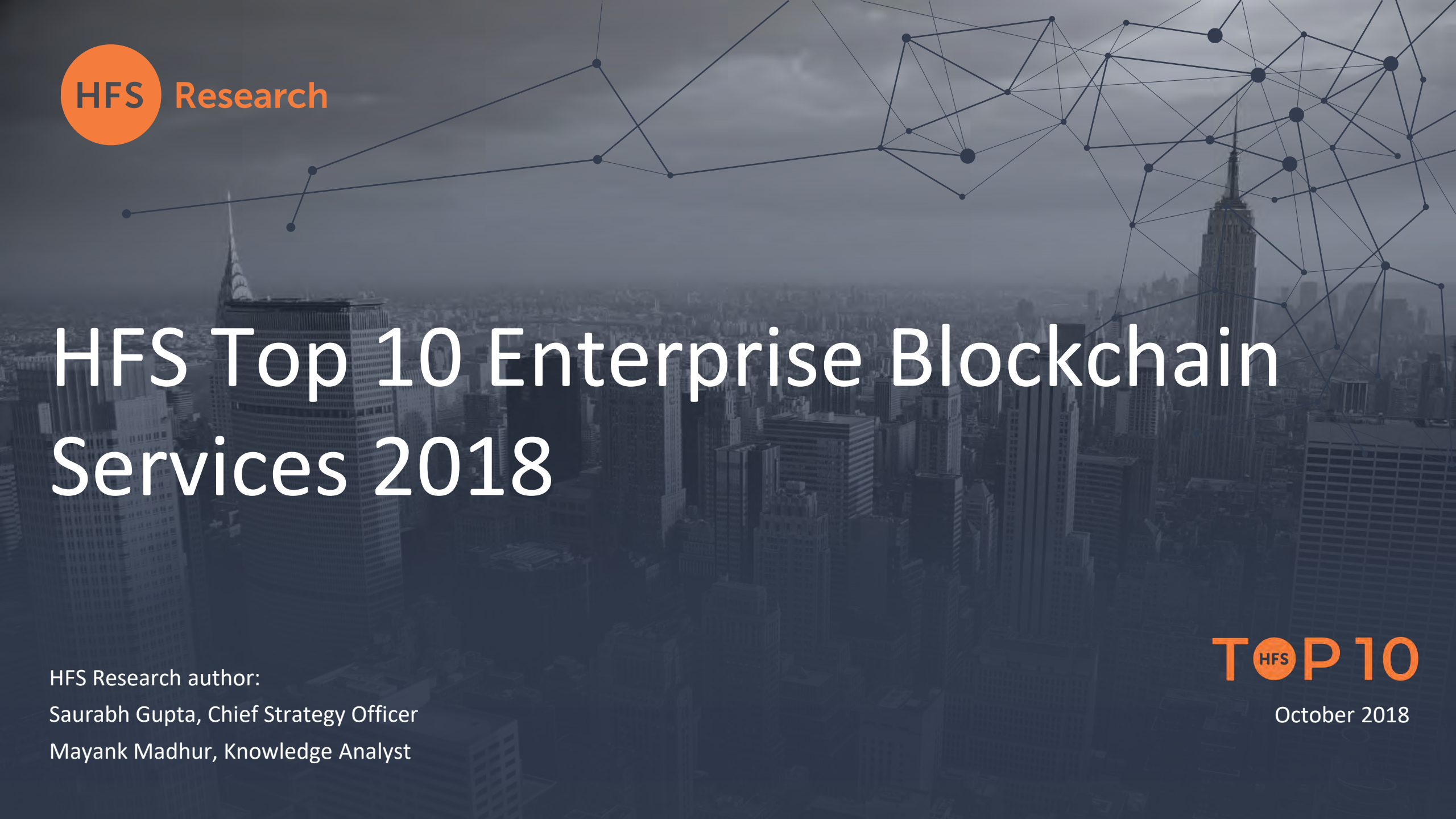

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# HFS Top 10 Enterprise Blockchain Services 2018

HFS Research author:
Saurabh Gupta, Chief Strategy Officer
Mayank Madhur, Knowledge Analyst

TOP 10

October 2018

**“Enterprise blockchain is no longer just a beautiful waterfall that people admire from a distance. Enterprises are starting to get wet (or are at least feeling the mist).”**

*—Saurabh Gupta, Chief Strategy Officer*





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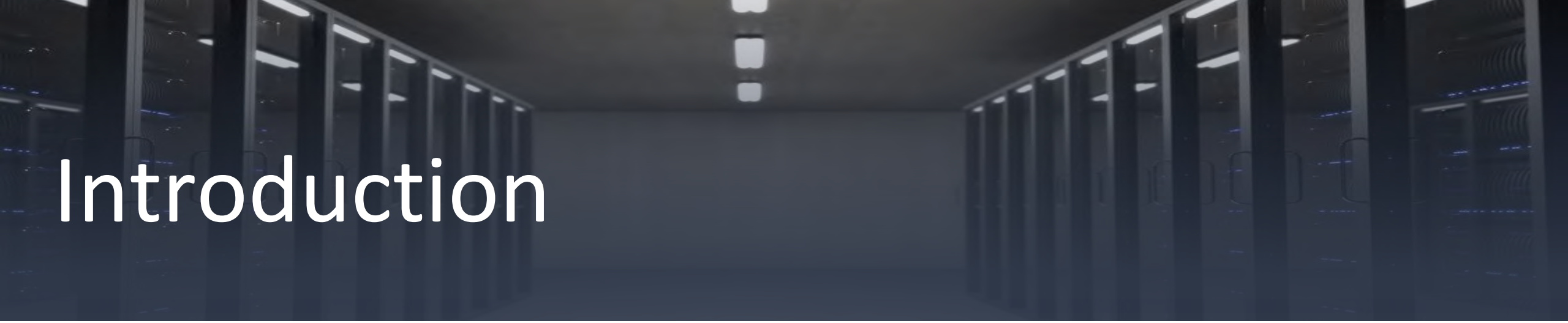
# What you'll read



# Introduction

- Blockchain is emerging as a powerful architectural technology with the potential to impact enterprise and B2B ecosystems as much as the internet and cloud.

- The 2018 Enterprise Blockchain Services Top 10 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 17 leading blockchain service providers based on detailed discussions with their leadership teams, inputs from their enterprise clients, and analysis of nearly 2,800 blockchain engagements across industries and across the globe.

