HFS *horizons*

Public Blockchain Services, 2023

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Excerpt for EY

"

In the previous iteration of our enterprise blockchain services Horizons report, we called out the momentum shift as enterprise focus pivoted toward public blockchains, particularly Ethereum. Since then, we have seen continued innovation spurring further growth in public blockchain adoption. In particular, layer 2 blockchains like Polygon emerged as genuine solutions to Ethereum's historic scalability challenges. This adoption growth was the impetus for our *Public Blockchain Services, 2023* snapshot report.

Service providers are notably pivoting to public blockchain services. While many are still early in their journey, they show promising signs that they can leverage public blockchains to deliver genuine outcomes for enterprises and entire ecosystems.

Sam Duncan, Practice Leader

Contents

1

Introduction

Introduction

- Thanks to macroeconomic headwinds, enterprises are belt-tightening across the board, and we've discussed at length the slowdown this causes for enterprise blockchain adoption. Despite this, public blockchain adoption continues to grow as the likes of Ethereum win favor with enterprises. The growth is attributable to continued innovation addressing traditional challenges like scalability, but as enterprises focus on value-adding engagements rather than experimental engagements, service providers must ensure they can deliver a clear and defined roadmap to value.

- This *HFS Horizons: Public Blockchain Services, 2023* report is a snapshot of leading service providers' public blockchain services capabilities. It will examine how service providers leverage public blockchains to deliver outcomes for enterprise clients throughout their engagements. All service providers covered are considered significant players in the public blockchain ecosystem, with a handful of production or close-to-production engagements or an impressive vision and strategy for the future.

- The report examines 10 service providers across a defined series of value propositions, execution and innovation, go-to-market strategy, voice of the customer, and alignment with the HFS OneOffice™ criteria. The report highlights the overall positioning for all participants and the leaders for each sub-category.

- This report also includes snapshot profiles of each service provider, outlining their provider facts, strengths, and development opportunities.

- We based this Horizons research on information collected in Q1 and Q2 2023 through provider data submissions, structured briefings, networking events, and publicly available information sources. We augmented this research with interviews with 300+ enterprise services clients from the Global 2000. We asked specific questions about the innovation and execution performance of the service providers we assessed.

Executive summary

1 **One clear market leader for public blockchain services**

We assessed 10 providers of public blockchain services across value proposition, execution and innovation capabilities, go-to-market strategy, and market impact criteria. We identified only one Horizon 3 market leader. EY emerged as the sole market leader thanks to its clear public blockchain vision from the very beginning; while its peers focused on private blockchains, EY was razor focused on Ethereum. To that end, EY has extensive experience with production-grade engagements built on Ethereum, enabling ecosystems, and contributing extensively to open-source initiatives, driving innovation across the market.

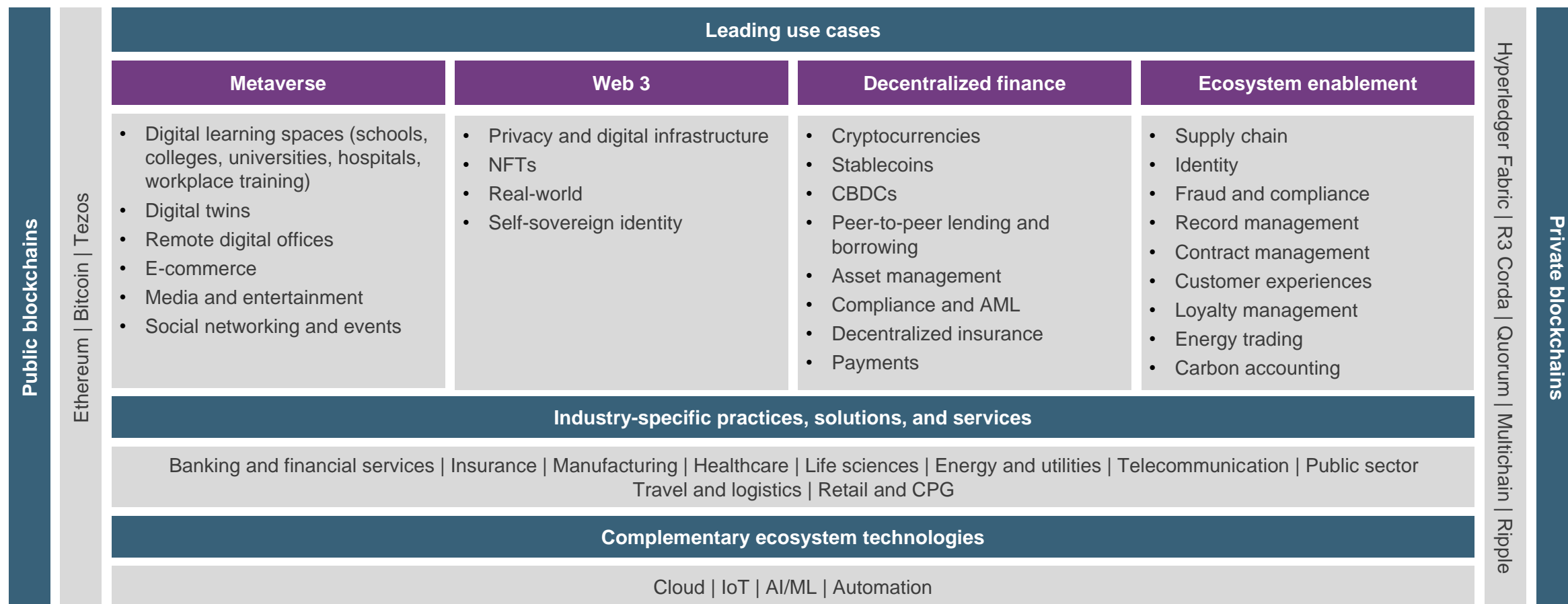**2** **Innovation is spurring adoption growth**

We've seen significant investment flowing into public blockchain innovation. HFS has written about layer 2 blockchains, sidechains, zero-knowledge proofs, and the merge. Enterprises have told us these innovations are why they are turning their attention toward public blockchains. Historically, Ethereum suffered with challenges like scalability and environmental challenges, which are slowly being addressed, making public blockchains a genuine option for many enterprises.

3 **Enterprises are still not fully comfortable with public blockchains**

Throughout our conversations with enterprises, we asked about their comfort levels with public blockchains, and we received mixed feedback. The leading concern from enterprises centered around privacy and the sharing of sensitive information, while enterprises operating in highly regulated industries often reported they turned to private blockchains due to regulatory pressure. On the flip side, comfort is growing for public blockchains, as innovation enables new levels of privacy and scalability. HFS expects enterprises comfort with public blockchains to grow in the coming years.

4 **Some service providers are still playing catch up**

While most service providers covered in this study have always had some form of public blockchain services capabilities, many of them focused primarily on private blockchain services; they have had to pivot to meet shifting enterprise demand. Some service providers told us the pivot was challenging, particularly around attracting, hiring, and retaining the best talent. This means that some providers simply don't have the resources to meet rising demand for public blockchain services.

The HFS enterprise blockchain services value chain

The *HFS Horizons: Public Blockchain Services, 2023* report focuses on delivering business outcomes through transformation and innovation with a particular focus on production-grade engagements—all built on public blockchains.

