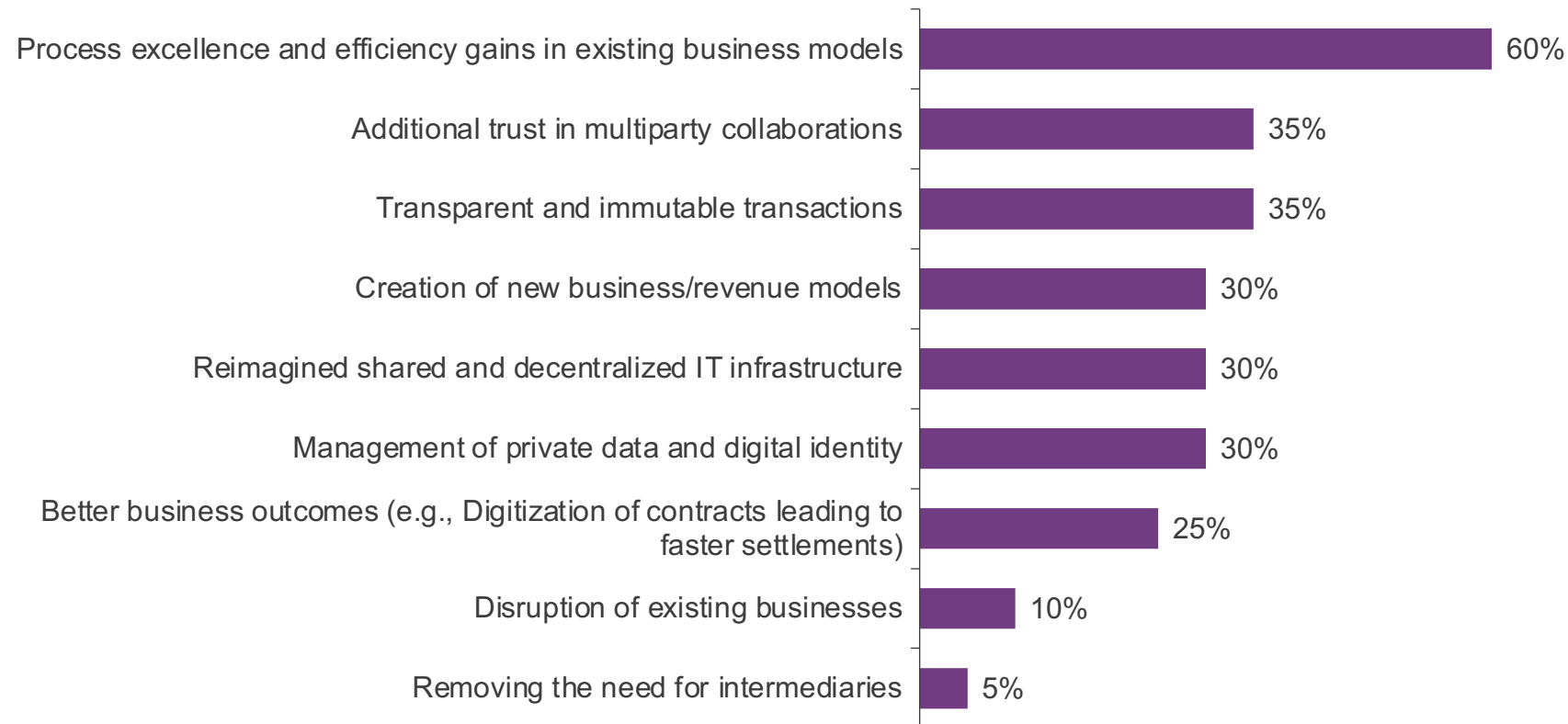


- In the past, enterprises have struggled with the overall nascence and lack of understanding of blockchain solutions, ultimately leading to difficulty achieving stakeholder buy-in.
- While these challenges still exist, we see more emphasis on challenges around getting started with blockchain.
- The data shows us that enterprises are beginning to struggle with a lack of maturity of blockchain platforms, talent availability, and market standards. This proves enterprises have moved beyond understanding blockchain to “How do we get started?”
- A lack of talent availability was a leading challenge service providers mentioned in our conversations, so it’s no surprise to see clients indicate it as a challenge. Service providers must upskill their existing employees, aggressively increase their headcount, and seek models such as crowdsourcing to address their talent challenges.

Sample: 20 enterprise clients from leading blockchain providers
Source: HFS Research, 2021

Over half of enterprises choose blockchain to drive process excellence and efficiency gains

Q: What are the key traits of blockchain that make it attractive for your situation?



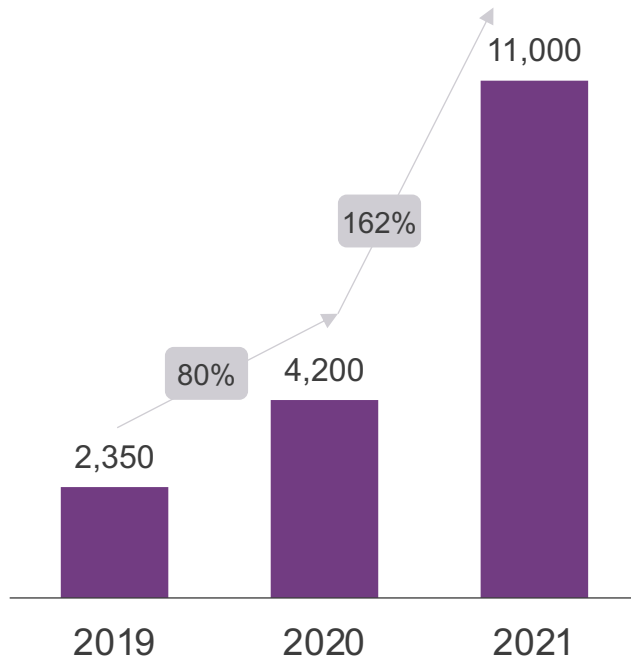
- It's no surprise that 60% of enterprises cite blockchain's ability to drive process excellence and efficiency gains as its best trait, thanks to its ability to create consensus-driven trust, immutable transactions, and smart contracts.
- The next leading traits of blockchain are additional trust and transparent transactions, both of which suggest enterprises' desire to drive ecosystem adoption.

Sample: 20 enterprise clients from leading blockchain providers
Source: HFS Research, 2021

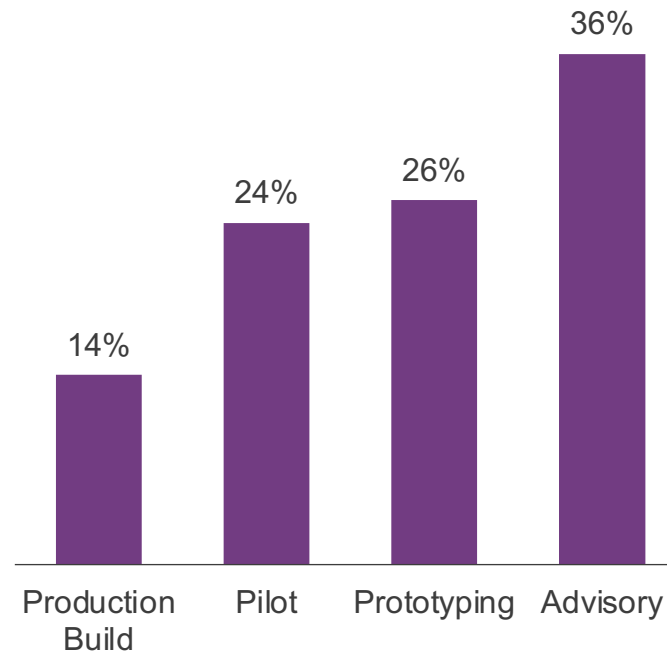
Blockchain engagements continue to grow across all stages, but more are reaching the production environment