# Blockchain provider ecosystem

*This report focuses on providers of enterprise blockchain services*

*Illustrative lists, not comprehensive*

**Blockchain solution providers**

**Service providers**

accenture, Cognizant, IBM, LTI, NTT DATA, wipro

**Consulting firms**

Deloitte., EY, KPMG, pwc

**Consortiums**

B3i, Chamber of Digital Commerce, R3 CEV, Ledger, Fundchain, IoT World Alliance, P2DL Group, r3, Red Lyra, swisscom

**Startups**

BitFury, BTL, coinbase, Filament, loyyal, Mirror, skuchain, symbiont

**Academia, regulators, and not-for profits**

ASSOCHAM India, Berkeley, Blockchain Research Institute, IC3 The Initiative For CryptoCurrencies & Contracts, MIT, NACHA The Electronic Payments Association, University of Oxford, Singularity University, Stevens Institute of Technology, The Alan Turing Institute, tmforum, University of Cambridge, University of Copenhagen

**Blockchain tools and software providers**

BIGCHAINDB, Blockstream, bluzelle, CONSENSYS, CONTEXTLABS, Digital Asset Holdings, Gem, guardtime, IBM Cloud, Microsoft Azure, symbiont

**Blockchain platforms and frameworks**

**Permissionless (public)**

Bitcoin, ethereum, factom, stellar

**Permissioned (private/hybrid)**

Chain, corda, HYPERLEDGER, MultiChain, MONAX, ripple





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# Research methodology

HFS assessed 17 leading blockchain service providers based on detailed discussions with their leadership teams, inputs from their enterprise clients, and analysis of nearly 2,800 blockchain engagements across industries and across the globe. The research is also augmented with information from publicly available information sources.

**Blockchain service providers were assessed on the following three main dimensions:**

**33.3%**

### Voice of the customer

- Clients in live production environment
- Client feedback (number of referencible clients, client satisfaction)

**33.3%**

### Ability to execute

- Scale and growth (number of dedicated resources, YOY growth)
- Experience (number of engagements, practice start date)
- Solution breadth and depth (industries covered, average solution depth)
- Value chain coverage (advisory, prototype, pilot, production and system integration)

**33.3%**

### Innovation

- Intellectual property (patents, tools, solutions accelerators)
- Ecosystem (experience with blockchain platforms, partnerships, consortium memberships)
- Investments (practice building, market development)

# Blockchain service providers covered in this report

IBM
accenture
Capgemini
Cognizant
CONDUENT
Deloitte.
TATA CONSULTANCY SERVICES
DXC.technology
epam
EY
HEXAWARE
NTT DATA
Infosys
KPMG
LTI Let's Solve
wipro
Mphasis The Next Applied



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# Executive summary





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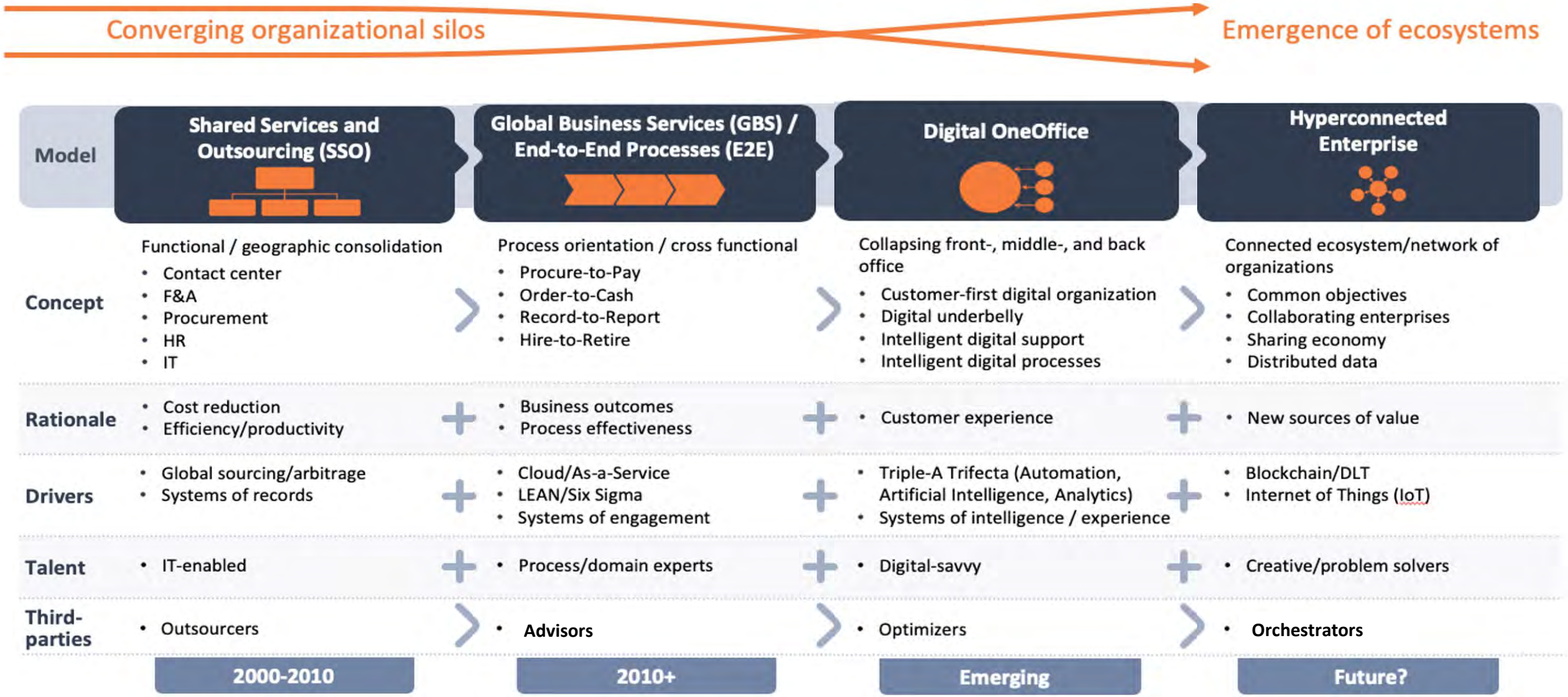
# Executive summary (page 1 of 2)

- **We are hurtling toward a hyperconnected economy, and blockchain will provide the way to make it happen.** Ecosystems across organizations that service the specific needs of a customer are emerging. No single organization owns the entire customer experience and competitors and peers need to figure out how to collaborate. Blockchain in combination with other emerging technologies like IoT and artificial intelligence will provide the way to make it happen.
- **The blockchain "six-pack" is driving unprecedented interest from enterprises.** There are six built-in blockchain features with long-term potential for disruption when enterprises leverage them intelligently in relevant business use cases. The blockchain six-pack includes: 1. Distributed shared data over peer-to-peer (P2P) networks reduces single points of failure; 2. Consensus-driven trust cuts out the middle-man; 3. Immutable transactions ensure trust; 4. Hashing-based data ensures integrity and security; 5. Automated smart contracts promote touchless interactions across process chains; and 6. Permissioned and permissionless flavors give enterprise users flexibility. These six blockchain features are changing the way we think about business transactions, data storage, and even industry value chains and associated revenue models.
- **Blockchain runs the risk of becoming representative of the massive hype bubble we live in today: yet another technology hammer trying to find business problems to nail.** Despite the cryptocurrency bubble-burst in 2018, blockchain continues to be the one of the most hyped emerging technologies. HFS estimates blockchain's price-to-sales ratio (a useful ratio to understand the hype) to be 125+ compared to 2.3 for the S&P 500. It's becoming harder to see through the blockchain hype these days to examine the problems we're trying to solve with, create solutions, and contextualize them in real-world scenarios. Among the hype and mad use cases there is some gold, but it's getting lost in the noise. Blockchain is not the panacea for everything and we need to choose the use cases carefully. HFS created the "Blockchain Bullshit Buster"—a set of 10 questions to help you dig out the gold from the piles of…well, you know what!
- **Despite the hype, enterprise blockchain is becoming real.** The market is witnessing an explosion in blockchain proofs-of-concept (PoC) and pilots, but in-production solutions represent less than 5% of overall blockchain engagements. However, we are starting to get a critical mass of "live blockchain" solutions. HFS' database of 2,800 enterprise blockchain engagements suggests nearly 135 in-production blockchain solutions. This is a 10X+ jump from last year! This is encouraging even though almost all "live engagements" represent "shadow" or "parallel" environments where the legacy solutions has not yet been replaced.