		Leading use cases				
Public blockchains	**Ethereum | Bitcoin | Tezos**	**Metaverse**	**Web 3**	**Decentralized finance**	**Ecosystem enablement**	**Hyperledger Fabric | R3 Corda | Quorum | Multichain | Ripple** — **Private blockchains**

Metaverse
- Digital learning spaces (schools, colleges, universities, hospitals, workplace training)
- Digital twins
- Remote digital offices
- E-commerce
- Media and entertainment
- Social networking and events

Web 3
- Privacy and digital infrastructure
- NFTs
- Real-world
- Self-sovereign identity

Decentralized finance
- Cryptocurrencies
- Stablecoins
- CBDCs
- Peer-to-peer lending and borrowing
- Asset management
- Compliance and AML
- Decentralized insurance
- Payments

Ecosystem enablement
- Supply chain
- Identity
- Fraud and compliance
- Record management
- Contract management
- Customer experiences
- Loyalty management
- Energy trading
- Carbon accounting

Industry-specific practices, solutions, and services

Banking and financial services | Insurance | Manufacturing | Healthcare | Life sciences | Energy and utilities | Telecommunication | Public sector
Travel and logistics | Retail and CPG

Complementary ecosystem technologies

Cloud | IoT | AI/ML | Automation

The HFS enterprise blockchain services value chain explained

HFS developed the enterprise blockchain value chain to depict our understanding of the enterprise blockchain ecosystem. It spans public and private blockchain services, which remain mostly interchangeable despite each bringing strengths and weaknesses. However, this report in particular serves as a deeper dive into public blockchain services. The value chain covers the full life cycle of the engagement across advisory, prototyping, piloting, and production. We expect service providers to deliver on these key levers:

- **Genuine use cases:** How do service providers help enterprises identify and deliver value through leading use cases with enterprise blockchain? Can they identify the right use cases to move beyond proof-of-concept to production and deliver it alongside the necessary advisory, consulting, and support services?

- **Ecosystem enablement:** Do they bring in the right blend of emerging technologies, industry knowledge, and technical experts to enable ecosystems for enterprises to generate shared value?

- **Going beyond the tech:** The learning curve is steep for enterprise blockchain, and service providers are expected to bring deep industry and process expertise to support enterprises, regulators, and ecosystem stakeholders throughout the journey.

- **Change management:** Blockchain is a team sport, and one of the biggest challenges continues to be bringing stakeholders together, which means leading service providers bring robust change management capabilities.

Nearly two-thirds of the enterprise blockchain ecosystem is private blockchains.

Private blockchains	Public blockchains
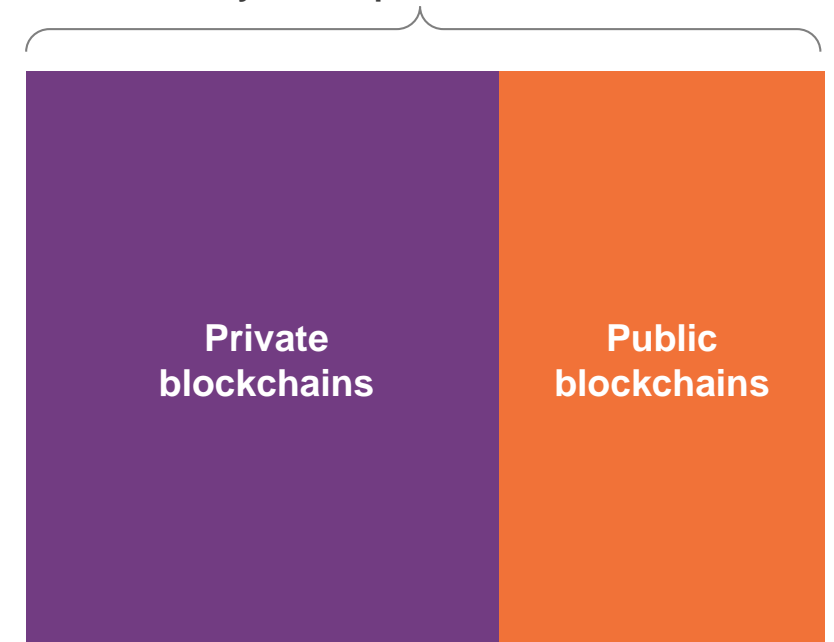
2

Research methodology

Service providers covered in this report

Note: All service providers are listed alphabetically

Sources of data

This report relied on myriad data sources to support our methodology and help HFS obtain a well-rounded perspective on enterprise blockchain service providers in our study. Sources are as follows:

Briefings and information gathering

HFS conducted detailed briefings with enterprise blockchain leadership from each vendor.

Each participant submitted a specific set of supporting information aligned to the assessment methodology.
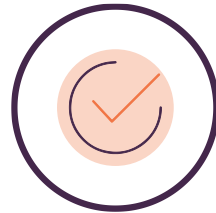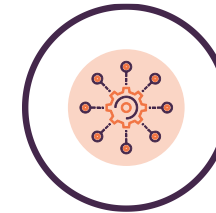
Reference checks

We conducted reference checks with 32 **active clients and partners** of the study participants via phone-based interviews and detailed surveys.

HFS vendor ratings

Each year, HFS fields **multiple demand-side surveys** in which we include detailed vendor rating questions. For this study, we leveraged our fresh-from-the-field HFS Pulse Study data.

Other data sources

Public information, such as press releases and web sites.

Ongoing interactions, briefings, virtual events, etc., with in-scope vendors and their clients and partners.

Assessment methodology

The *HFS Horizons: Public Blockchain Services, 2023* report evaluates providers' capabilities across a range of dimensions to understand the **Why, What, How, and So What** of their public blockchain services offering.

Assessment dimension (weighting)

	Value proposition: The Why? (25%)	Execution and innovation capabilities: The What? (25%)	Go-to-market strategy: The How? (25%)	Market impact: The So What? (25%)
	1. Strategy and vision for public blockchain services and the nature of outcomes 2. Clear understanding of "Why blockchain?" for client engagements 3. Differentiators—Why enterprises choose to work with you for public blockchain services	1. Breadth and depth of public blockchain services 2. Strength of the partnership ecosystem 3. Ability to attract, retain and train staff for public blockchain services 4. Blockchain-specific technology innovation	1. What are you actually selling with enterprise blockchain? Do you have productized offerings? 2. Industries served 3. Co-innovation and collaboration approaches with clients and partners 4. New sources of value from your partnership ecosystem	1. Scale and growth of public blockchain services 2. Proven enterprise blockchain case studies and success stories 3. Satisfied enterprise blockchain partners 4. Voice of the customer
Horizon 3	• Horizon 2 + ability to drive **OneEcosystem" synergy** via collaboration across multiple organizations with common objectives around driving completely **new sources of value**	• Horizon 2 + well-rounded capabilities across all value creation levers: talent, domain, technology, data, and change management • Strategy and execution capabilities at scale • Active contributors to leading consortiums and open-source initiatives	• Horizon 2 + driving co-creation with clients and ecosystem partners alike • Demonstrated the maturity to lead multiple clients to production environments and drive true business value	• Horizon 2 + referenceable and satisfied clients driving new business models and enabling ecosystems on the basis of the partnership • Perceived as a thought leader
Horizon 2	• Horizon 1 + ability to drive **OneOffice model**, breaking down internal silos with shared immutable ledgers, streamlining internal processes, and delivering enterprise-level business outcomes and stakeholder experiences	• Horizon 1 + global capabilities with strong consulting skills and partnerships with blockchain-specific technology and services firms • Ability to support clients on their end-to-end enterprise blockchain transformation journey • Consortium memberships	• Horizon 1 + proven and leading proprietary tools, assets, and frameworks • A handful of clients in production and delivering some business value	• Horizon 1 + referenceable and satisfied clients citing the ability to innovate • Perceived as a strategic partner driving business and technology transformation
Horizon 1	• Ability to drive **functional optimization outcomes** through cost reduction, speed, and efficiency	• Primarily focused on implementation • Offshore-centric with strong technical skills • Partnerships with leading blockchain platform providers (Hyperledger, Ethereum, R3, etc.)	• Robust delivery of enterprise blockchain solutions • Focused on pilot and proof-of-concept engagements	• Referenceable and satisfied clients citing the ability to execute • Perceived as a credible technology partner