YoY Growth

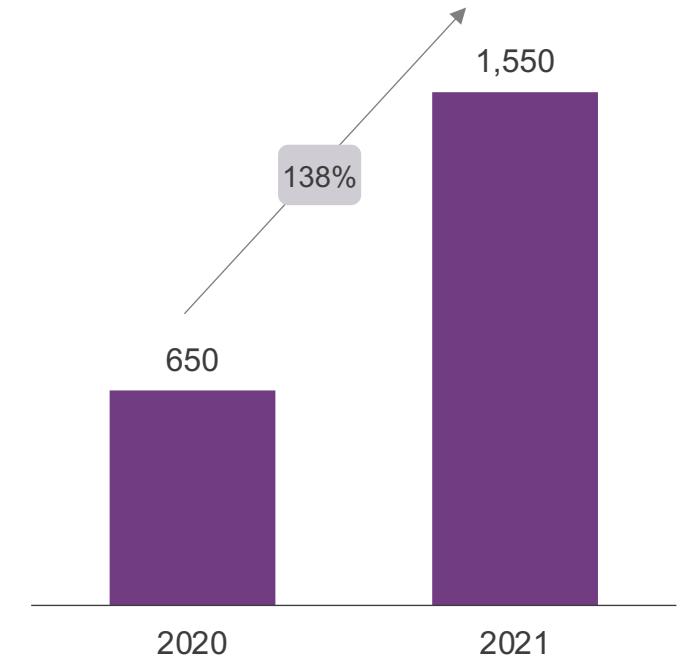
Growth in total blockchain engagements



Blockchain engagements by stage



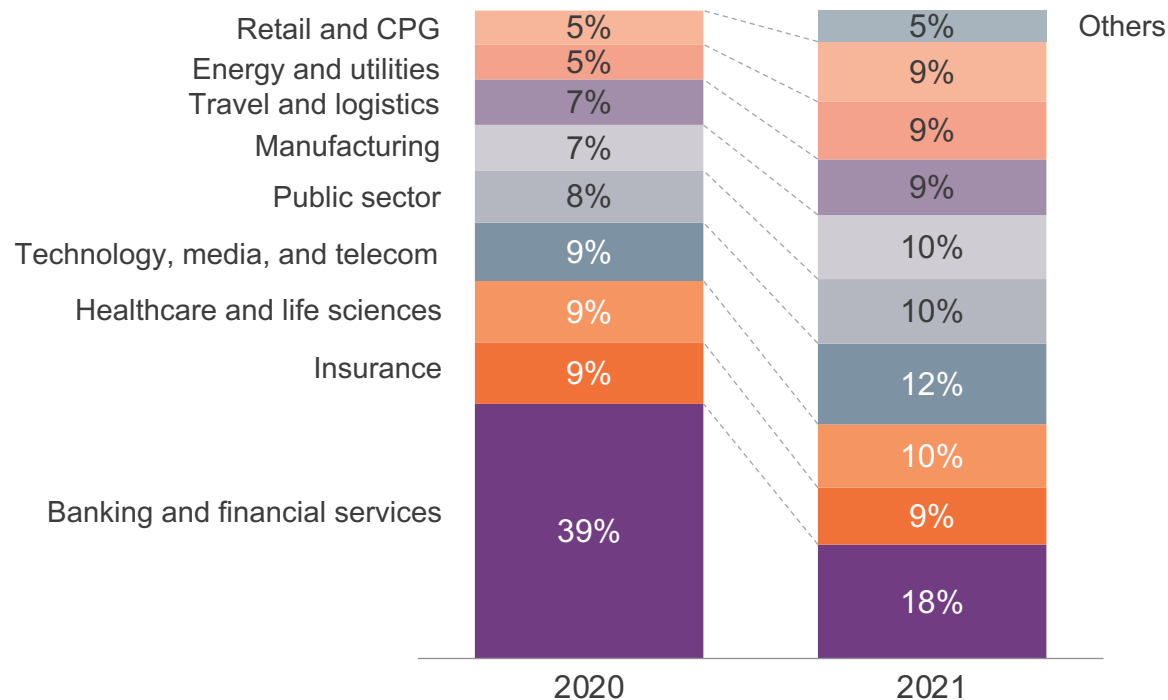
Number of production build engagements



Sample: Data from 12 providers assessed in this report.
Source: HFS Research, 2021

Blockchain is moving beyond banking and financial services into a broad range of industries

Number of blockchain engagements by industry

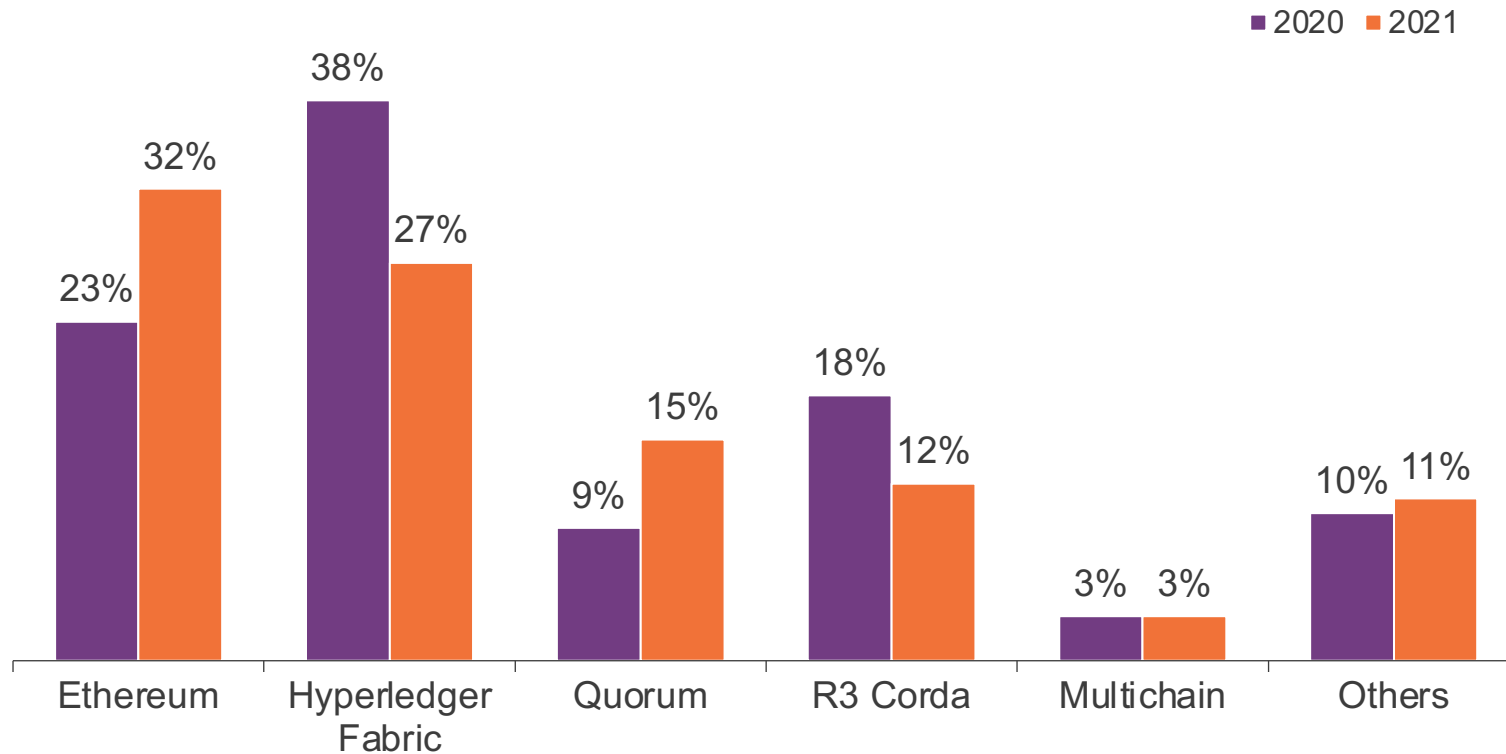


- Banking and financial services (BFS) is unsurprisingly one of the leading industries for blockchain adoption. There's a vast range of use cases including international payments, KYC (know your customer), and identity verification, plus additional use cases emerging from the decentralized finance explosion. However, over the last year there has been a surge in cases beyond BFS, reflecting the reduction from 39% to 19% of total engagements.
- There has been significant traction in the insurance sector as insurers are developing a range of industry-specific blockchain solutions, particularly the likes of B3i Services AG, which includes shareholders like Allianz, Zurich, and Deutsche Bank.
- Finally, there was a significant increase in public sector engagements, as some governments reacted to the pandemic with blockchain-driven vaccination passports, and a drive toward blockchain-fueled identity management solutions.

Sample: Engagement details of 12 providers assessed in this report.
Source: HFS Research, 2021

Adoption of public blockchains continues to rise as Ethereum emerges as the platform of choice for enterprise blockchain

Number of blockchain engagements by platform



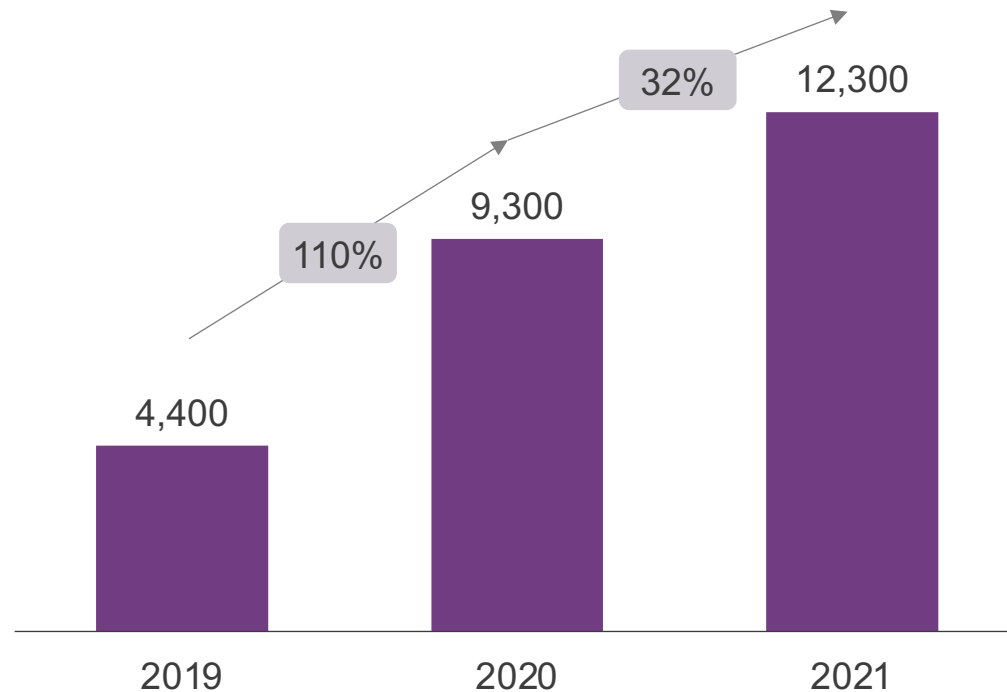
- Throughout our conversations with leading service providers, we recognized quickly that many providers were starting to favor public blockchains, particularly to underpin collaborative ecosystems. The data reflects this, too, as Ethereum leapfrogged Hyperledger Fabric to emerge as the number one platform of choice in 2021.
- Hyperledger Fabric saw the biggest drop in market share over the last year. Service providers explained that its modular architecture results in tedious deployment, configuration, and maintenance.
- While providers cited R3 Corda's ease of use and rapid deployment, it saw a reduction in market share in the last year. Providers explained that its BFS focus meant there were better options for engagements in other industries.
- An increasing number of engagements are leveraging Quorum. Providers tell us the platform's high-performance and ability to run private transactions are its key strengths.