# Executive summary (page 2 of 2)

- **Real blockchain clients want real business impact.** Blockchain promises "creative destruction" through disintermediation, but that is a long-term vision. Enterprise blockchain clients are investing in blockchain solutions to get real business impact in the near term. Without a tangible ROI, blockchain engagements get stuck at the PoC/pilot stage. No-nonsense, real business cases are a must-have to drive blockchain beyond the PoC-fatigue that we are witnessing today.
- **Enterprise blockchain has broader implications than just financial services.** While financial services was the first mover from an enterprise blockchain adoption perspective, other industries have had good success with blockchain. Supply chain (provenance tracking) is emerging as one of the hottest use cases for blockchain besides financial services use cases such as trade finance, payments, and KYC (identity management).
- **Blockchain technology is not the biggest adoption issue but collaborating across organizations is.** Enterprise blockchain adoption is going through a "90-9-1" adoption challenge. Ninety percent of enterprises are still trying to internalize the concept of blockchain and its relevant impact on their business. Nine percent of enterprises that identified relevant use cases are struggling to determine the starting point for their PoCs and pilots. And the 1% of enterprises that have successful pilots are challenged with scalability to a production-grade environment.Some enterprises that identified relevant use cases are struggling to determine the starting point for their PoCs and pilots. The few enterprises that do have successful pilots are challenged with scalability to a production-grade environment. There is a multitude of challenges that the market needs to overcome (lack of awareness, solution immaturity, and lack of standards and regulations, among others), but one the biggest hurdles is to get organizations (that often directly compete with each other) to come together. Until organizations are convinced of the value proposition of the hyperconnected world and a sharing economy, blockchain will struggle to realize the value potential it promises.
- **Several service providers are doing commendable work to educate, experiment, and develop enterprise blockchain solutions.** HFS assessed 17 leading blockchain service providers based on detailed discussions with their leadership teams, inputs from their enterprise clients, and analysis of nearly 2,800 blockchain engagements across industries and across the globe. The HFS Top 10 enterprise blockchain service providers for 2018 are (in rank order): 1. IBM, 2. Accenture, 3. Deloitte, 4. EY, 5. Infosys, 6. Wipro, 7. NTT DATA, 8. Cognizant, 9. TCS, and 10. KPMG.

# We are hurtling toward a hyperconnected economy, and blockchain will provide the way to make it happen





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# The Blockchain “six-pack” is driving unprecedented interest from enterprises

**Distributed** shared data over peer-to-peer (P2P) network reduces single points of failure

**Consensus** driven trust cuts out the middle-man

**Immutable** transactions ensure trust

**Security** driven by hashing-based data

**Smart contracts** promote touchless interactions across process chains

**Permissioned and permissionless** flavors give enterprise users flexibility

*Refer to “The Blockchain Reality Check: Where Are We and What Can We Expect in 2018?” for more details on the blockchain “six-pack”*





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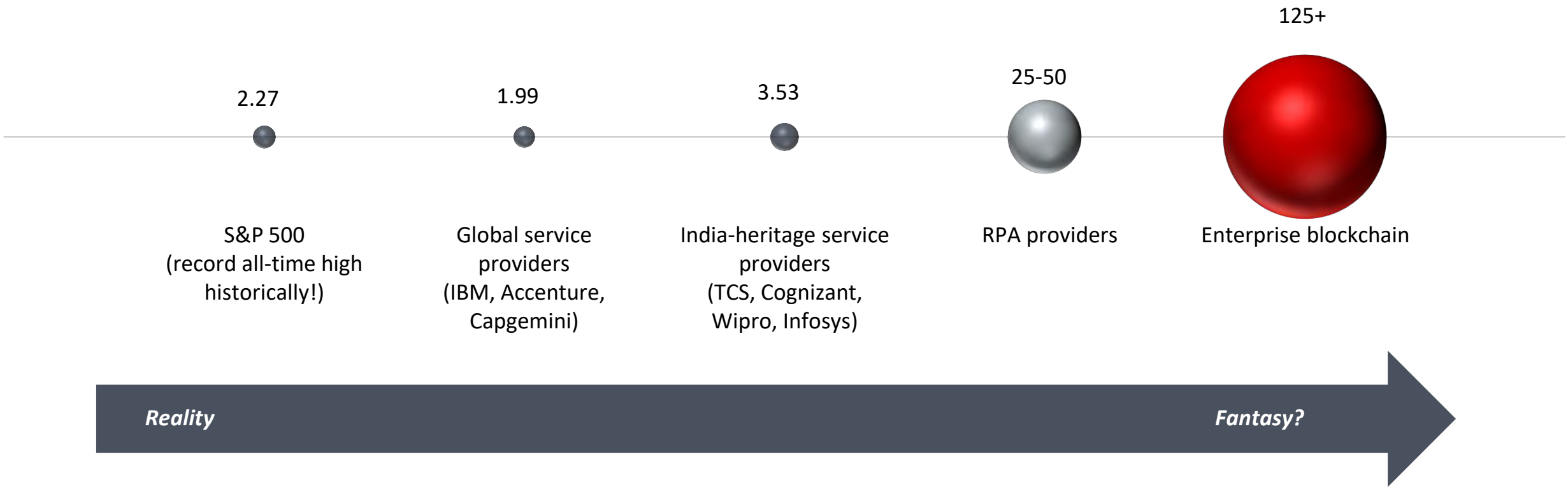
# Blockchain continues to be the one of the most hyped emerging technologies