Distinguishing service provider characteristics

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Demographics and market dynamics

Participant demographics

Average dedicated and proficient public blockchain headcount
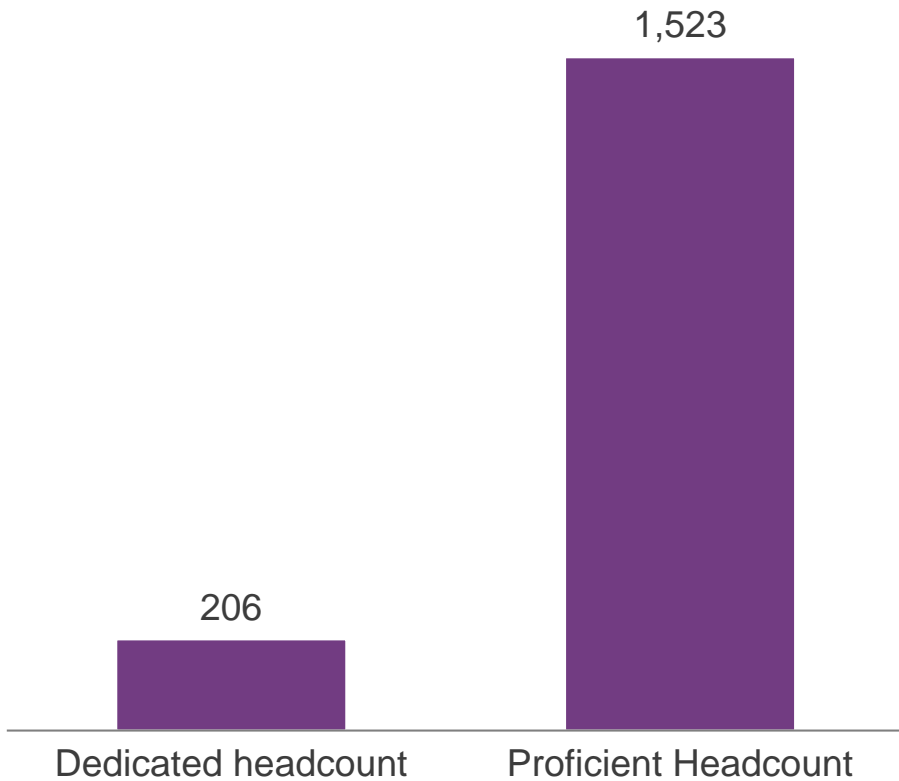
Average proportion of public blockchain engagements
Percentage of total enterprise blockchain engagements
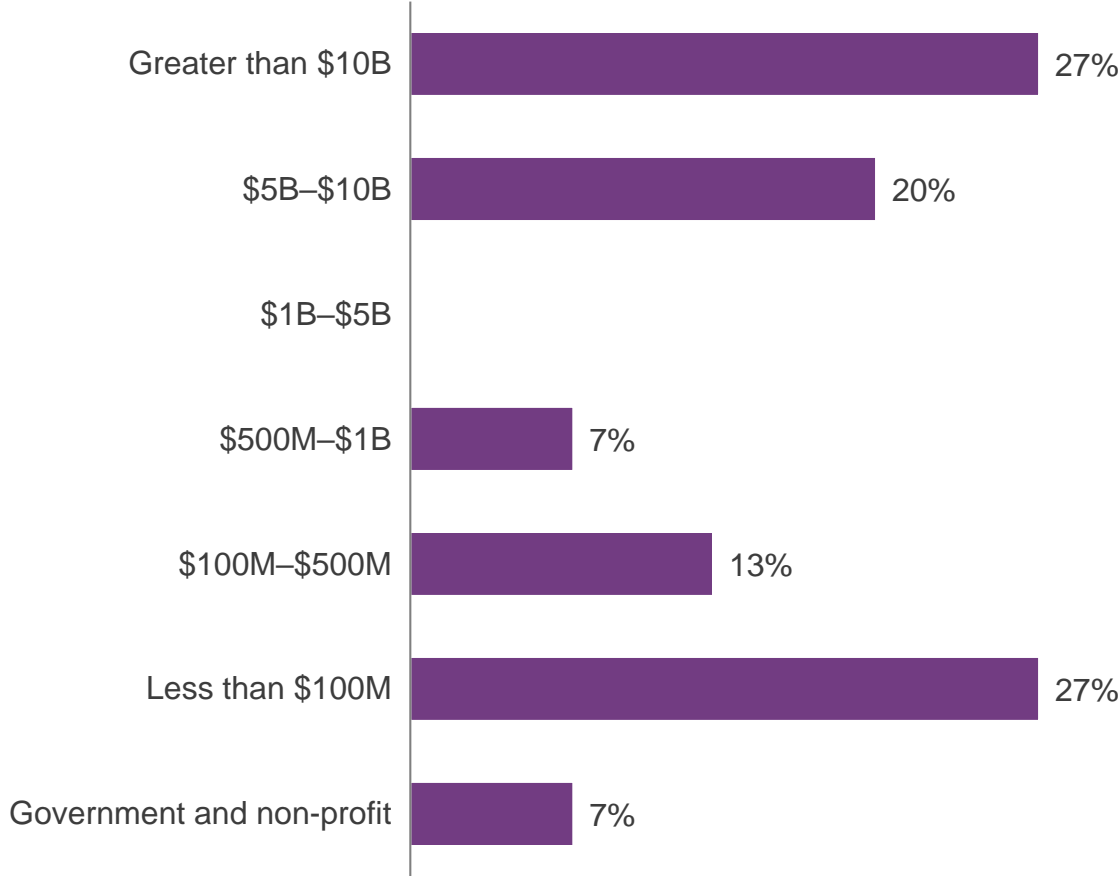

Average number of public blockchain clients

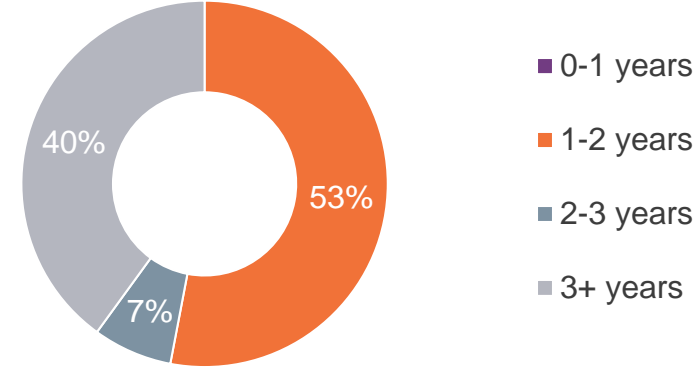Sample: Data from enterprise clients of the 15 service providers covered in this report
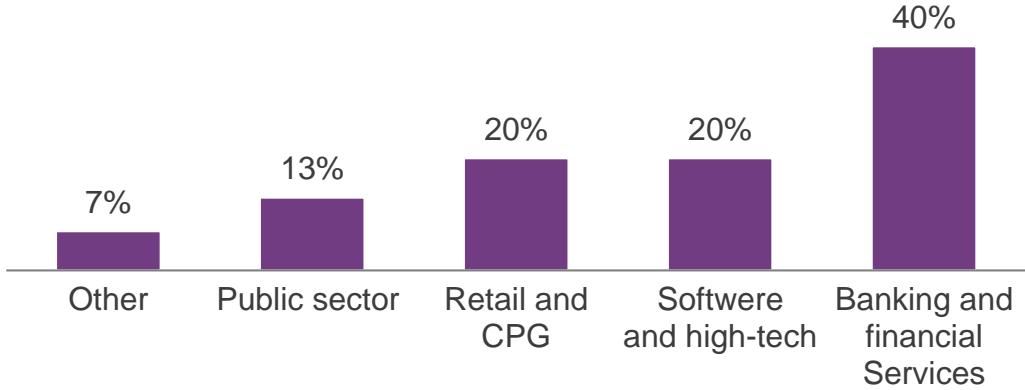Source: HFS Research, 2023