Sample: Data from 12 providers assessed in this report
Source: HFS Research, 2021

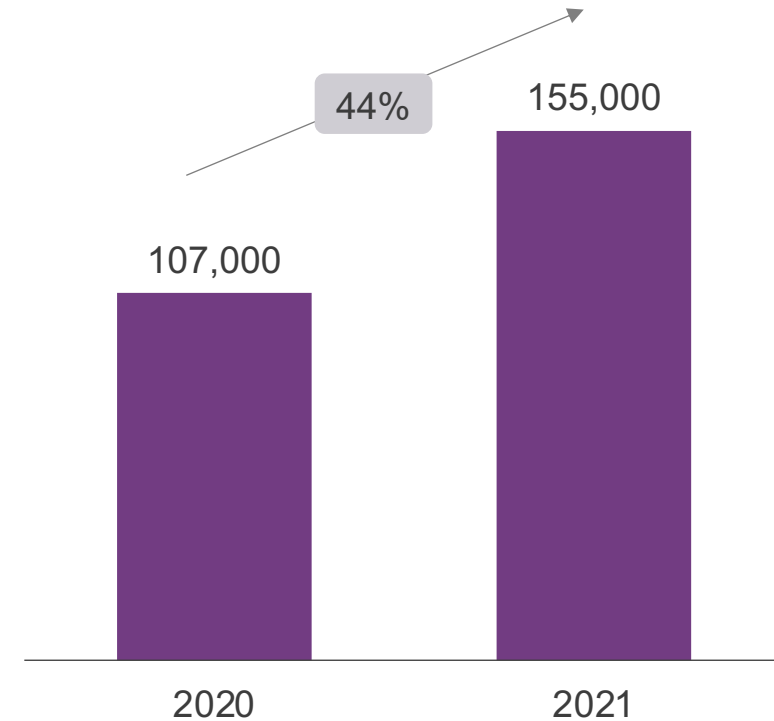
The blockchain talent war rages on as dedicated headcount grows and providers rush to upskill existing employees

YoY Growth

Growth of dedicated blockchain headcount



Growth of proficient blockchain headcount



Sample: Data from 12 providers assessed in this report.
Source: HFS Research, 2021

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Research methodology

Service providers assessed in this report

 **accenture**

Atos

Cognizant

 **EY**

 **Software**

IBM

Infosys[®]
Navigate your next

 **Mphasis**
The Next Applied

NTT Data

 **TATA**
CONSULTANCY
SERVICES

Tech
Mahindra

 **wipro**

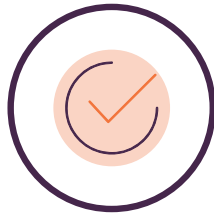
Sources of data

This Top 10 research report relies on myriad data sources to support our methodology and help HFS obtain a well-rounded perspective on the service capabilities of the participating organizations covered in our study. Sources are as follows:



RFIs and briefings

- RFIs: Each participating organization is asked to complete a detailed RFI.
- Vendor briefings: HFS conducts briefings with senior executives from each organization.



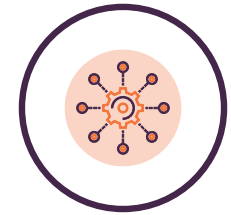
Reference checks

- HFS conducts reference checks with **active clients** of the study participants via detailed phone-based interviews.



HFS vendor ratings

- Each year, HFS fields multiple demand-side surveys in which we include detailed vendor rating questions. For this study, we leverage the HFS Pulse data featuring **400+ vendor ratings from Global 2000 enterprises**.



Other data sources

- Public information such as press releases, websites, etc.
- Ongoing interactions, briefings, virtual events, etc., with in-scope vendors and their clients and partners.

Assessment criteria

HFS assessed 12 leading blockchain service providers based on detailed discussions with their leadership teams, inputs from their enterprise clients, and analysis of thousands of blockchain engagements across industries worldwide. This information is also augmented with information from publicly available information sources.



25%

Execution

- **Scale and growth:** Number of dedicated blockchain proficient resources, and growth in number of engagements
- **Experience:** Number of engagements, practice start date
- **Value chain coverage:** Advisory, prototype, pilot, and production-build engagements
- **Industry coverage:** Number of engagements in different industries
- **Delivery footprint:** Number of FTEs and delivery centers globally



25%

Innovation

- **Vision and strategy**
- **Intellectual property:** Patents, tools, and solution accelerators
- **Ecosystem's experience:** With blockchain platforms, partnerships, and consortium memberships
- **Investments:** Capability building and global delivery investments



25%

OneOffice alignment

- **Alignment with the HFS OneOffice model:** Ability to help blockchain clients connect the front, middle, and back offices and realize transformation potential
- **Internal OneOffice alignment:** Vendor's internal alignment with OneOffice
- **One face to the customer:** Vendor's ability to represent its full capabilities to its clients
- **Change management and digital fluency:** Formal approach to change management, ability to drive digital fluency internally and externally



25%

Voice of the customer

- **Reference checks:** Direct feedback from enterprise clients via interviews and surveys
- **HFS voice of the customer vendor rating data:** Ratings by active blockchain clients of in-scope service providers
- **Referenceability:** Provision of references and reference responsiveness

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Top 10 results: Enterprise blockchain services

Leading enterprise blockchain services providers—a summary of providers assessed in this report













Providers (alphabetical order)	HFS point of view
Accenture	A priority business leveraging its full breadth and depth to deliver blockchain solutions at scale
Atos	Razor-like focus on identity, traceability, and tokenization, driven by a business-centric approach
Cognizant	Real world blockchain expertise complemented by Digital Engineer expertise and a broad ecosystem of partners
EY	Strong public blockchain vision, expertise, and investments
FPT	APAC-focused, security-driven blockchain provider
IBM	Market-making blockchain provider with extensive expertise launching production-ready ecosystems
Infosys	A vertical-driven blockchain strategy complemented by deep technical expertise
Mphasis	Deep BFSI and blockchain expertise with mid-tier flexibility
NTT Data	APAC powerhouse with deep blockchain expertise and consortium experience
TCS	Consulting-driven blockchain services with a clear ecosystem vision and expertise
Tech Mahindra	Leveraging its Block Ecosystem framework to supplement its tools and deliver blockchain solutions at scale
Wipro	An industry-focused go-to-market supported by significant size and scale

Notable performances in Top 10 rankings

HFS Podium Winners

Top five providers overall across execution, innovation, OneOffice alignment, and voice of the customer criteria

#1	#2	#3	#4	#5
				

Execution powerhouses Top three providers on execution criteria			Innovation champions Top three providers on innovation criteria			OneOffice alignment Top three providers aligned to OneOffice			Outstanding voice of the customer Top three providers on voice of the customer criteria		
#1	#2	#3	#1	#2	#3	#1	#2	#3	#1	#2	#3
											

Other notable performances

- TCS ranked #2 for delivery footprint, thanks to its extensive, dedicated blockchain headcount, and geographic spread.
- Tech Mahindra ranked #3 in intellectual property as a result of its range of platforms and tools, including the latest Stablecoin-as-a-Service offering.
- Infosys' vertical-based strategy, alongside significant number of blockchain engagements across different stages of production, helped it rank #4 for value chain coverage.

HFS Top 10 rankings—Enterprise blockchain services, 2021

Rank	Overall HFS Top 10 position	Execution						Innovation					OneOffice alignment	Voice of the customer
		Scale and growth	Experience	Value chain coverage	Industry coverage	Delivery footprint	Overall execution	Vision and strategy	Intellectual property	Investments	Ecosystems	Overall innovation		
#1	accenture	accenture	EY	IBM	EY	accenture	EY	IBM	IBM	EY	accenture	IBM	accenture	IBM
#2	IBM	IBM	IBM	EY	IBM	tcs TATA CONSULTANCY SERVICES	IBM	EY	EY	IBM	NTT DATA	EY	IBM	accenture
#3	EY	EY	Infosys® Navigate your next	accenture	accenture	IBM	accenture	tcs TATA CONSULTANCY SERVICES	Tech Mahindra	NTT DATA	EY	accenture	EY	EY
#4	Infosys® Navigate your next	Infosys® Navigate your next	tcs TATA CONSULTANCY SERVICES	Infosys® Navigate your next	tcs TATA CONSULTANCY SERVICES	EY	Infosys® Navigate your next	accenture	wipro	Tech Mahindra	wipro	Tech Mahindra	Infosys® Navigate your next	Infosys® Navigate your next
#5	tcs TATA CONSULTANCY SERVICES	tcs TATA CONSULTANCY SERVICES	accenture	tcs TATA CONSULTANCY SERVICES	wipro	Cognizant	tcs TATA CONSULTANCY SERVICES	Infosys® Navigate your next	Cognizant	wipro	IBM	NTT DATA	Tech Mahindra	NTT DATA
#6	Tech Mahindra	wipro	NTT DATA	Atos	Infosys® Navigate your next	Infosys® Navigate your next	wipro	NTT DATA	accenture	accenture	Infosys® Navigate your next	tcs TATA CONSULTANCY SERVICES	tcs TATA CONSULTANCY SERVICES	tcs TATA CONSULTANCY SERVICES
#7	NTT DATA	FPT Software	wipro	wipro	Tech Mahindra	wipro	Cognizant	Tech Mahindra	Infosys® Navigate your next	tcs TATA CONSULTANCY SERVICES	tcs TATA CONSULTANCY SERVICES	Infosys® Navigate your next	wipro	Tech Mahindra
#8	Cognizant	Cognizant	Tech Mahindra	NTT DATA	Atos	NTT DATA	NTT DATA	Cognizant	tcs TATA CONSULTANCY SERVICES	Infosys® Navigate your next	Cognizant	Cognizant	Cognizant	Cognizant
#9	wipro	NTT DATA	Cognizant	Cognizant	NTT DATA	Tech Mahindra	Tech Mahindra	wipro	NTT DATA	Cognizant	Tech Mahindra	wipro	NTT DATA	Mphasis The Next Applied
#10	Mphasis The Next Applied	Tech Mahindra	Atos	Tech Mahindra	Cognizant	FPT Software	Atos	Mphasis The Next Applied	Atos	Mphasis The Next Applied	Atos	Atos	Mphasis The Next Applied	wipro