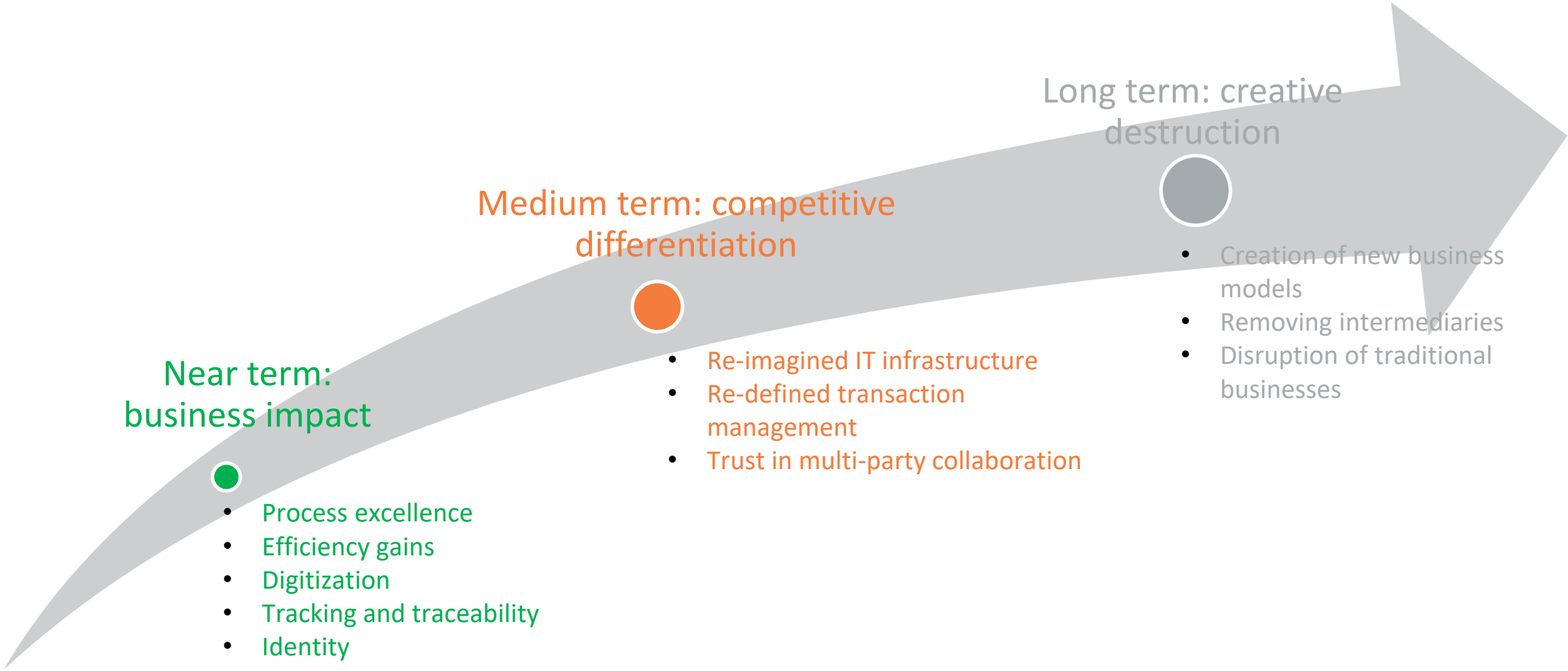
**Price-to-sales (PSR) ratios as we enter 2019**
(PSR = Market capitalization / revenues)




*Sources of information*

- *S&P 500 PSR: multipl.com*
- *Global and India Heritage Service Providers: Y Charts and financial reports*
- *RPA providers: HFS estimates*
- *Enterprise blockchain: Coinmarketcap.com and HFS estimates*

# Blockchain promises “creative destruction” through disintermediation, but that is a long-term vision





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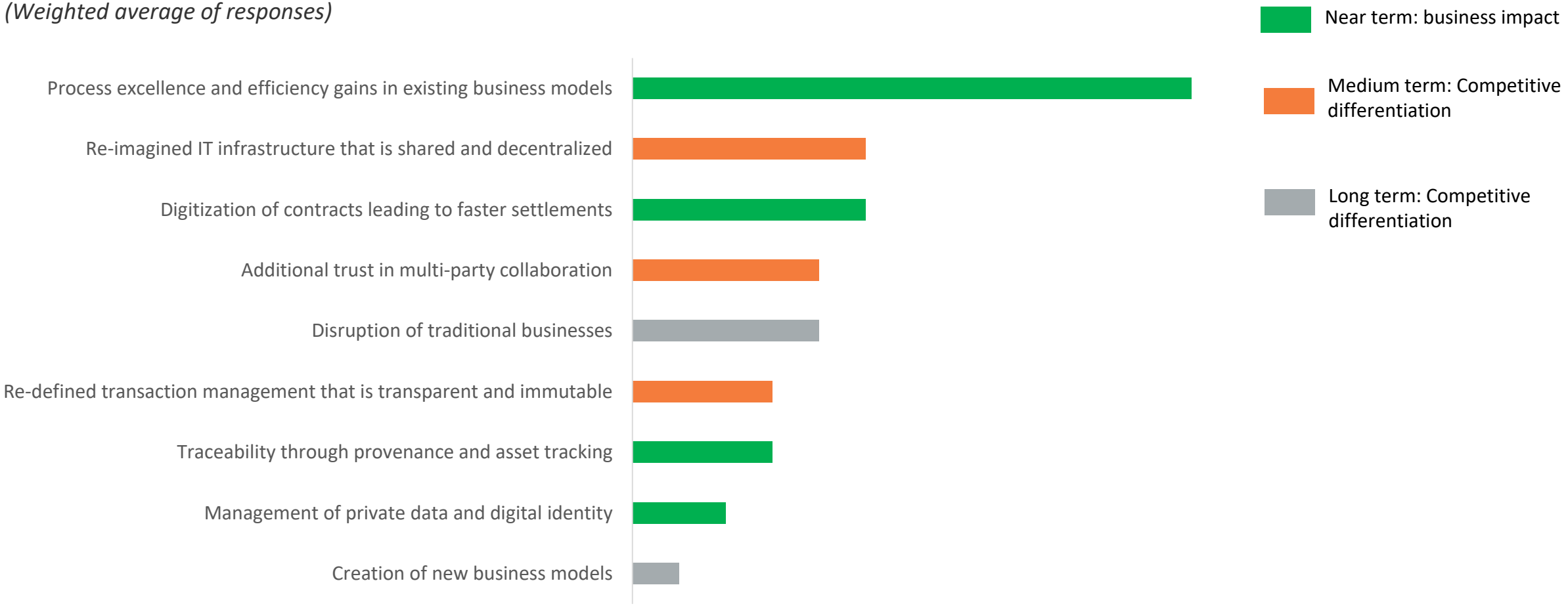
# Despite all the promises, real clients need real impact in the near term