Reference client demographics

Reference clients, revenue distribution

Category	Value
Greater than $10B	27%
$5B–$10B	20%
$1B–$5B	
$500M–$1B	7%
$100M–$500M	13%
Less than $100M	27%
Government and non-profit	7%

Client references, length of blockchain journey

- 0-1 years
- 1-2 years
- 2-3 years
- 3+ years

40%
53%
7%

Reference clients, main operating sector

Other	Public sector	Retail and CPG	Softwere and high-tech	Banking and financial Services
7%	13%	20%	20%	40%

Sample: Data from enterprise clients of the 15 service providers covered in this report
Source: HFS Research, 2023

Blockchain already underpins a broad range of initiatives

More hype than value

Invest if you want high-risk and high-reward, but they don't do much today

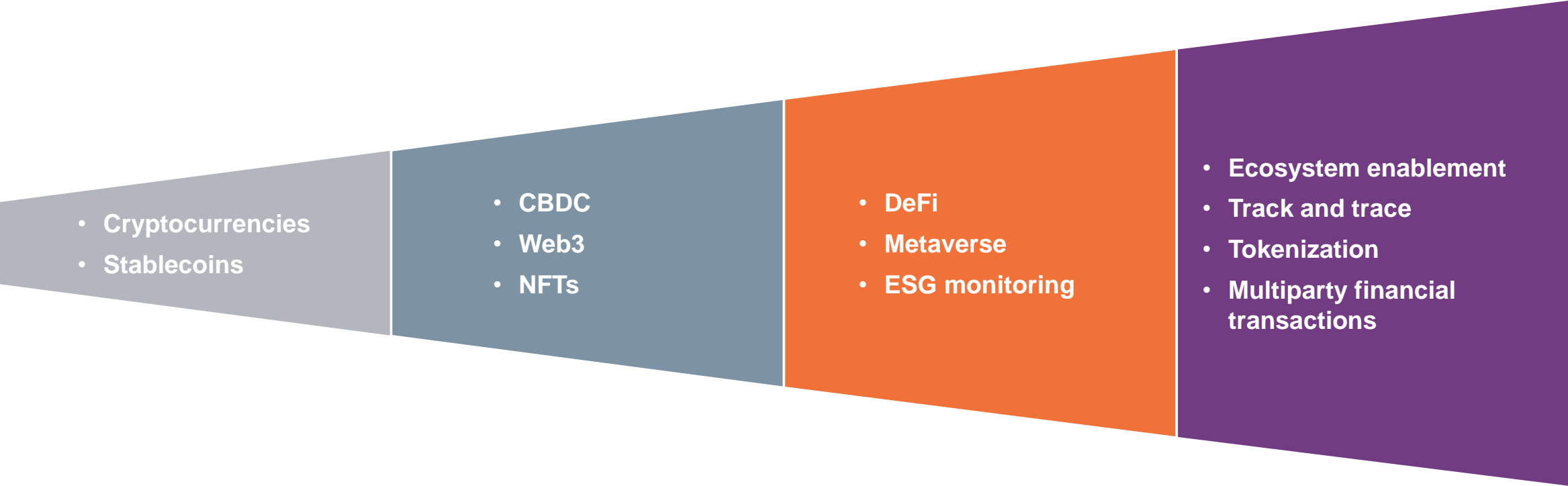**Interesting thought experiments**

Potentially game-changing, but more philosophical now

Pilot and prove

Technology exists but needs a robust business strategy

Ready for prime time

Already proven to drive business outcomes and new sources of value

- **Cryptocurrencies**
- **Stablecoins**

- **CBDC**
- **Web3**
- **NFTs**

- **DeFi**
- **Metaverse**
- **ESG monitoring**

- **Ecosystem enablement**
- **Track and trace**
- **Tokenization**
- **Multiparty financial transactions**

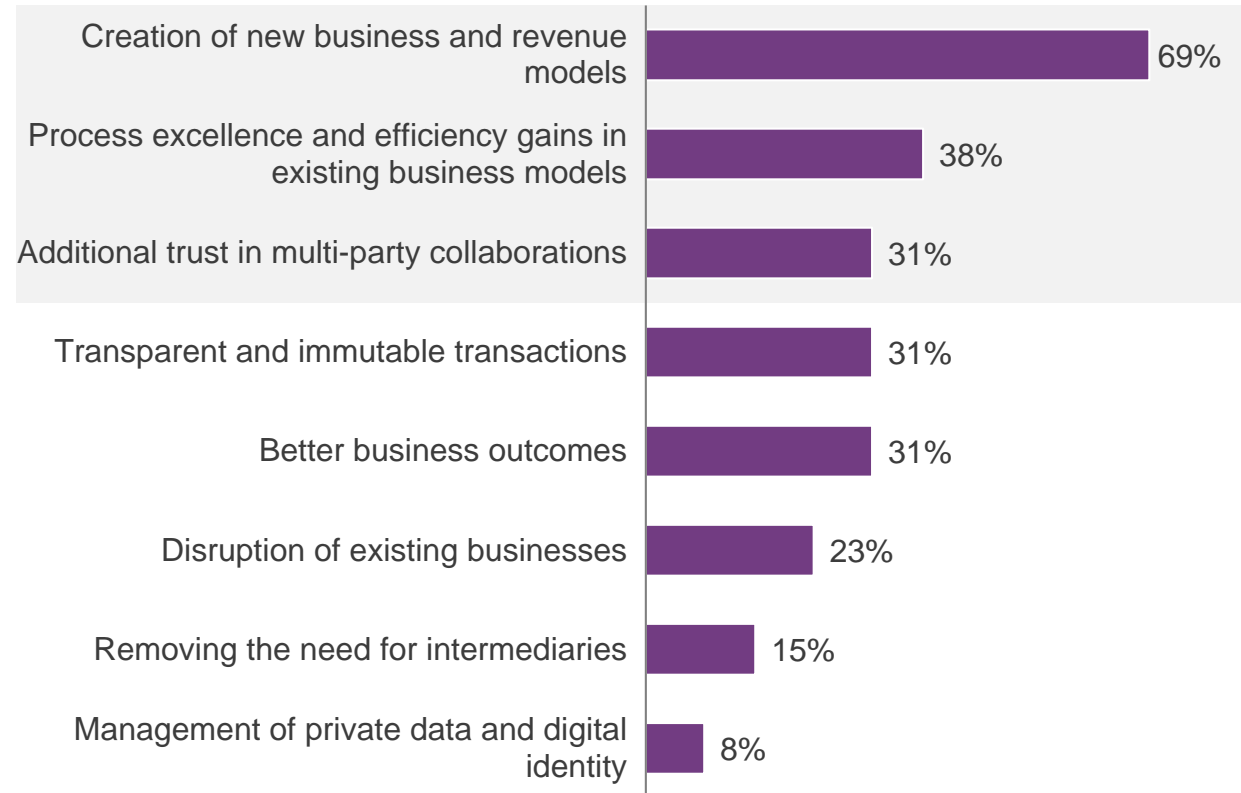Least ⟵ **Current value creation potential for enterprises** ⟶ Most

Blockchain refers to both public and private blockchains.