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Top 10 profiles: Enterprise blockchain services

How to read our summary statements regarding each providers' enterprise blockchain services capabilities

Logo

Dimension	Rank	Strengths		Development opportunities
HFS Top 10 position	#			
Ability to execute				
Scale and growth	#			
Experience	#			
Value chain coverage	#			
Industry coverage	#			
Delivery footprint	#			
Innovation capability	#			
Vision and strategy	#	Engagements by stage		Provider's geographic footprint
Intellectual property	#	Includes a pie chart outlining the provider's blockchain engagements by stage.		Includes a pie chart outlining the provider's geographic footprint.
Investments	#	Key blockchain clients		Investments
Ecosystems	#	Delivery capabilities		Platforms and tools
OneOffice alignment	#	Ecosystems		Solution accelerators
Voice of the customer	#	Investments		Patents
		Number of blockchain engagements	Dedicated blockchain headcount	
		Key clients	Blockchain proficient headcount	
			Delivery locations	
			Partnerships	
			Consortium memberships	

A priority business leveraging its full breadth and depth to deliver blockchain solutions at scale



Dimension	Rank	Strengths		Development opportunities
HFS Top 10 position	1	<ul style="list-style-type: none"> Structure and scale: One of the biggest shifts in Accenture's blockchain business this year was its transition from a strategic initiative to a distinct business within Accenture Technology. This, alongside its One Accenture operating model, will allow Accenture to tie together its full range of expertise, leveraging its complete size and scale to deliver comprehensive blockchain solutions for its clients. Emerging technology strategy: Accenture believes strongly that blockchain alone is not the answer, and as such is weaving a selection of emerging technologies into its blockchain engagements to provide innovative solutions that deliver genuine value. For example, it believes blockchain and cloud go hand in hand, so more than 60% of its blockchain engagements include some elements of hybrid or multi-cloud technologies; smart analytics and IoT are embedded in many of its engagements, too. Ecosystem reach: Accenture has a broad partnership ecosystem that includes IBM, Amazon, and Google, which it leverages throughout its engagements; it also founded and contributed to countless consortiums, generating value across a range of key stakeholders. Research and development: Accenture invests heavily in research and development across its entire business, and the blockchain space is no different, as it boasts one of the largest spends across its peer group. This investment is represented significantly through Accenture Labs, Accenture Innovation Hubs, Accenture Liquid Studios, and its portfolio of almost 300 patents specific to the blockchain space. In addition, it focuses heavily on expanding its existing consortium framework, enhancing its maturity models, operating models, and value frameworks. This will help Accenture continue to grow its blockchain business and give clients a wider range of technology options and expertise. Talent investment: Alongside its existing blockchain dedicated and proficient headcount, Accenture has developed its "Technology Quotient" training program, which will see most of Accenture's employees receive training from blockchain SMEs and ecosystem partners, alongside its plan to increase their blockchain-focused headcount by 25% in the next 12 months. 		<ul style="list-style-type: none"> Premium pricing: Accenture is known for bringing value to clients across every aspect of its business, but that comes at a cost. Clients cited Accenture's premium pricing as a development opportunity, and many smaller clients ultimately chose Accenture's peers thanks to their pricing. Client expectations: When combining Accenture's reputation in the global market and its premium pricing, clients expect a premium service, often expecting more from Accenture than its peers.
Ability to execute	3			
Scale and growth	1			
Experience	5			
Value chain coverage	3			
Industry coverage	3			
Delivery footprint	1			
Innovation capability	3			
Vision and strategy	4	Engagements by stage		Provider's geographic footprint
Intellectual property	6	Key blockchain clients	Delivery capabilities	Ecosystems
Investments	6	Number of blockchain engagements: 85+ active engagements, but more than 400 past engagements. Key clients: <ul style="list-style-type: none"> Banque de France DTCC MasterCard Microsoft Nippon Express Riksbank UNHCR Warner Bros 	Dedicated blockchain headcount: 3,300 Blockchain proficient headcount: 13,500 Delivery locations: Accenture has blockchain dedicated delivery centers in Bratislava, Dublin, Sophia Antipolis, Bangalore, Beijing, Tokyo, Singapore, San Jose, New York, and Washington DC	Partnerships: Avanade, AWS, B3i, dGBP, Diem, Digital Asset, Digital Dollar Project, Digital Dollar Foundation, Finastra, G&D, Google, HPE, IBM, Komongo, Microsoft, Oracle, R3, Reinventing Bretton Woods, SAP, Splunk, Trade IX, TripleBlind, Ripple, Vakt, VMWare, and WeTrade Consortium memberships: Digital Chamber of Commerce, Decentralized Identity Foundation, Global Blockchain Business Council, Trust over IP, Confidential Compute, Digital Dollar Project, Mobility Open Blockchain Initiative, and more
Ecosystems	1			Investments Platforms and tools: <ul style="list-style-type: none"> Blockchain Automation Framework Hyperledger Cactus Tamper Evident Data Blockchain Shared Homomorphic Encryption Patents: Accenture has a portfolio of more than 290 pending and granted blockchain-related patents globally (approximately 150 pending and 140 granted)
OneOffice alignment	1			
Voice of the customer	2			

Market-making blockchain provider with extensive expertise launching production-ready ecosystems



Dimension	Rank
HFS Top 10 position	2
Ability to execute	2
Scale and growth	2
Experience	2
Value chain coverage	1
Industry coverage	2
Delivery footprint	3
Innovation capability	1
Vision and strategy	1
Intellectual property	1
Investments	2
Ecosystems	5
OneOffice alignment	2
Voice of the customer	1

Strengths	Development opportunities
<ul style="list-style-type: none"> • Experience launching production-ready business networks and consortia: IBM has extensive experience launching and maintaining business networks and consortia, many of which have multiple case studies in the public domain, including Trade Lens, Food Trust, Health Utility Network, we.trade, and Trust Your Supplier. Its market presence demonstrates that IBM has adopted an ecosystem mindset, believing firmly that blockchain is a team sport. Thanks to the pandemic, the development of ecosystems has become increasingly important to clients, positioning IBM well to service client requirements and create business networks and consortia. • Breadth and depth of expertise and experience: IBM has impressive expertise and capabilities across a selection of emerging technologies, geographies, and industries. Alongside this, it has experience across strategy, design, business and industry processes, integration services, and business process services. IBM can help clients navigate their unique challenges to deploy blockchain-fueled solutions in harmony with other emerging technologies. • Largest contributor to Hyperledger Fabric: IBM has contributed more than 50% of the code for Hyperledger Fabric, making it the largest contributor and providing a key differentiator for the vendor. Hyperledger Fabric is one of the leading blockchain platforms, and IBM's experience with it positions IBM excellently to provide value-driven solutions to its clients built on Hyperledger Fabric through offerings like IBM Blockchain Platform, an open, interoperable, multi-cloud blockchain platform for enterprises boasting the latest Hyperledger Fabric v2.2 framework. • Blockchain IP: IBM has an extensive catalog of blockchain-specific IP it can leverage in future engagements. Alongside the 9,130 patents it filed in 2020, it boasts platforms like IBM Relay Service Asset, IBM Digital Health Pass, Vaccine Accountability Network, Finance Supply Chain, Loyalty Management Network, and Trusted Identity Platform. • Client case studies: IBM has an endless list of blockchain-focused case studies from household names like Walmart in the public domain, and its clients are more than willing to attest to the work IBM has done with them, helping to demystify blockchain and solidifying IBM as a partner of choice. 	<ul style="list-style-type: none"> • Hyperledger Fabric focus: While IBM has some engagements leveraging the likes of Ethereum and Factom, IBM almost exclusively works with Hyperledger Fabric, which could leave potential clients looking elsewhere. • Pricing and client expectations: Client feedback suggests IBM's prices are premium. While this may deter some enterprises, it also means clients expect a premium service from the provider.