**What benefits do you hope to achieve from the above woven blockchain solution?**
*(Weighted average of responses)*




*Based on ~20 interviews with real blockchain enterprise clients*

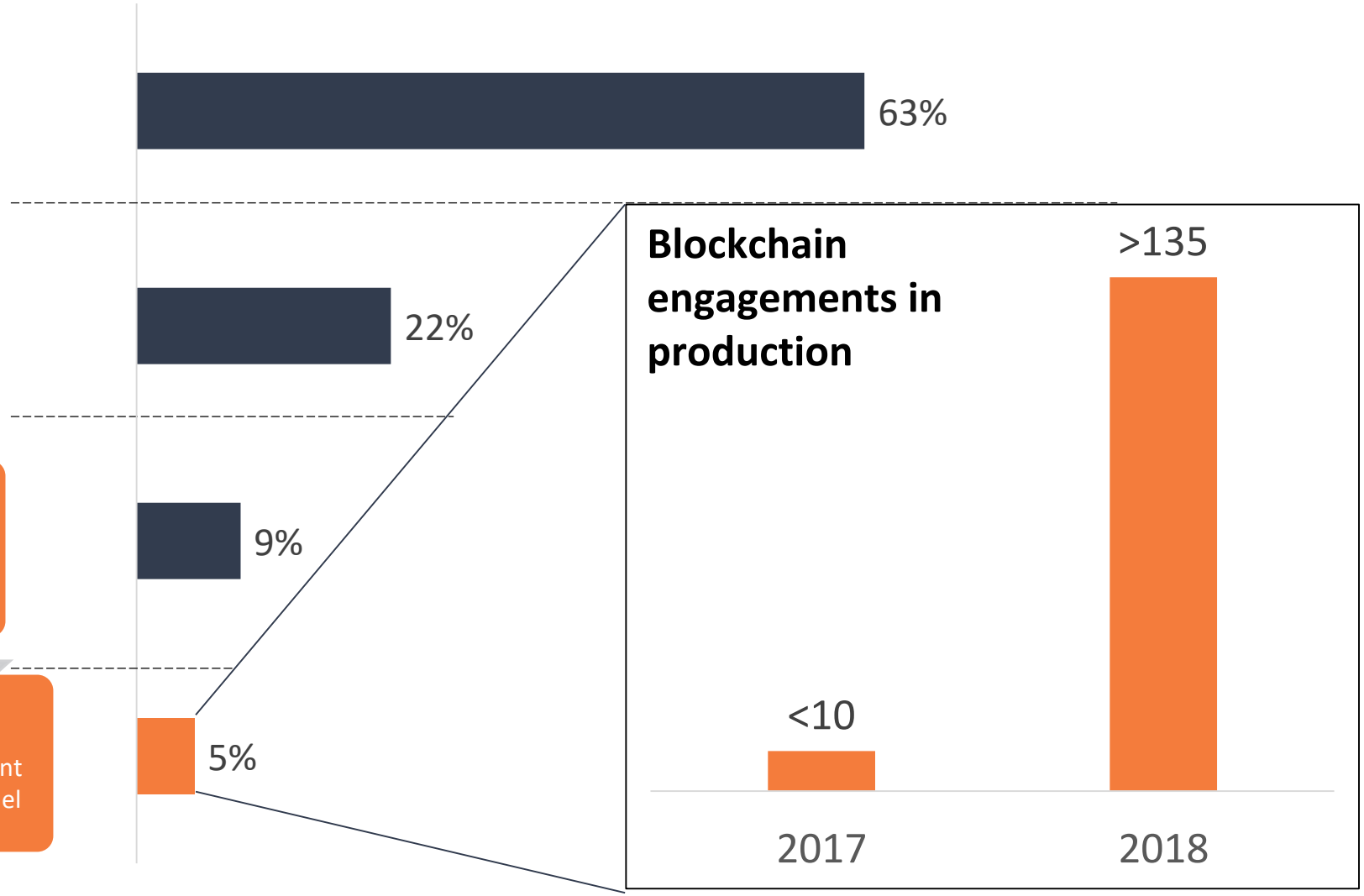
# Enterprise blockchain is becoming real

**1. Advisory**
Opportunity identification, business case development, platform selection, roadmap definition

**2. Prototype**
Proof of concept or proof of value

**3. Pilot**
Limited solution roll-out

**4. Production**
Solution implementation and management in live client environment (includes parallel runs to legacy solution)




*Sample: ~2,800 blockchain engagements across 17 service providers*



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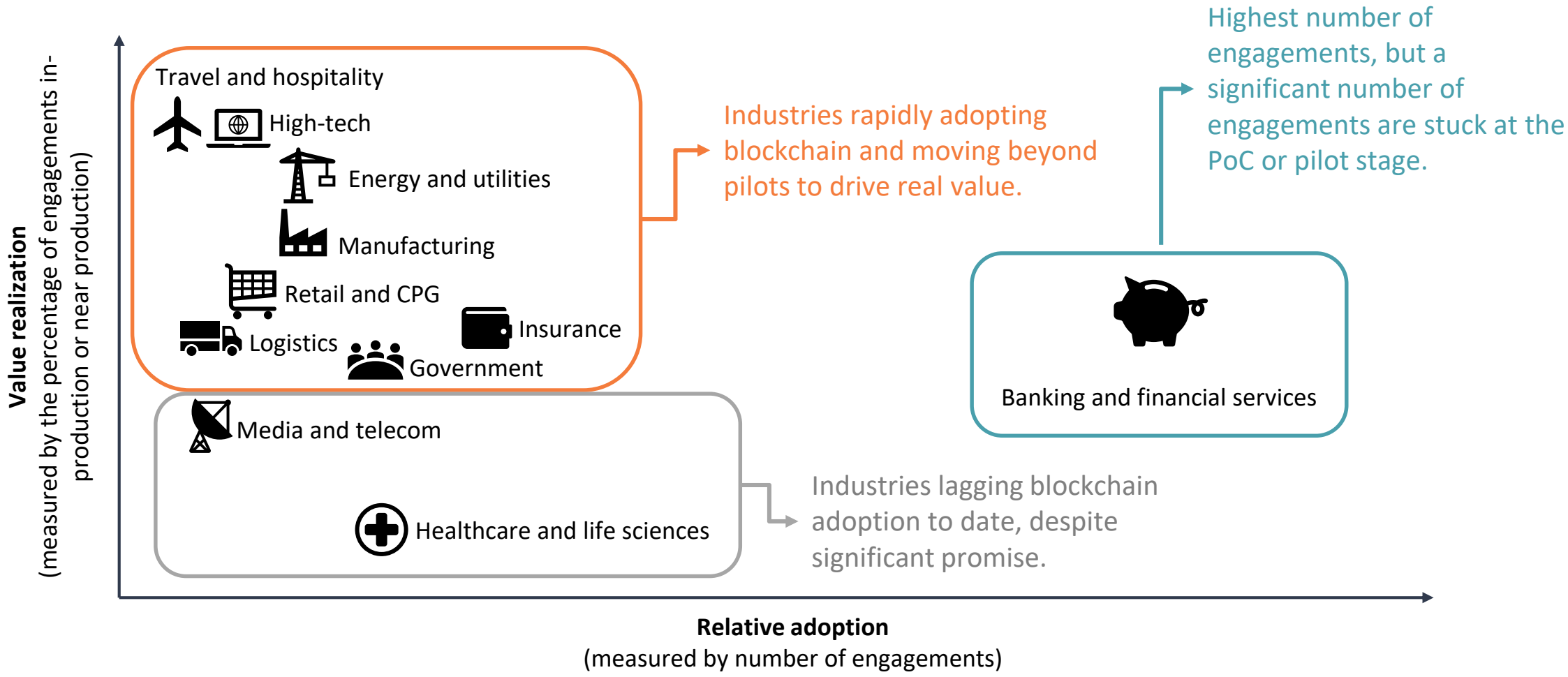
# Enterprise blockchain has broader implications than just financial services