Creating new business models and driving new efficiencies—blockchain is the technology for the job thanks to smart contracts and consensus-driven trust
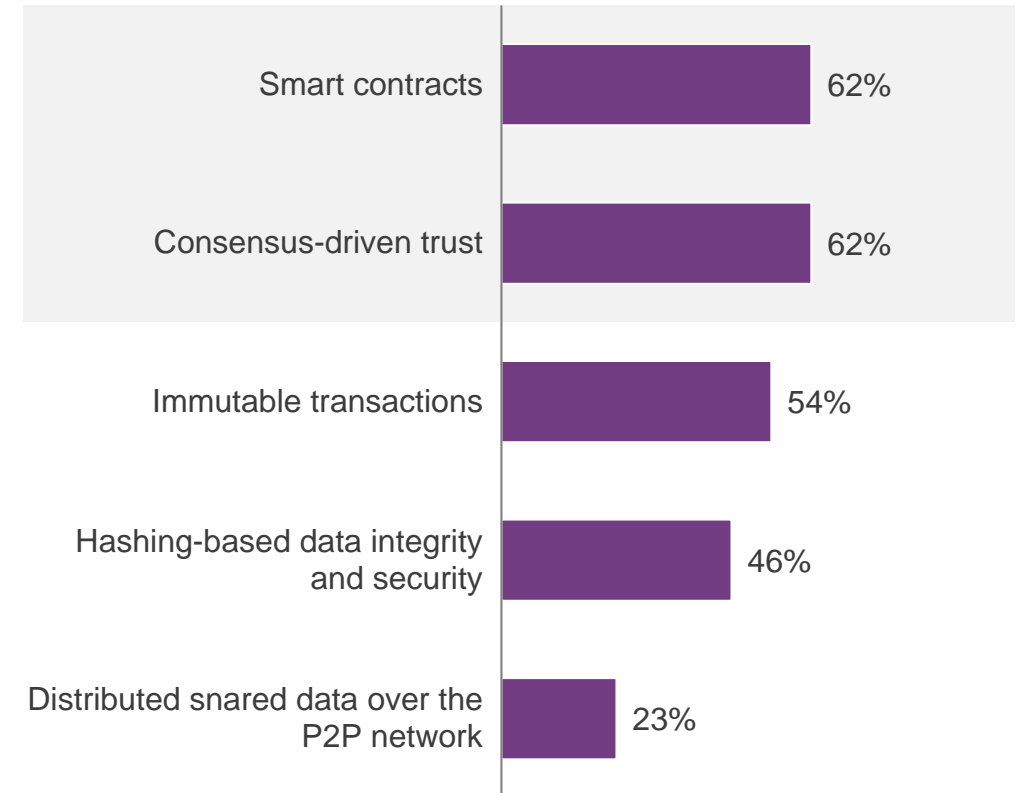
Q: What benefits do you hope to achieve from implementing a blockchain solution?
Select all that apply

Benefit	%
Creation of new business and revenue models	69%
Process excellence and efficiency gains in existing business models	38%
Additional trust in multi-party collaborations	31%
Transparent and immutable transactions	31%
Better business outcomes	31%
Disruption of existing businesses	23%
Removing the need for intermediaries	15%
Management of private data and digital identity	8%

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

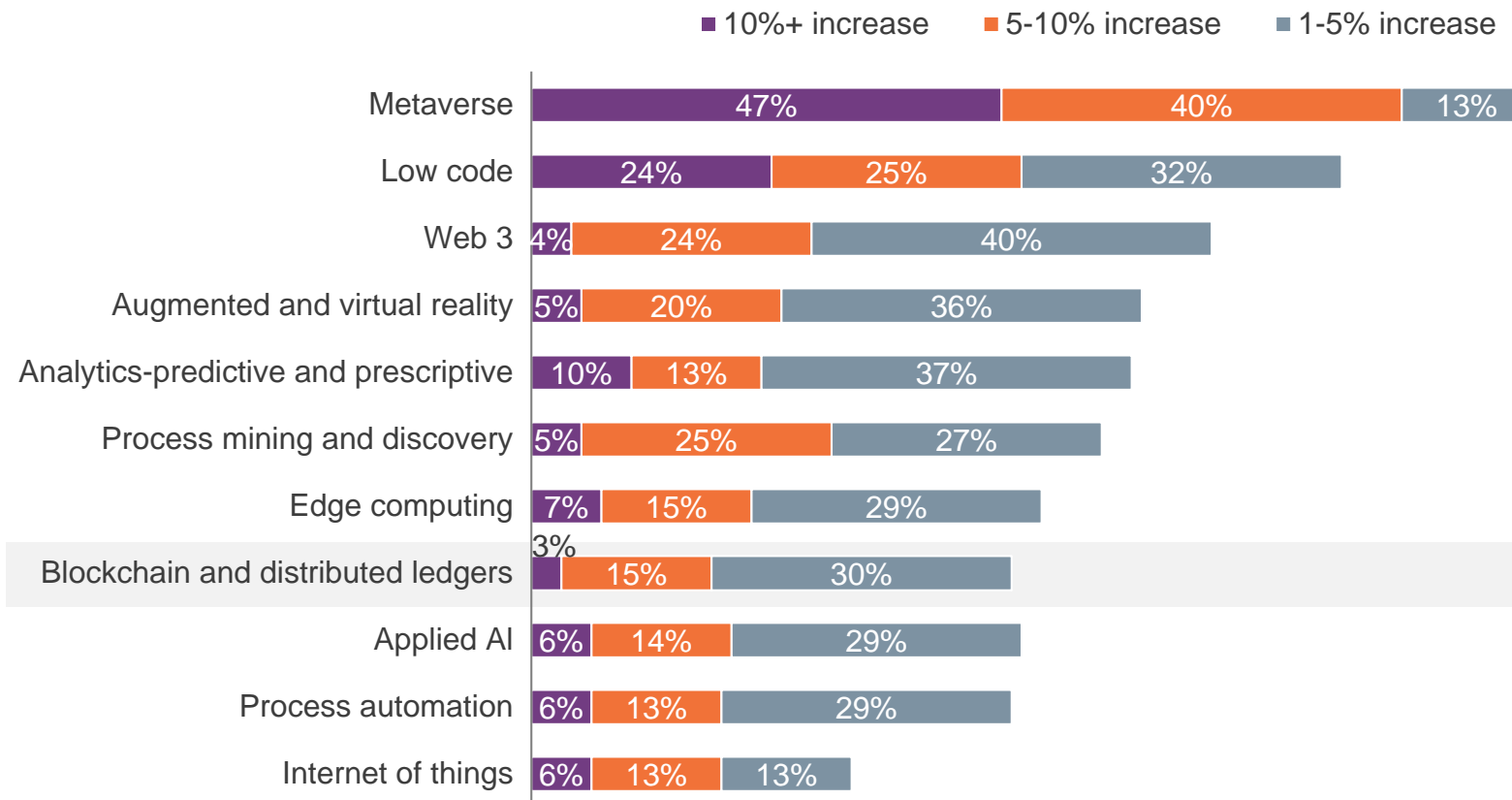| Trait	%
Smart contracts	62%
Consensus-driven trust	62%
Immutable transactions	54%
Hashing-based data integrity and security	46%
Distributed snared data over the P2P network	23%