Engagements by stage	Provider's geographic footprint
<p>■ Advisory ■ Prototyping ■ Pilot ■ Production Build</p>	Not disclosed

Key blockchain clients	Delivery capabilities	Ecosystems	Investments
<p>Number of blockchain engagements: IBM has 100+ active networks and 700+ engagements.</p> <p>Key clients:</p> <ul style="list-style-type: none"> • Home Depot • NY State Excelsior Pass • Department of Health and Human Services • AAIS • Linux Foundation • State of Wyoming 	<p>Dedicated blockchain headcount: 2,000+</p> <p>Blockchain proficient headcount: 100,000+</p> <p>Delivery locations: IBM has garages and innovations worldwide, including San Francisco, London, Toronto, Tokyo, Singapore, Bangalore, Nice, New York, Austin, Melbourne, and Brazil.</p>	<p>Partnerships:</p> <p>IBM's partnerships include Booz Allen, Deloitte, KPMG, Accenture, Microsoft, AWS, Google, Adobe, Oracle, SAP, Salesforce, ServiceNow, Workday, Global Blockchain Business Council, Aetna, and R3.</p> <p>Consortium memberships:</p> <p>IBM founded and participates in countless consortiums, including TradeLens, Food Safety, Health Utility Network, Trust your Supplier, and We.Trade.</p>	<p>Platforms and tools:</p> <ul style="list-style-type: none"> • IBM Blockchain Platform • IBM Digital Health Pass • IBM's Vaccine Accountability Network <p>Solution accelerators: Blockchain Development Accelerator with Provenance, IBM Blockchain Solution Reference Architecture, IBM Relay Service Asset</p> <p>Patents: IBM filed over 9,000 patents in 2020, many of which were blockchain related.</p>

Strong public blockchain vision, expertise, and investments



Dimension	Rank
HFS Top 10 position	3
Ability to execute	1
Scale and growth	3
Experience	1
Value chain coverage	2
Industry coverage	1
Delivery footprint	4
Innovation capability	2
Vision and strategy	2
Intellectual property	2
Investments	1
Ecosystems	3
OneOffice alignment	3
Voice of the customer	3

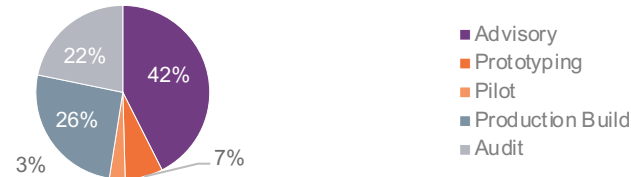
Strengths

- **Public blockchain expertise:** EY has long bet on public blockchains, believing that they will do for networks of companies what ERP did for the single enterprise. EY as a result has a wealth of expertise and experience developing solutions that drive business value and achieve impressive network effects. At the same time, enterprises and vendors alike are increasing their investment in public blockchains; EY is ahead of its competition. In fact, one of EY's clients explained that its vision around the network effect of blockchain and public blockchains was the key driver for choosing EY over its competitors.
- **Blockchain investments:** EY has invested heavily in its own blockchain IP, including EY OpsChain, EY Blockchain Analyzer, and Blockchain.EY.com, all of which help it create genuine value for its blockchain clients. Beyond this, it contributes heavily to the wider blockchain community, particularly in maturing the public blockchain ecosystem, which includes filing 17 blockchain-specific patents. EY's market contribution include being one of the first vendors to implement zero-knowledge proofs on public Ethereum, releasing Nightfall, and collaborating with ConsenSys and Microsoft to develop the Baseline Protocol.
- **Partnership ecosystem:** EY has a strict "quality over quantity" approach with its partnerships, and it is selective of the partners it works with. The same ethos extends to its blockchain business, too. Microsoft and SAP remain EY Blockchain's most strategic partnerships, alongside ConsenSys, Polygon Technologies, and a selection of smaller technology companies, and these rich partnerships facilitate true product integration and deliver complete solutions to their clients.
- **Change management:** EY's Change Experience is its new approach to change management, underpinned by its insights tool EY Change Insights, which it hopes will help clients adapt to the challenges of continuous change, a crucial component of any blockchain engagement thanks to its complex nature.
- **Practice structure:** EY remains different from other consulting-led firms by having one clear global leader for blockchain, with dedicated geographical leaders alongside a supporting team of developers, consultants, and product-specific teams.

Development opportunities

- **Growing its talent base:** EY's blockchain-proficient headcount has increase significantly in the last year, but it is still behind other leaders in this study for dedicated blockchain headcount, which the team is actively trying to increase.

Engagements by stage



Provider's geographic footprint



Key blockchain clients

Number of blockchain engagements: EY has over 120 active blockchain engagements, and over 1,000 historic engagements.

Key clients:

- H Source
- City of Toronto
- ANSA
- Nacha
- BIL
- Microsoft
- SAKE
- Peroni
- Microsoft

Delivery capabilities

Dedicated blockchain headcount: 250

Blockchain proficient headcount: 1,500+

Delivery locations: EY has research sites in London, Paris, and Tel Aviv as well as development centers and client-facing locations worldwide in key cities such as New Delhi, Trivandrum, Rome, Shanghai, Toronto, New York, and Madrid.

Ecosystems

Partnerships: EY's leading partners are Microsoft and SAP, alongside partnerships with ConsenSys, Polygon Technologies, and five early-stage technology companies.

Consortium memberships: EY is an active sponsor and participant in the Enterprise Ethereum Alliance, initiator of Baseline Protocol, a member of the Global Blockchain Business Council, and it recently announced that EY OpsChain and EY Blockchain Analyzer will be compatible with Ethereum and the FISCO BCOS consortium initiative in China.

Investments



Platforms and tools: EY has two flagship platforms, the EY OpsChain suite of business applications and EY Blockchain Analyzer suite of analytics tools.

Solution accelerators: EY has a range of accelerators including Nightfall, ERC-20, ERC-731, and Wallet Management for enterprise users.

Patents: EY has filed 17 blockchain patents relating to privacy protocols for public blockchains, tokenization, testing of smart contracts and tokens and identity validation.

Vertical-driven blockchain strategy complemented by deep technical expertise

Dimension	Rank
HFS Top 10 position	4
Ability to execute	4
Scale and growth	4
Experience	3
Value chain coverage	4
Industry coverage	6
Delivery footprint	6
Innovation capability	7
Vision and strategy	5
Intellectual property	7
Investments	8
Ecosystems	6
OneOffice alignment	4
Voice of the customer	4

Strengths		Development opportunities	
<ul style="list-style-type: none"> Technical expertise: In conversation with Infosys' clients, they explained that the provider's technical blockchain expertise was one of its most prominent strengths. They explained that Infosys' expertise allowed them not only to develop robust blockchain solutions, but also helped them demystify blockchain and support key stakeholders develop their understanding of the technology and how they can leverage it. Vertical-based strategy: Infosys understands that every industry has its own unique challenges and regulations that it must navigate for any blockchain engagement to be successful. In its early days, its blockchain practice was rooted heavily in the banking and financial services sector, however in recent years, the provider has worked tirelessly to expand into other industries, specifically public sector, telecoms, retail, healthcare and high-tech. As a result, Infosys has a vertical-based go-to-market, a move its claims helped it add several new client logos throughout the pandemic and develop deeper relationships with its partner ecosystem. Blockchain IP: Infosys has invested heavily to develop production-grade business solutions for a range of industries and boasts a selection of IP that includes Infosys Trust Platform, Infosys Intelligent Application Platform, Finacle Payments Connect, Finacle Trade Connect, Finacle Identity Connect, Infosys Testing Framework, Infosys Corporate Social Responsibility & Sustainability platform, and Infosys NFT platform. Infosys hopes these will accelerate blockchain adoptions among its clients and partners as they provide network-formation capabilities at their very core. Blockchain Academy: For emerging technologies, the talent war rages on, and blockchain is no different. In response, Infosys developed its own Blockchain Academy to enhance its talent pool for enterprise blockchain services. Infosys advises it has already trained more than 20,000 employees globally from a variety of functions, such as delivery and sales, in blockchain technologies. Experience with live blockchain networks: Infosys has experience establishing live blockchain networks in cross-border remittances and trade finance with Finacle Payments Connect and Finacle Trade Connect solutions, vital records management for governments, sustainability and CSR for corporates and non-profits, tokenization, and NFTs; clients can be confident with Infosys' ability to construct ecosystems and deliver production-grade blockchain initiatives. 		<ul style="list-style-type: none"> Europe expansion: In the previous iteration of this report, we explained that Infosys could further expand its blockchain business into Europe, and while it has improved, there is still a significant growth opportunity in the region. Encourage stakeholder buy-in: While Infosys does a good job of encouraging buy-in from key stakeholders, its clients told us they would like to see the company encourage buy-in from the wider stakeholder community. 	
Engagements by stage		Provider's geographic footprint	
 <p>10% 10% 30% 50%</p> <p>Advisory Prototyping Pilot Production Build</p>		 <p>5% 11% 8% 76%</p> <p>North America Europe Asia Pacific Middle East/Africa Latin America</p>	
Key blockchain clients	Delivery capabilities	Ecosystems	Investments
<p>Number of blockchain engagements: Infosys has more than 155 ongoing blockchain engagements.</p> <p>Key clients:</p> <ul style="list-style-type: none"> County of Riverside State of Rhode Island Tomia 	<p>Dedicated blockchain headcount: 1,200+</p> <p>Blockchain proficient headcount: 20,000+</p> <p>Delivery locations: Infosys has delivery centers globally, but it advised that in response to COVID-19, 97% of its employees work remotely.</p>	<p>Partnerships: Infosys' strategic partnerships include R3, Digital Assets, VMware, AWS, Azure, Oracle, Hyperledger, RMIT, Cornell University, SIMBA, SAE, Symbiont, MEF, ConsenSys, and the Enterprise Ethereum Alliance.</p> <p>Consortium memberships: Infosys is an active member in a selection of consortiums including CBAN, Pharmaledger, SAE, and TM Forum.</p>	<p>Platforms and tools: Infosys has a range of platforms and tools, including:</p> <ul style="list-style-type: none"> Infosys Blockchain Platform Infosys Digital Trust Platform Infosys Intelligent Applications Platform Finacle Payments Connect Finacle Trade Connect Finacle Identity Connect <p>Solution accelerators: Infosys' solution accelerators fall into these categories: supply chain suite, BFS suite, citizen services suite, insurance suite, pharma supply chain, and telecom suite.</p>

Consulting-driven blockchain services with a clear ecosystem vision and expertise