*Sample: 550 blockchain engagements across 15 service providers*





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# Prominent blockchain use cases across industries

## Banking and financial services


## Manufacturing


## Government and public sector


## Energy and utilities


*Sample: 550 blockchain engagements across 15 service providers*





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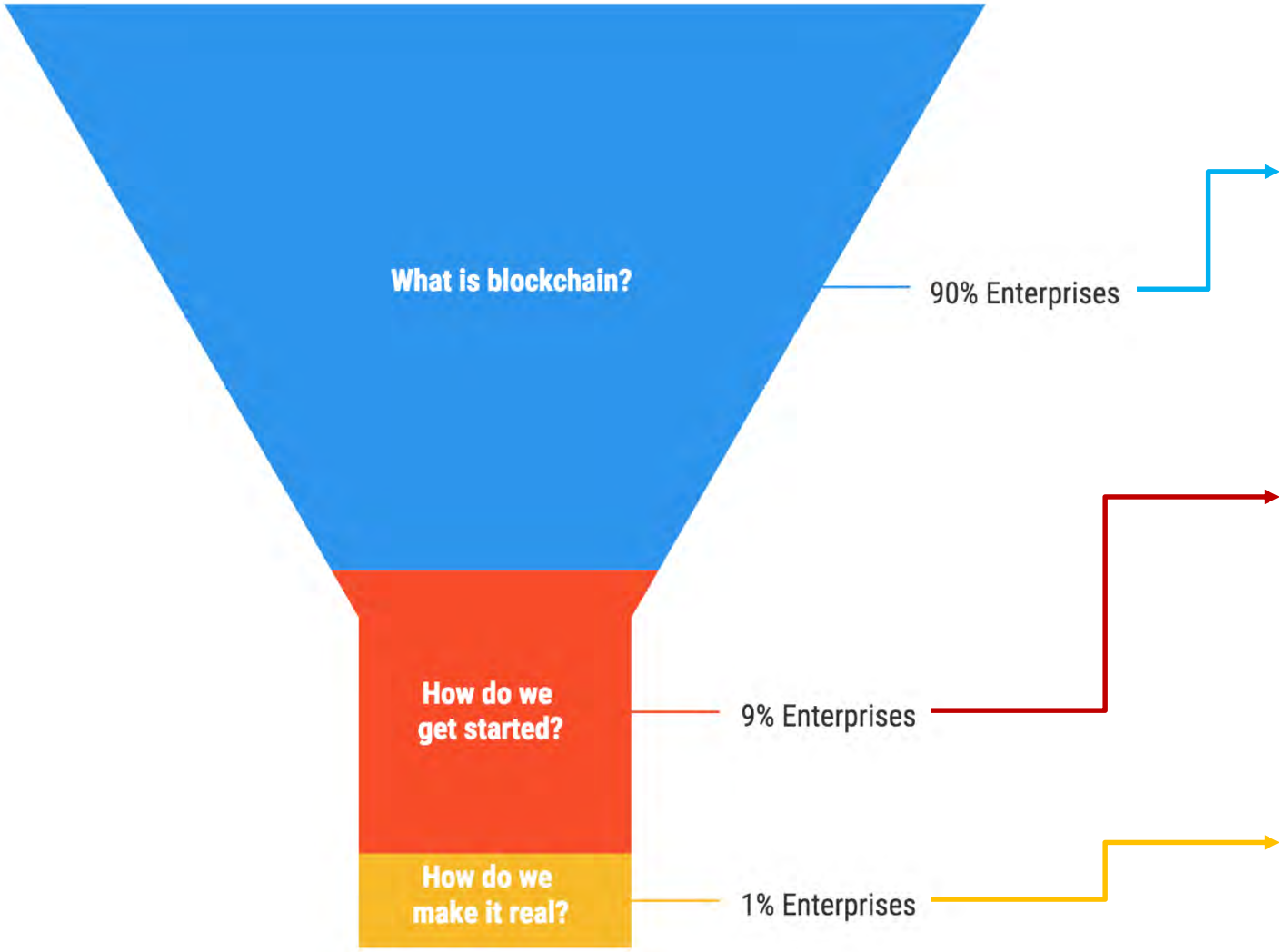
# The “90-9-1” enterprise blockchain challenge




- *Overall nascence of blockchain solutions*
- *Lack of understanding in distributed ledger technologies and use cases*
- *Lack of maturity of blockchain platforms*
- *Lack of success stories in the market*
- *Internal stakeholder buy-in around business model changes and threat of disruption*

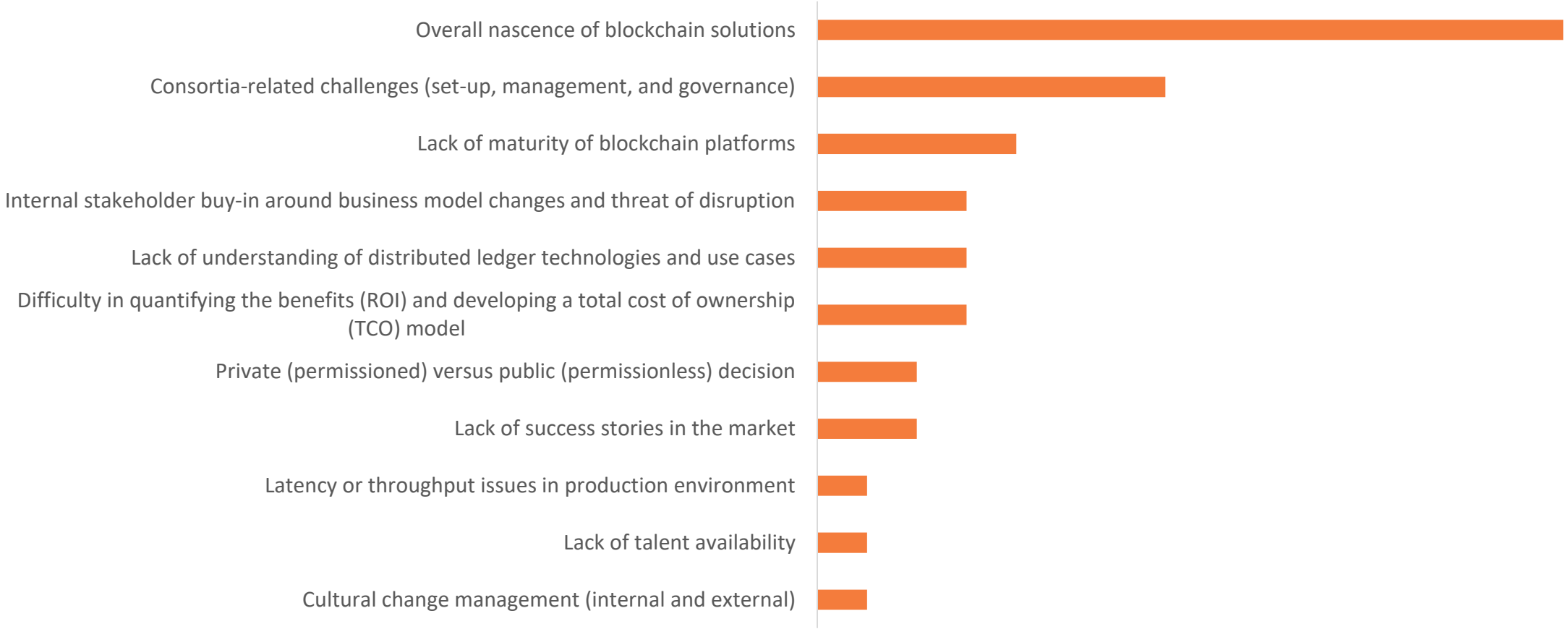
- *Consortia-related challenges (set-up, management, and governance)*
- *Difficulty in quantifying the benefits (ROI)*
- *Lack of clarity on technical architecture*
- *Permissioned versus permissionless decision*
- *Security and privacy concerns*