Blockchain refers to both public and private blockchains.
Sample: Data from enterprise clients of the 15 service providers covered in this report
Source: HFS Research, 2023

Enterprise investment is flowing into metaverse and low-code—but enterprises report a moderate rise in blockchain spend

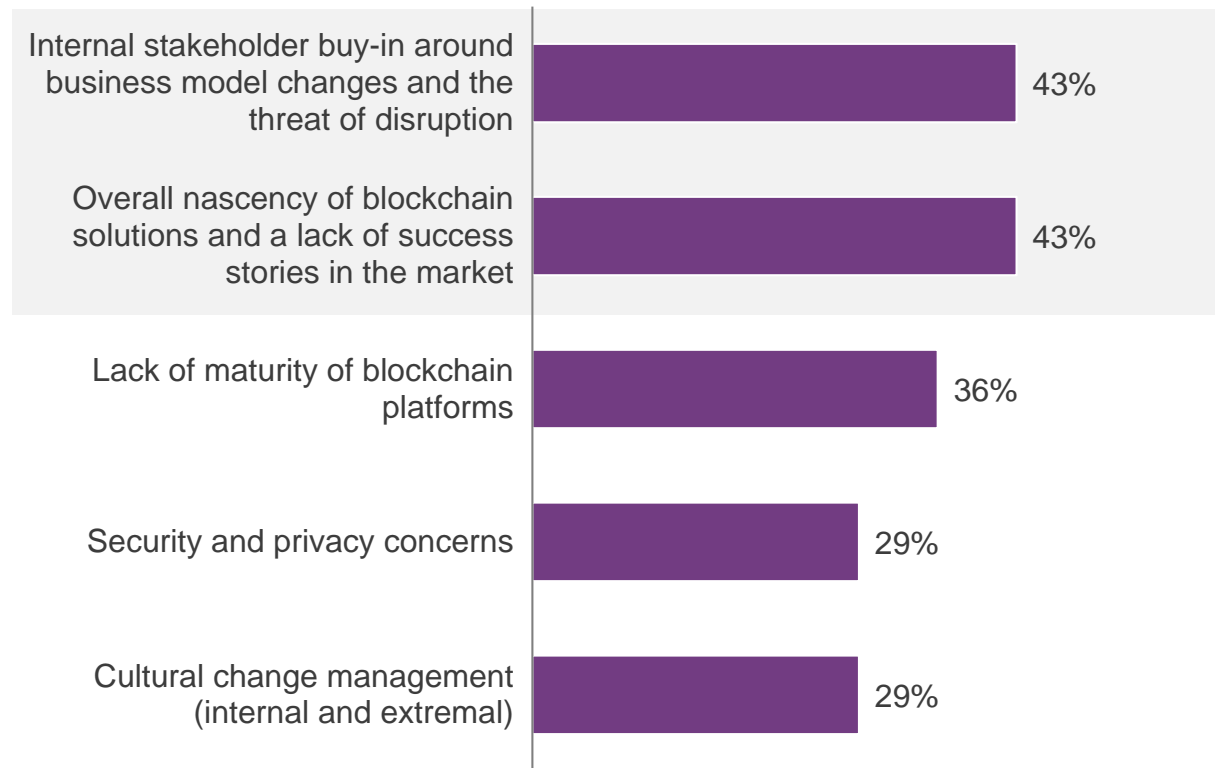**By how much does your enterprise plan to increase investment in emerging technologies in the next 12-18 months?**

■ 10%+ increase   ■ 5-10% increase   ■ 1-5% increase

Technology	10%+	5-10%	1-5%
Metaverse	47%	40%	13%
Low code	24%	25%	32%
Web 3	4%	24%	40%
Augmented and virtual reality	5%	20%	36%
Analytics-predictive and prescriptive	10%	13%	37%
Process mining and discovery	5%	25%	27%
Edge computing	7%	15%	29%
Blockchain and distributed ledgers	3%	15%	30%
Applied AI	6%	14%	29%
Process automation	6%	13%	29%
Internet of things	6%	13%	13%

- Macroeconomic headwinds have forced enterprises to completely reevaluate their IT spending, focusing on investments with quick ROIs. Meanwhile, blockchain remains in the experimental stages for many enterprises, slowing the growth in spending on the technology.

- In parallel to this, a new wave of technologies are grabbing headlines, including metaverse and Web3, diverting investment funds away from blockchain and slowing spending growth.

- However, it's important to note that enterprise blockchain spending growth has only slowed—it is still growing. Enterprises are finally cutting through the hype and getting real about enterprise blockchain.

Blockchain refers to both public and private blockchains.
Sample: HFS Pulse H1 2023: n=592 Global 2000 leaders
Source: HFS Research, 2023

Stakeholder buy-in and overall nascency of blockchain solutions remain the two biggest adoption challenges

What are the top three challenges that you faced on your enterprise blockchain adoption journey?
Rank 1-3 combined, top five answers only

Challenge	%
Internal stakeholder buy-in around business model changes and the threat of disruption	43%
Overall nascency of blockchain solutions and a lack of success stories in the market	43%
Lack of maturity of blockchain platforms	36%
Security and privacy concerns	29%
Cultural change management (internal and extremal)	29%

Learnings and advice from early enterprise blockchain adopters

"

Prepare yourself for the complexity and conservatism of US financial regulation, specifically around Stablecoins and tokenized deposits.

– C-suite executive, a leading US bank

"

Consider the specifics and long-term capabilities needs around scalability. Blockchain is not the most suitable for every use case, but it can play a critical part.

– Manager, a leading global pharmaceutical firm

"

The technology is accessible and reliable. You need to focus on shareholder engagement and managing partners' expectations to make the system work.

– Manager, a leading global alcoholic beverage firm

Blockchain refers to both public and private blockchains.
Sample: Data from enterprise clients of the 15 service providers covered in this report
Source: HFS Research, 2023

There's a growing focus on engagements in the production environment as enterprises look beyond the hype