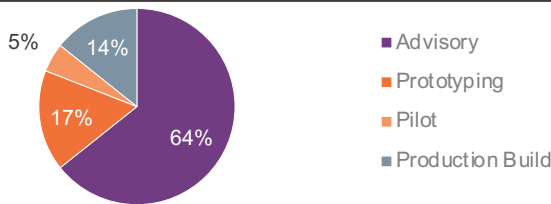
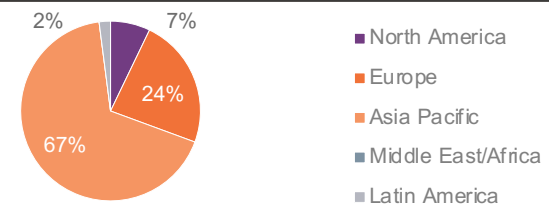
Dimension	Rank	Strengths	Development opportunities																				
HFS Top 10 position	5	<ul style="list-style-type: none">• Ecosystem vision and experience: TCS' Business 4.0 philosophy explains that enterprises must leverage ecosystems to fuel innovation and growth alongside mass personalization, redefined business models, and embracing risk. They believe that businesses adopting the TCS Business 4.0 approach will thrive in the digital economy. To enable ecosystems, TCS has expertise in a range of technologies, including blockchain, alongside extensive experience nurturing ecosystems across eMobility, safer travel, nextgen loyalty, global skills marketplace, affordable wellness and care, payments, asset securitization, and trade finance.• Size and scale: TCS has an impressive dedicated and proficient blockchain headcount, having trained over 10,000 employees in blockchain technology and several thousand with deep expertise in platforms and protocols like R3 Corda, Hyperledger Fabric, Quorum, Ethereum, Hyperledger Sawtooth and Ripple. This, combined with its Global Network Delivery Model, a cross-functional, cross-industry delivery model, provides the capabilities needed to service clients globally.• TCS Quartz: TCS has incubated its very own startup, Quartz, developed on the core principles of coexistence, integration, and interoperability. TCS Quartz has a range of its own products, including Quartz DevKit, Gateway, Command Center, Smart Solutions, and Smart Ledgers. TCS Quartz can be leveraged across multiple industries and already has a selection of publicly available use-cases demonstrating its value to blockchain clients.• Platform agnostic: TCS has experience across a broad range of blockchain platforms. While it favors Hyperledger Fabric, Ethereum, and Corda and leverages them in the majority of its engagements, it will work with whichever platform is best suited to the client's use case. TCS has experience using Hyperledger Sawtooth, Ripple, Quorum, and BigChain DB among others.	<ul style="list-style-type: none">• Market perception: TCS is investing heavily in research and development. However, despite this, much of the market still views the company as an execution powerhouse, an image it should change as it develops its blockchain business further.																				
Ability to execute	5																						
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Experience	4																						
Value chain coverage	5																						
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Leveraging its Block Ecosystem framework to supplement its tools and deliver blockchain solutions at scale

Dimension	Rank	Strengths		Development opportunities																								
HFS Top 10 position	6	<ul style="list-style-type: none">• Block Ecosystem: Tech Mahindra developed the Block Ecosystem framework, which consists of a selection of offerings such as Block Studio, Block Engage, Block Talks, Block Geeks, Block Accelerate, Block Access, and Block Value. The provider hopes that this framework will help it and its clients create industry-leading applications to unlock value for key ecosystem stakeholders.• Blockchain at scale: Tech Mahindra recognizes that one of the biggest roadblocks to blockchain adoption remains the concept that it is not scalable, is slow, and doesn't support interoperability. In response, it has worked to increase the number of transactions per second (TPS) and reports that its clients can now achieve over 20,000 TPS, allowing its blockchain solutions to compete with traditional operators like Visa and Mastercard. Furthermore, Tech Mahindra is investing in innovative solutions like Sharding and Microchains to ensure clients can deploy their blockchain solutions quickly, easily, and at scale.• Platforms and tools: Tech Mahindra has a wide range of its own domain-focused platforms and tools that it can leverage throughout blockchain engagements, including the Stablecoin-as-a-Service solution announced in April 2021, that will help clients deploy solutions to solve industry-specific challenges quickly and efficiently.• Client case studies: Tech Mahindra has done a good job of pushing client case studies into the public domain, such as its work with the Telecom Regulatory Authority of India, demonstrating the vale blockchain can create for clients, helping to demystify the technology, and showcasing its own capabilities, expertise, and ability to deliver blockchain solutions.• Geographic spread: Tech Mahindra has one of the broadest geographical spreads of all the providers covered in this report, accompanied by the likes of EY and Accenture. To leverage this effectively, Tech Mahindra is training and deploying blockchain leaders and placing them in delivery centers worldwide to help drive better client outcomes. The geographic mix will allow the company to understand localized client needs and service them effectively, delivering value-driven blockchain solutions.		<ul style="list-style-type: none">• Moving beyond advisory: Almost 90% of Tech Mahindra's blockchain engagements have been in the advisory stage, and the company should help its clients move closer to the production environment.• Communication: Tech Mahindra's clients told us that they would appreciate more communication from the provider throughout their engagement.																								
Ability to execute	9																											
Scale and growth	10																											
Experience	8																											
Value chain coverage	10																											
Industry coverage	7																											
Delivery footprint	9																											
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Key blockchain clients	Delivery capabilities	Ecosystems	Investments
Number of blockchain engagements: Tech Mahindra has more than 350 historic engagements. Key clients <ul style="list-style-type: none">• RIJO• RCOM• Tata Tele• Abu Dhabi Government• SBI• Samsung SDS• Vodafone Ziggo	Dedicated blockchain headcount: 100+ Blockchain proficient headcount: 1,350+ Delivery locations: Tech Mahindra's blockchain delivery is based in India, but it has presence in Asia Pacific, EMEA, North America, and Latin America.	Partnerships: IBM, Samsung SDS, Verizon ID, Digital Assets, DLT Labs, Bellboi, Tradeix, Power Ledger, Eleven01, ChromaWay, Quantoz, Sovrin, Adjoint, BlockApps, AlphaPoint, Evernym, Digiledge Consortium memberships: Hyperledger Foundation, r3, BiTA, Nasscom, MOBI and IDRBT	Platforms and tools: <ul style="list-style-type: none">• Trade Finance• Vehicle Lifecycle Management• Consent Management• Asset-Backed Securitization• Digital Payments and Loyalty Management• Health Data Management Solution accelerators: Automation Script, Block Activity, Application Templates, Automated Network Accelerators Patents: Tech Mahindra his filed three blockchain patents.

APAC powerhouse with deep blockchain expertise and consortium experience

Dimension	Rank	Strengths		Development opportunities
HFS Top 10 position	7	<ul style="list-style-type: none">• Consortium experience: NTT Data is a co-founder, member, and contributor to some of the leading global consortiums, including Hyperledger, LaCChain, and Alastria. This involvement demonstrates NTT Data’s ability to help develop value-driven ecosystems from the very beginning and contribute to wider ecosystem success, and it provides the tools it needs to drive value for clients in numerous industries and functions.• APAC focus: Despite having blockchain clients across all major regions, APAC continues to be NTT Data’s most lucrative region for blockchain engagements. It’s clear that its experience in the region, especially given it is headquartered in Tokyo, is serving the company well when trying to win clients, as it has a deep understanding of the culture, local businesses, and the way of work in the region, complemented by the backing of the extensive global NTT Data delivery network.• Global centers of excellence: In recent years, NTT Data has continued to invest heavily in its network of Centers of Excellence. While a centralized center houses the majority of its blockchain staff, a small number of blockchain experts and liaisons are placed in each of its business units globally, allowing it to take advantage of the strength of every region, navigate unique challenges, and keep it close enough to clients to service them promptly.• Deep technical expertise: NTT Data's blockchain practice was founded in 2015, making it one of the earliest providers covered in this report to formalize a blockchain division. While this alone means it has six years of experience working with the technology, it also invested heavily in R&D, skilling its employees, and developing countless blockchain assets providing deep technical expertise with blockchain, to help clients navigate complex challenges and deliver robust, value-adding solutions.• Innovation Acceleration Program: NTT Data has an Innovation Acceleration Program it uses to investigate and build new business use cases, and the program has already delivered assets like Cryptocurrency Exchange and the Reconciliation platform.		<ul style="list-style-type: none">• Blending emerging technology: NTT Data should weave other emerging technologies into blockchain solutions to deliver rounded solutions.• Expanding beyond APAC: NTT Data is having great success in the APAC market, but there is a significant growth opportunity by expanding into traditional markets like North America and Europe.• Client use cases: NTT Data has deep blockchain capabilities, and publicly referenceable client case studies would be a great way of demonstrating them to potential clients.
Ability to execute	8			
Scale and growth	9			
Experience	6			
Value chain coverage	8			
Industry coverage	9			
Delivery footprint	8			
Innovation capability	5	<div><div><div>Engagements by stage</div><ul style="list-style-type: none">■ Advisory■ Prototyping■ Pilot■ Production Build</div><div><div>Provider's geographic footprint</div><ul style="list-style-type: none">■ North America■ Europe■ Asia Pacific■ Middle East/Africa■ Latin America</div></div>		
Vision and strategy	6	<div><div><div>Key blockchain clients</div><div>Number of blockchain engagements: NTT has historically over 150 blockchain engagements.</div><div>Key clients:<ul style="list-style-type: none">• ABI Lab• Tokio Marine and Fire Insurance• MUFG• LIFULL• Zenrin</div></div><div><div>Delivery capabilities</div><div>Dedicated blockchain headcount: 250</div><div>Blockchain proficient headcount: 500</div><div>Delivery locations: Japan, China, India, Singapore, Italy, UK, Spain, Romania, Peru, Malaysia, US, Germany, Belgium, and Denmark</div></div><div><div>Ecosystems</div><div>Partnerships: Ripple, Oracle, ABI, Sia, Net ConsultingCube, Omise, Digital Asset Holdings, Boqcube, RealVariable, Filament Alibaba Cloud, NTT Lab, R3 Corda, DAML, Quorum, Adhara, Hyperledger, Ethereum, AWS, Google Cloud</div><div>Consortium memberships: Lacchain, Alastria, TradeWaltz, Spunta ABI Lab DLT, Ethereum Enterprise Alliance, Hyperledger, Alice, INATBA, Blockchain Federal Argentina, BASE Alliance</div></div><div><div>Investments</div><div>Platforms and tools: BlockTraceDMP, which hopes to enable enterprise precise access control and large data handling on blockchain.</div><div>Solution accelerators: Block Explorer, Internal Finance, Intellectual Property, Digital Identity, Notarization, BaaS, ZoomLo, SmartShipments, and Food Traceability</div><div>Patents: NTT holds two blockchain patents.</div></div></div>		
Intellectual property	9			
Investments	3			
Ecosystems	2			
OneOffice alignment	9			
Voice of the customer	5			