- *Uncertainty and lack of formal regulations*
- *Lack of talent availability*
- *Lack of market standards, inter-operability issues*
- *Integration issues with legacy*
- *Cultural change management (internal and external)*
- *Latency or throughput issues in production*
- *Service support for blockchain largely undefined*

*Refer to “The Blockchain Reality Check: Where Are We and What Can We Expect in 2018?” for more details*

# The blockchain market needs a lot more investment in education

What were the key challenges that you faced in adopting blockchain?
*(Weighted average of responses)*




*Based on ~20 interviews with real blockchain enterprise clients*

# HFS Top 10 enterprise blockchain service providers, 2018





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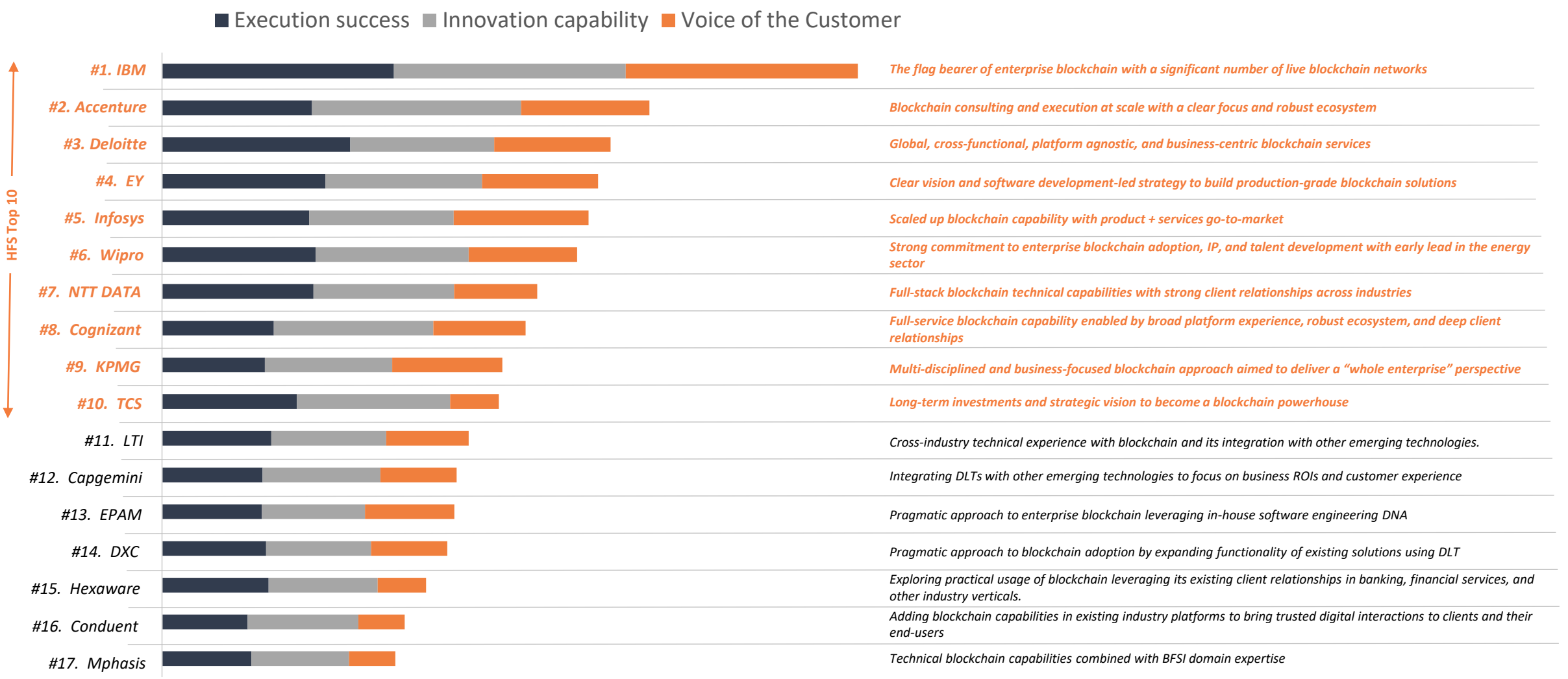
# HFS Top 10 enterprise blockchain service providers, 2018




*Sample: Based on detailed discussions with their leadership teams, inputs from their enterprise clients, and analysis of nearly 2,800 blockchain engagements across industries and across the globe*
*Source: HFS Research 2018*

# HFS top five enterprise blockchain service providers by individual assessment dimensions

TOP 10

| Rank | Ability to execute | | | | Innovation capability | | | Voice of the customer | | Overall ranking |
|---|---|---|---|---|---|---|---|---|---|---|
| | Scale and growth | Experience | Solution breadth and depth | Value chain coverage | Intellectual property | Ecosystem | Investments | Clients in production | Client feedback | |
| #1 | IBM | IBM | NTT DATA | IBM | IBM | Deloitte. | IBM | IBM | Infosys | IBM |
| #2 | Deloitte. | Deloitte. | IBM | NTT DATA | accenture | IBM | accenture | accenture | Deloitte. | accenture |
| #3 | EY | Infosys | wipro | wipro | Cognizant | accenture | EY | EY | IBM | Deloitte. |
| #4 | Infosys | accenture | EY | EY | TATA CONSULTANCY SERVICES | Cognizant | Deloitte. | Infosys | accenture | EY |
| #5 | wipro | TATA CONSULTANCY SERVICES | TATA CONSULTANCY SERVICES | DXC.technology | wipro | NTT DATA | Infosys | NTT DATA | KPMG | Infosys |