**Percentage of engagements of leading service providers at each stage**

Legend: ■ 2021 ■ 2022

- Advisory: 36% (2021), 31% (2022)
- Protoype: 26% (2021), 22% (2022)
- Pilot: 24% (2021), 20% (2022)
- Production: 14% (2021), 28% (2022)
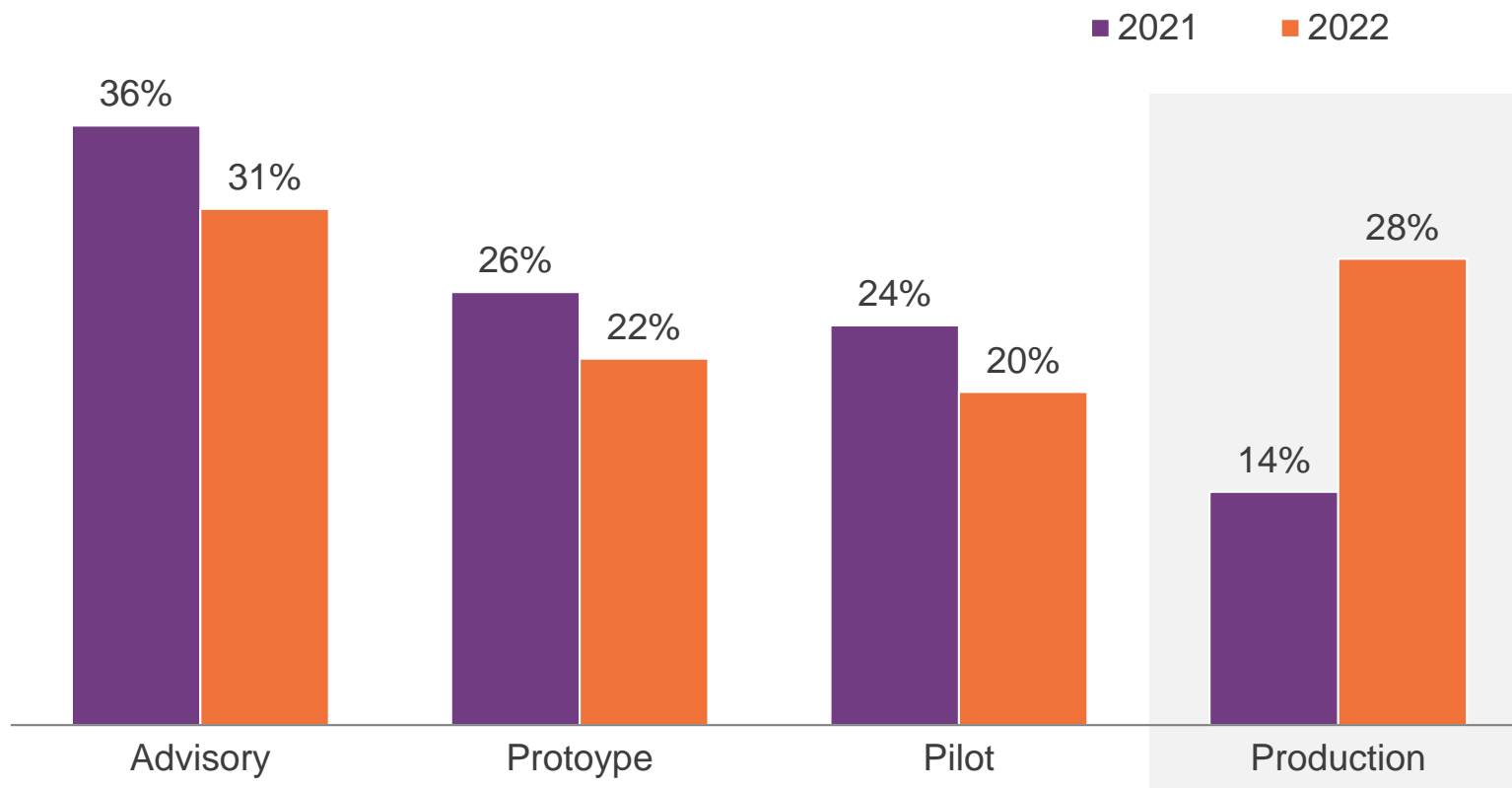
- The learning curve for enterprise blockchain is steep. Couple that with extensive hype, and you get engagements that never move beyond advisory and protype. Unfortunately, that was the reality for too long.

- In 2021 we reported significant growth in the number of production-grade engagements, and that trend has continued this year.

- Enterprise focus on investments that drive value today is why we're seeing less advisory, prototyping, and pilot engagements and a growing focus on production-grade initiatives.

Blockchain refers to both public and private blockchains.
Sample: HFS estimates using data from the 15 service providers covered in this report
Source: HFS Research, 2023

Enterprises are getting more comfortable with public blockchains—but they want more help from service providers

Please rate your level of comfort with public blockchains
Score out of 100
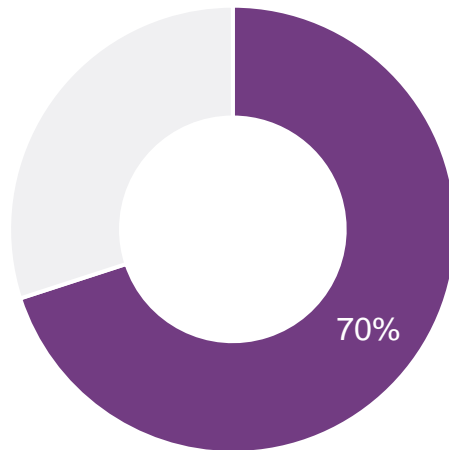
How do you rate your service provider's ability to help you navigate and select a preferred blockchain platform?
Score out of 100

70%

80%
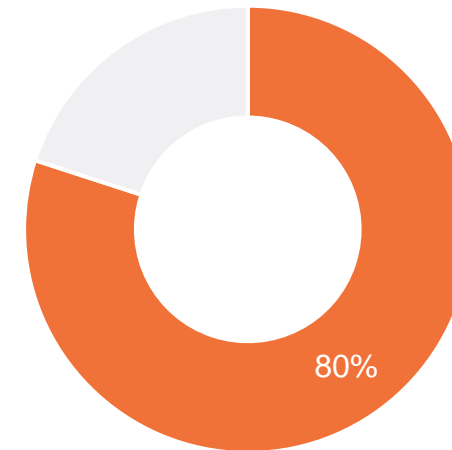
- Throughout our conversations with enterprises, we found that organizations choosing private blockchains typically did so thanks to regulatory pressures and concerns over sharing private information on public blockchains. In fact, an Executive Vice President from a leading US bank explained:

"We chose a private because the regulators forced us in that direction. However, we believe that the markets and innovation will slowly drive us all towards public blockchain."

- Enterprises are increasingly looking toward service providers for help navigating the blockchain platform landscape. While providers have developed robust selection frameworks, this is yet to translate into confidence for enterprises, as they ranked their provider's ability to help them select the right platform at 80%.

4

Horizons results:
Public blockchain services, 2023

HFS Horizons—Summary of public blockchain services providers assessed in this report

Providers (alphabetical order)	HFS point of view
Accenture	Public blockchain experience with the tools to help enterprises choose the right infrastructure
Capgemini	Investing in talent for public blockchains to complement its industry-led strategy
Coforge	Experience delivering public blockchain solutions beyond Ethereum
EY	Leading the public blockchain market thanks to clear vision and strategy
Globant	Focused on production-grade public blockchain engagements
IBM	Early on its pivot toward hybrid blockchains—but with the size and scale to do it quickly
Infosys	Experienced with public blockchains, strategic roadmap, and tangible partnerships
NTT DATA	Experimenting with innovative solutions built on public blockchains
TCS	Underpinning ecosystems with public blockchains
UST	Some real-world public blockchain experience with a focus on consumer-facing ecosystems