Real world blockchain expertise complemented by Digital Engineering expertise and a broad ecosystem of partners



Dimension	Rank
HFS Top 10 position	8
Ability to execute	7
Scale and growth	8
Experience	9
Value chain coverage	9
Industry coverage	10
Delivery footprint	5
Innovation capability	8
Vision and strategy	8
Intellectual property	5
Investments	9
Ecosystems	8
OneOffice alignment	8
Voice of the customer	8

Strengths	Development opportunities
<ul style="list-style-type: none"> • Engineering capabilities: Cognizant's blockchain business recently shifted from its emerging technology business unit into the Cognizant Digital Engineering practice. This means Cognizant will go to market with integrated engineering services, service design, digital applications, and blockchain offerings through a single channel, allowing the company to bring together teams of experts to deliver and run its blockchain solutions, driving enhanced outcomes for clients. • Production experience: Twenty percent (20%) of Cognizant's blockchain engagements are already in the production environment, which is a significant jump from the 5% of engagements it reported in the 2020 iteration of this report. This means the vendor boasts hand-on experience with production-grade blockchain projects, giving their clients some confidence Cognizant can help them move beyond the advisory and proof-of-concept stages into prototyping and eventually the production stage. • Domain expertise: Cognizant has deep domain expertise in a selection of industries that it can leverage across its blockchain engagements, including BFS, insurance, healthcare, and life sciences. This will allow Cognizant to understand any industry-specific challenges and exactly how blockchain could be leveraged to solve these challenges while operating its unique operating environments. • Ecosystems: Cognizant has a broad range of strategic partnerships with industry leaders whose expertise it leverages throughout its engagements, plus countless consortium memberships and recent acquisitions, such as Tin Roof and New Signature, which it uses to complement its own existing capabilities throughout its blockchain engagements. • Cloud-first approach: We all know that blockchain alone is very rarely the perfect solution for a business challenge, and for some time now we've heard that cloud and blockchain should go hand in hand. It's something Cognizant believes firmly, as almost all its blockchain engagements are cloud-native deployments. 	<ul style="list-style-type: none"> • Client use cases: Cognizant has a good number of blockchain engagements, but very few are referenced in the public domain. It should work to publish as many client use cases as possible to help demystify blockchain, prove its value, and demonstrate its capabilities in the space. • Supply chain use cases: Cognizant's clients told us that they would like to see Cognizant enhance its expertise and offerings around supply chains.

Engagements by stage	Provider's geographic footprint
<p> ■ Advisory 19% ■ Prototyping 44% ■ Pilot 17% ■ Production Build 20% </p>	Not disclosed.

Key blockchain clients	Delivery capabilities	Ecosystems	Investments
Number of blockchain engagements: Cognizant currently has several active blockchain engagements across multiple geographies. Key clients: <ul style="list-style-type: none"> • India Insurance Consortium • Metlife—Lumenlab • GSK 	Dedicated blockchain headcount: Not disclosed Blockchain proficient headcount: Not disclosed Delivery locations: Cognizant has blockchain-focused delivery teams across the UK, US, the Middle East, and India.	Partnerships: R3, Azure, AWS, DAH, ConsenSys, IBM Blockchain-as-a-Service, and Linux Foundation Consortium memberships: Cognizant is an active participant in Hyperledger Foundation and EEA	Platforms and tools: Cognizant has a range of tools to manage ecosystems, including <ul style="list-style-type: none"> • Partner Onboarding • Blockchain Code Generator • Partner Offboarding • Role & Access Management. Solution accelerators: Cognizant has more than 30 use case-specific solutions accelerators including Cryptocurrency Payment Solution, Trade Finacle, and Loyalty Program.

An industry-focused go-to-market supported by significant size and scale



Dimension	Rank
HFS Top 10 position	9
Ability to execute	6
Scale and growth	6
Experience	7
Value chain coverage	7
Industry coverage	5
Delivery footprint	7
Innovation capability	9
Vision and strategy	9
Intellectual property	4
Investments	5
Ecosystems	4
OneOffice alignment	7
Voice of the customer	10

Strengths	Development opportunities
<ul style="list-style-type: none"> Size and scale: Wipro has one of the largest dedicated and proficient blockchain headcounts in this report, complemented by its crowdsourcing platform, Topcoder. All of this allows Wipro the size and scale needed to service a broad range of clients across a selection of industries and functions. Wipro's blockchain practice was founded in 2015, providing years of expertise it can bring to every engagement. Industry approach: Blockchain is a horizontal practice in Wipro's global organization, with delivery locations spread globally, which means it cuts across every single industry vertical and geography. Wipro has developed numerous industry-specific blockchain solutions. This means they are positioned well to help clients understand and navigate complex industry-specific and geographic challenges to develop robust blockchain-centric solutions. Innovation labs: Wipro has a selection of innovation labs and digital pods in 17+ cities worldwide, alongside its Blockchain Lab-as-a-Service offering, which it claims helps clients co-innovate and experiment to identify the best-suited blockchain platform for their use case. Emerging technology expertise: Wipro has extensive expertise across a range of emerging technologies, including IoT, AI, analytics, and cybersecurity, which it can weave into its blockchain engagements to deliver holistic value and provide genuine business outcomes. Blockchain app fabric: Wipro's platform-as-a-service offering, Blockchain App Fabric, allows it to work with multiple blockchain platforms and helps to develop a quick understanding of each network and the underlying infrastructure, accelerating development lifecycles. It comprises of pre-built technology stacks of open-source products to quickly assemble the different off-chain components needed for an enterprise-grade blockchain solution. Success stories: Wipro publishes a selection of its blockchain success stories as short articles on its own website. This will not only prove its credentials in the space, but help enterprises understand the real-world applications of blockchain, and the value it can bring to its business. 	<ul style="list-style-type: none"> Consortia orchestration and governance: Wipro's blockchain go-to-market is technology heavy; however, blockchain is a team sport and requires collaboration across enterprises to reach its full potential.

Engagements by stage	Provider's geographic footprint
<p>■ Advisory ■ Prototyping ■ Pilot ■ Production build</p>	Not disclosed.

Key blockchain clients	Delivery capabilities	Ecosystems	Investments
Number of blockchain engagements Wipro has over 350 historic blockchain engagements.	Dedicated blockchain headcount: 1,100+ Blockchain proficient headcount: 4,600+ Delivery locations: UK, US, Germany, Dubai, India, Singapore, Brazil, Australia, Japan	Partnerships: IBM, Microsoft, HP, Oracle, Hyperledger, Ethereum, R3 Corda, Quorum, Multichain, MonetaGo, ConsenSys, Google Cloud, AWS, Microsoft Azure, SAP, Intel, VMware, Digital Asset Holding, Gem, Stellar, Parity Consortium memberships: Enterprise Ethereum Alliance, The Hyperledger Foundation, Energy Web Foundation, Blockchain in Transport Alliance, ASSOCHAM	Platforms and tools: <ul style="list-style-type: none"> Supply Chain Transformation Platform Digital Assets Platform Commodity Trading Platform Solution accelerators: Digital Identity & KYC, Commodity Trading Platform, Trade Finance, Digital Identity, Blockchain Innovation Lab, Smart Contract Testing Utility, Blockchain Visualization Utility. Patents: Wipro has more than 30 blockchain-related patents.

Deep BFSI and blockchain expertise with mid-tier flexibility

Dimension	Rank
HFS Top 10 position	10
Ability to execute	12
Scale and growth	12
Experience	11
Value chain coverage	11
Industry coverage	11
Delivery footprint	12
Innovation capability	11
Vision and strategy	10
Intellectual property	11
Investments	10
Ecosystems	11
OneOffice alignment	10
Voice of the customer	9

Strengths	Development opportunities
<ul style="list-style-type: none"> • Banking focus: Mphasis has deep expertise in banking and capital markets, which contributed almost half of its overall revenue. The experience will serve Mphasis well as it focuses heavily on payments, commerce, and trade finance in its blockchain business. We're witnessing exponential growth in decentralized finance, and Mphasis' deep domain expertise could position it well to help clients navigate the space, understand the complex regulatory environment, and deliver robust solutions. • Platforms and tools: Mphasis has an extensive range of platforms and tools to leverage throughout its client engagements, including Tokenization-as-a-Service, Smart Contract Generator, and simulators designed to help clients quickly deploy Corda and Hyperledger Fabric. • Mid-tier flexibility: It's a well-known fact that mid-tier providers like Mphasis are afforded more flexibility than their larger competitors, and they can maintain an impressive level of client intimacy, bringing their most senior executives to the table to negotiate deals and reassure clients. This could be a particularly useful differentiator in the enterprise blockchain space, as the CEO helps enterprise executives demystify blockchain and identify the best use cases. • Platform experience: Mphasis has experience working with numerous blockchain platforms including Ethereum, Hyperledger Fabric, Corda, Quorum, Multichain, and BigChain DB, positioning it well to serve client needs independent their selected platform. However, Mphasis' blockchain leadership explained that while it will work with any platform, it favors Corda, thanks to its focus on banking and financial services and tokenization capabilities, making its strategic partnership with R3 even more important. 	<ul style="list-style-type: none"> • Size and scale: Mphasis needs to grow its blockchain business to compete with the larger providers covered in this report. However, it must ensure it maintains flexibility and client intimacy, key differentiators. • Production experience: Mphasis has significantly grown the number of blockchain engagements in pilots, but it needs to push further to help clients reach production-grade initiatives. • Client case studies: Mphasis should work to push client success stories into the public domain to demonstrate its blockchain capabilities to the market.