*Sample: Based on detailed discussions with their leadership teams, inputs from their enterprise clients, as well as analysis of nearly 2,800 blockchain engagements across industries and across the globe*
*Source: HFS Research 2018*

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# Enterprise blockchain service provider profiles





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# IBM: The flag bearer of enterprise blockchain with a significant number of live blockchain networks

TOP 10 HFS

| Dimension | |
|---|---|
| **HFS Top 10 position** | # 1 |
| **Ability to execute** | |
| Scale | # 1 |
| Experience | # 1 |
| Solution maturity | # 2 |
| Value chain coverage | # 1 |
| **Innovation capability** | |
| Intellectual property | # 1 |
| Ecosystem | # 2 |
| Investments | # 1 |
| **Voice of the customer** | |
| Clients in production | # 1 |
| Client feedback | # 3 |

## Strengths

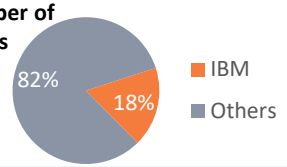
- **Early mover advantage with significant in-production client base.** IBM has nearly 70 "live" in-production blockchain clients, which we estimate represents over half of the overall market. This is a significant competitive advantage that will likely have a multiplier effect soon.
- **Full-stack blockchain capabilities**. IBM is a founding member of Hyperledger, and it launched the IBM Blockchain Platform for business workloads; it offers hosting and support solutions through the IBM Cloud and makes blockchain real for clients with an engagement model across exploration, piloting, production, and integration. IBM is using its Watson platform to pilot cognitive capabilities for blockchain. Its Watson IoT Platform enables deployment in IoT-based blockchain use cases.
- **Strong contributions to blockchain market development**. As one of the 17 founding members of Hyperledger, IBM contributed to the initial codebases of Hyperledger Fabric and Hyperledger Composer. It also added blockchain to the Academic Initiative, a program that provides students and educators with training resources to develop market-ready skills. Columbia University and IBM are also partnering to create the Center for Blockchain and Data Transparency.

## Development opportunities

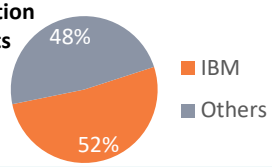
- **Multi-platform strategy with focus on Hyperledger.** IBM has experience across multiple platforms and has delivered some of its largest clients with other platform technology such as Axoni, but the market narrative is often too closely tied with Hyperledger. IBM gives multiple deployment options including the IBM Cloud, preferred cloud environments such as AWS, or locally using on-premise data centers.
- **Organizational diffusion.** As an early mover, clients will expect other parts of the large IBM organization to offer solutions and services that are integrated with blockchain. This is both an opportunity and a threat for IBM.
- **Pressures of being the market leader.** Given its early successes and market leadership, IBM will be the poster child for taking the blame and the kudos depending on the failures and successes of in-production networks. IBM will also need to walk a tightrope of balancing new growth and ensuring

## Market share *(HFS estimates based on ~2800 blockchain engagements incl. 135+ in-production solutions)*

**% total number of engagements**




**% in-production engagements**




**Clients in production (not exhaustive)**

- Walmart
- Unilever
- Nestle

## Prominent use cases

- Provenance tracking
- Compliance
- Finance and accounting
- Retail
- Smart contract
- Procurement and sourcing
- Trading

## Blockchain practice overview

- IBM has been involved with blockchain since 2015 and presently has 1600+ blockchain dedicated resources.
- Over 500+ client engagements including Maersk, SecureKey, Walmart, Unilever, and Nestle.
- IBM supports initiatives and legislation that will facilitate government, academia, and private sector collaboration in order to advance blockchain technology skills building.

## Blockchain platform and technology capability

- Founding and premier member of Hyperledger; contributor to code-base of Hyperledger Fabric and Composer.
- IBM blockchain platform expertise includes Ethereum, Hyperledger Fabric, R3 Corda, Ripple, Quorum, Multichain, BigChain DB, Bitcoin, Factom, Stellar, and Axoni.
- Launched the IBM Blockchain Platform for business workloads that offer hosting and support solutions through the IBM Cloud.
- Developed several tools and accelerators to aid blockchain adoption such as Hyperledger Composer (now part of Hyperledger project), Secure Document Store, Provenance Engine, Membership Services, and Trade Finance Accelerator.

## Blockchain ecosystem

- IBM is participating with over 180 industry players in the Hyperledger organization.
- The IBM Blockchain Ecosystem provides companies building on the IBM Blockchain Platform a range of opportunities. As part of this broad ecosystem, IBM continues to closely partner with GSIs and professional services firms on blockchain engagements and initiatives globally.
- IBM is working with many government entities such as FDA, CDC and OPM in the US, the Smart Dubai initiative, and digital identity in Canada.

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# About HFS





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# HFS Research author

**Saurabh Gupta**
Chief Strategy Officer | HFS Research

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 our coverage for horizon 3 change agents such as blockchain, business services (such as finance & accounting and supply chain) as well as overarching and cross-cutting themes under the OneOffice concept like digital change management

He is a recognized thought leader and passionate problem solver in the global services industry. With 15+ years 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. Before joining HFS, Saurabh led strategy for Genpact's CFO and transformation services, helped shape the Business Process Services (BPS) strategy for AbbVie, managed Everest Group's global BPS practice, and worked as a techno-functional consultant at Infosys.

Saurabh.Gupta@hfsresearch.com

# HFS Research author

**Mayank Madhur**
Knowledge Analyst| HFS Research

Mayank Madhur is a Knowledge Analyst at HFS Research, supporting different practice leads in area of Industry Research, IoT and Blockchain by working on secondary research, data analysis, PoV's and research writing.

Mayank has over 3.5 years of research, pre-sales and software development experience. Prior to HFS he was part of business strategy and pre sales in Altimetrik supporting vertical heads, sales and marketing team. Before it in his HCL Tech role, he worked in the delivery team of a large medical device client for R&D project.

He holds blockchain certification by IIT & IBM on "Blockchain Architecture Design and Use Cases". His other certification include certification on Google analytics, Scrum, Six Sigma etc. to name a few. Mayank holds  Master's in Business Administration from Birla Institute of Technology and Science College, Pilani (BITS, Pilani University) and a Bachelor of Engineering in Electrical and Electronics from Jawaharlal Nehru National College of Engineering (Visvesvaraya Technological University), Karnataka.

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# HFS Research: Defining future business operations

- The HFS mission is to provide visionary insight into major innovations impacting business operations, including: automation, artificial intelligence, blockchain, Internet of things, digital business models, and smart analytics.
- HFS defines and visualizes the future of business operations across key industries with its OneOffice™ Framework.
- HFS influences the strategies of enterprise customers, to help them develop OneOffice backbones to be competitive and to partner with capable services providers, technology suppliers, and third-party advisors.
- Read more about HFS and our initiatives on our website.


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