HFS Horizons—Public blockchain services, 2023
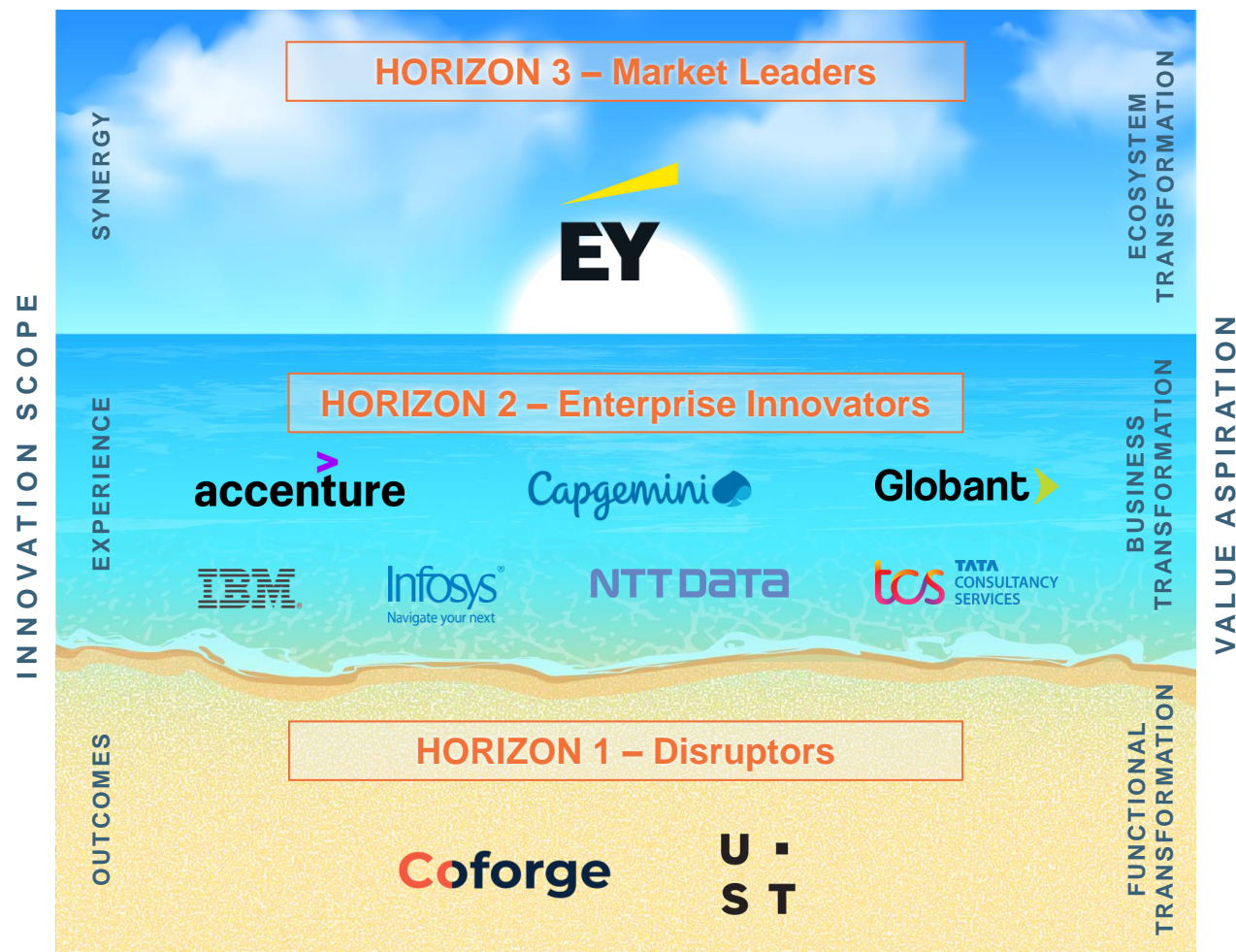
Horizon 3 is Synergy

Service providers demonstrate Horizon 2, plus

- Horizon 2 + ability to drive OneEcosystem™ synergy via collaboration across multiple organizations with common objectives around driving completely new sources of value
- Compelling thought leadership that helps clients to articulate their North Star
- Demonstrated the maturity to lead multiple clients to production environments and drive true business value
- Well-rounded capabilities across all value creation levers: culture, talent, domain, technology, data, and change
- Driving co-creation with clients and ecosystem partners
- Referenceable and satisfied clients driving new business models based on the partnership

Horizon 2 is Experience

Service providers demonstrate Horizon 1, plus

- Ability to drive OneOffice™ model and enterprise-level real business outcomes and stakeholder experiences
- Global capabilities with strong consulting skills and partnerships with blockchain-specific technology and services firms.
- Proven and leading proprietary tools, assets, and frameworks
- Consortium memberships
- A handful of clients in production and delivering some business value

Horizon 1 is Optimization Outcomes

Service providers demonstrate

- Ability to drive functional optimization outcomes
- Driving cost reduction, speed, and efficiency
- Partnerships with leading blockchain platform providers (Hyperledger, Ethereum, R3, etc.)
- Focused on pilot and proof-of-concept engagements
- Offshore-focused with talent in the domain and technical skills
- Referenceable and satisfied clients for the ability to execute

Note: All service providers within a "Horizon" are listed alphabetically

5

EY profile:
Public blockchain services, 2023

EY: Leading the public blockchain market thanks to clear vision and strategy

HORIZON 3 – Market Leader

HORIZON 2 – Enterprise Innovator

HORIZON 1 – Disruptor

Public blockchain dedicated headcount: 250

Public blockchain proficient headcount: 1,500

Number of public blockchain clients: 340

Public blockchain services highlights

Clear market vision, focus, and investments:
From the beginning of enterprise blockchain, EY took a clear position: Public blockchains will win the day. EY's razor-like focus on Ethereum has helped it become the market leader for public blockchains and develop the deep technical expertise its enterprise clients often complement.

Years of real-world experience with production-grade public blockchain initiatives:
EY has real-world public blockchain experience, a key selection criterion for enterprise clients. This is a significant differentiator compared to other providers in the early stages of adopting Ethereum. EY can use this experience across its engagements to help enterprises identify genuine use cases, achieve stakeholder buy-in, and drive them to the production environment.

The single biggest contributor to public blockchain innovation:
EY has long been the biggest driver of innovation in the public blockchain space. The trailblazer for zero-knowledge proofs in 2018, EY has continued contributing and developing leading initiatives like Nightfall and Starlight.

API-driven approach:
EY recently pivoted to an API-first approach throughout its public blockchain practice, making it easier for enterprises to integrate EY's blockchain solutions within their existing technology stacks.

Percentage of engagements on public blockchains

■ Public Blockchains

■ Private Blockchains

100%
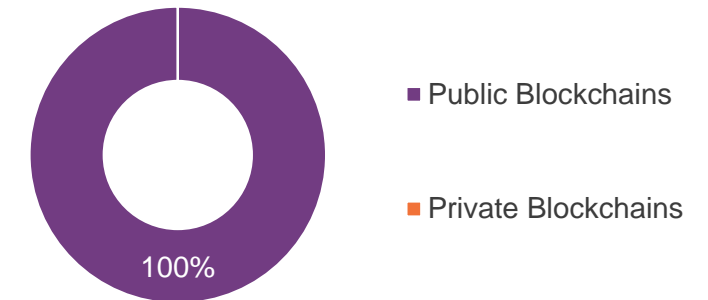
Key public blockchain partnerships

- Microsoft
- SAP
- Consensys
- Polygon Technologies

Key public blockchain clients

- Peroni
- ANSA
- An international pharmaceutical firm

Read more about this company's enterprise blockchain services here.

6

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HFS Research authors

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Sam Duncan is a Practice Leader at HFS, based in Cambridge, UK. He graduated from Bournemouth University with a degree in economics. His interest in macroeconomics focuses on how the evolution of technology accelerated globalization. He also studied law, accounting, and investment management during his education.

Since joining HFS, Sam has developed his understanding of blockchain and continues exploring the latest applications of the technology across various industries. He applies his economics background to keep up with the latest banking and financial services industry trends, and he has a keen interest in insurance. He regularly 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.

Saurabh Gupta is President, Research and Advisory Services at HFS. He sets 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. He oversees HFS' global research function, managing the global team of analysts and operations across the US, Europe, and Asia.

He is a recognized thought leader, and he's passionate about solving business problems and bringing big ideas to life. With more than two decades of experience across client, provider, advisory, and analyst roles, he brings a uniquely realistic and wide-ranging perspective to our industry's challenges and opportunities. He has authored more than 200 research reports; he is a frequent speaker and regularly quoted in industry publications. He is well-known for spotting disruptive technology trends like blockchain, Web3, metaverse, cloud, AI, and automation and predicting their implications for different stakeholders through frameworks like the OneOffice™ and OneEcosystem™.

About HFS
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