Key blockchain clients	Delivery capabilities	Ecosystems	Investments
Number of blockchain engagements: Mphasis currently has eight active engagements.	Dedicated blockchain headcount: 25 Blockchain proficient headcount: 50 Delivery locations: Bangalore	Partnerships: R3, AWS Blockchain Segment, WeSend, Loyakk, Bitfury Consortium memberships: Mphasis is a strategic enablement partner for Contour, a network digitalizing global trade.	Platforms and tools: <ul style="list-style-type: none"> • Deep Tier Finance Network • Tokenization-as-a-Service • Corda Network Simulator • Hyperledger Network Simulator • Smart Contract Generator • Corda Contract and State Generator Solution accelerators: Corda Token Utility Patents: Mphasis has three patents in progress.

Razor-like focus on identity, traceability, and tokenization, driven by a business-centric approach



Dimension	Rank
HFS Top 10 position	11
Ability to execute	10
Scale and growth	11
Experience	10
Value chain coverage	6
Industry coverage	8
Delivery footprint	11
Innovation capability	10
Vision and strategy	11
Intellectual property	10
Investments	11
Ecosystems	10
OneOffice alignment	12
Voice of the customer	11

Strengths	Development opportunities
<ul style="list-style-type: none"> Business-centric approach: Atos takes a business-first approach to its blockchain engagements, where it will assess the state of a client's ecosystem to identify which use cases will deliver genuine business value rather than taking a technology-driven approach. This approach should resonate well in the market, as clients are tired of endless proof-of-concepts lacking tangible benefits and are instead favoring production grade initiatives. Identity, traceability, and tokenization focus: Atos' blockchain practice is focused heavily on identity, traceability, and tokenization, and this clear go-to-market strategy should resonate well with clients looking for blockchain services in these areas and give them confidence in Atos' focused expertise. Platform agnostic: While Atos favors Ethereum and Hyperledger Fabric, the vendor boasts experience across a broad range of platforms and lets clients dictate their platform of choice. As such, Atos has mature capabilities across platforms like R3 Corda, Digital Asset, Multichain, and Quorum. This means clients can select the most suitable platform for their use case, as opposed to a small selection their vendor has experience with. Security expertise: Atos' blockchain go-to-market closely weaves in its wider expertise, including Atos Security, and given that the challenge remains of demystifying blockchain and helping business-focused stakeholders understand how critical data is stored and secured, this could position it well in the market. In 2019, Atos' Big Data and Cybersecurity division reached the €1 billion revenue mark, and it has made numerous security-focused acquisitions in recent years, all of which could benefit its blockchain clients. 	<ul style="list-style-type: none"> Blockchain experience: Atos is one of the newer entrants to the blockchain market, which means it should invest to bulk out its expertise in the space. Size and scale: Atos has a small pool of dedicated and proficient blockchain headcount, which means it could struggle to adequately service clients as the blockchain practice grows. Geographic expansion: Atos is heavily focused on the European market, the source of most of the the vendor's revenue, which means there is a significant growth opportunity in regions like North America and APAC.

Engagements by stage	Provider's geographic footprint
Not disclosed.	<ul style="list-style-type: none"> North America Europe Asia Pacific Middle East/Africa Latin America Other

Key blockchain clients	Delivery capabilities	Ecosystems	Investments
Number of blockchain engagements: At any given time, Atos is typically working on 5-10 blockchain engagements.	Dedicated blockchain headcount: 50 Blockchain proficient headcount: 700 Delivery locations: Atos' primary delivery locations are in Europe and Asia Pacific.	Partnerships: Atos has a range of delivery and market partners. Consortium memberships: Atos is a member of multiple delivery and market-focused consortiums.	Platforms and tools: Not disclosed Solution accelerators: Not disclosed Patents: Not disclosed

APAC-focused, security-driven blockchain provider



Dimension	Rank
HFS Top 10 position	12
Ability to execute	11
Scale and growth	7
Experience	12
Value chain coverage	12
Industry coverage	12
Delivery footprint	10
Innovation capability	12
Vision and strategy	12
Intellectual property	12
Investments	12
Ecosystems	12
OneOffice alignment	11
Voice of the customer	12

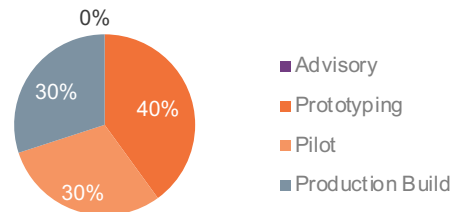
Strengths

- **Security expertise:** FPT Software places security at the forefront of its blockchain capabilities, ensuring all offerings follow the standards outlined by CMMI:5 and ISO 27001, as well as third-party penetration tests and expertise from its partner Synopsys. FPT Software's clients can be confident that their blockchain solutions are secure, and they can demonstrate that easily to regulators.
- **Out-the-box solutions:** FPT Software has developed a selection of ready-to-use solutions on akaChain, which it hopes will simplify the implementation of its blockchain solutions, particularly around loyalty programs, digital identification, and traceability. FPT Software advises that this approach allows it to implement solutions in up to three months rather than the 12 months it takes its competitors.
- **APAC focus:** While many of FPT Software's peers are focusing on the European and North American blockchain markets with a small focus in APAC, FPT Software focuses almost entirely on the APAC region. This, combined with its boots-on-the-ground experience being based in Vietnam, means FPT Software is uniquely positioned to service clients in the APAC region, as it has a deep understanding of the culture, businesses, and way of work in that region.
- **Blockchain market contributions:** FPT Software has contributed to wider blockchain market developments by publishing open-source projects such as AKC Mamba, which is designed to help enterprises build their base platform, and AKC Horscrux, designed to help enterprises back-up their data and eliminate the risk of data loss.

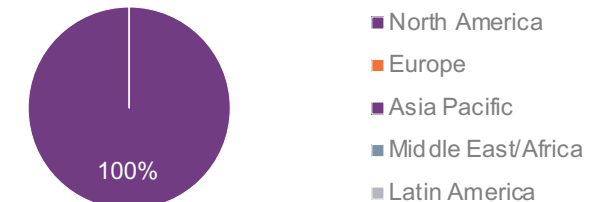
Development opportunities

- **Expanding beyond APAC:** While FPT Software is having great success in the APAC market, there is a significant growth opportunity by expanding into traditional markets like North America and Europe.
- **Headcount growth:** FPT Software has one of the smallest dedicated and proficient blockchain headcounts of the firms covered in this study. It should work to expand its headcount to enhance its blockchain capabilities.
- **Clear go to market:** The relationship between FPT Software and akaChain can be difficult to understand, and it's something that FPT Software could make clear to improve its go-to-market strategy.

Engagements by stage



Provider's geographic footprint



Key blockchain clients

Number of blockchain engagements: FPT has 11 active blockchain engagements.

Key clients:

- Utop Network
- Masan Consumer
- Panasonic ITS

Delivery capabilities

Dedicated blockchain headcount: 10

Blockchain proficient headcount: 100+

Delivery locations: FPT's delivery team is based mostly in Vietnam and Japan.

Ecosystems

Partnerships:

FPT has partnerships with the likes of VMWare and Synopsys.

Consortium memberships:

None

Investments

Platforms and tools: FPT's flagship offering is akaChain, built on Hyperledger Fabric.

Solution accelerators: FPT has several offerings built on akaChain, including AKC Mamba and AKC Horscrux.

Patents: None

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About the authors

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Saurabh oversees HFS' global research function, managing the global team of analysts across US, Europe, and Asia-Pac. He works closely with the CEO to set the strategic research focus and agenda for HFS Research, understanding and predicting the needs of the industry, and ensuring that HFS maintains its position as the strongest impact thought leader for business operations and services research.

As an analyst, Saurabh leads the coverage for horizon 3 change agents such as blockchain, business services (such as finance and accounting, sourcing and procurement, and supply chain), as well as overarching and cross-cutting themes under the OneOffice concept and Hyperconnected Enterprise.



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Sam Duncan is Associate Director of Research at HFS, based in Cambridge UK. He graduated from Bournemouth University with a degree in economics, throughout which he took a particular interest in macroeconomics, mainly how the evolution of technology accelerated globalization. Throughout his education he also spent some time studying law, accounting, and investment management.

Since joining HFS, Sam has developed his understanding of blockchain and continues to explore the latest applications of the technology across a range of industries. He has applied his economics background to keep on top of the latest trends on the banking and financial services industry, and has taken a keen interest in insurance. On top of this, he contributes to the HFS Market Index, a quarterly report breaking down the performance and key events of the leading service providers throughout the previous quarter.

About HFS



Insight. Inspiration. Impact.

HFS is a unique analyst organization that combines deep visionary expertise with rapid demand side analysis of the Global 2000. Its outlook for the future is admired across the global technology and business operations industries. Its analysts are respected for their no-nonsense insights based on demand side data and engagements with industry practitioners.

HFS Research introduced the world to terms such as "RPA" (Robotic Process Automation) in 2012 and more recently, the HFS OneOffice™. The HFS mission is to provide visionary insight into the major innovations impacting business operations such as Automation, Artificial Intelligence, Blockchain, Internet of Things, Digital Business Models and Smart Analytics.

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