

Blockchain Enterprise Survey: Deployments, Benefits & Attitudes



Foreword

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Juniper Research Limited

Juniper Research is a European based provider of business intelligence. We specialise in providing high quality data and fully-researched analysis to manufacturers, financiers, developers and service/content providers across the communications sector.

Consultancy Services: Juniper is fully independent and able to provide unbiased and reliable assessments of markets, technologies and industry players. Our team is drawn from experienced senior managers with proven track records in each of their specialist fields.

Objectives, Methodology & Key Takeaways



Blockchain Enterprise Survey
Deployments, Benefits & Attitudes



Survey Introduction & Methodology



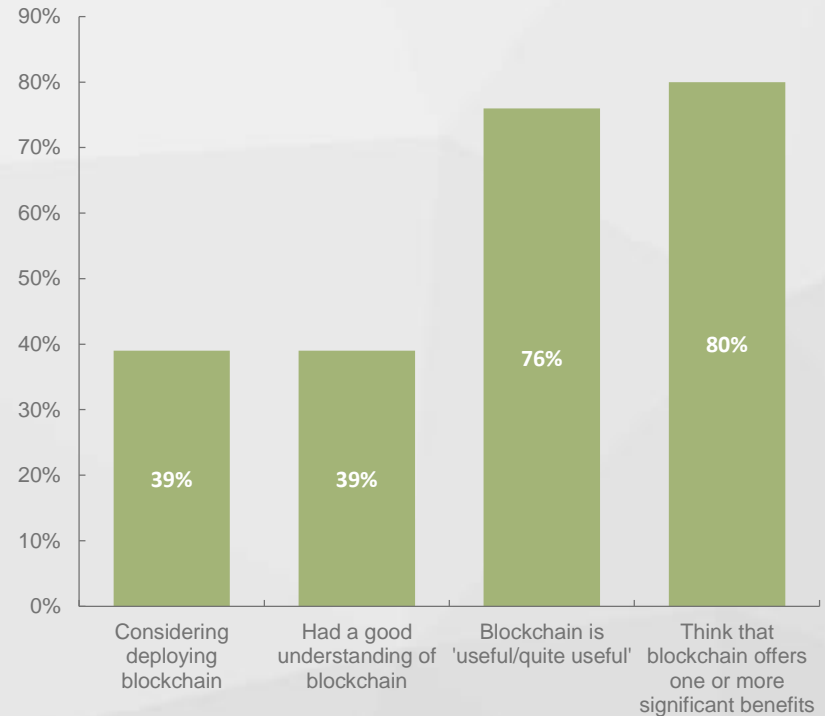
Survey Objectives

- The **Blockchain Enterprise Survey** aims to provide a greater understanding of current and planned enterprise deployment of blockchain solutions, including an assessment of the perceived key benefits and challenges arising from blockchain implementation. The Survey also seeks to gauge the level of enterprise investment in blockchain technology and discover which companies are regarded as having the strongest leadership credentials in the space.
- **Methodology**
- In June 2017, Juniper Research invited company founders, executives, managers and IT specialists to respond to an online survey on their respective companies plans for, and their own attitudes to, the implementation of blockchain technologies.
- Respondents were incentivised to respond with the offer of executive summaries of the Survey findings and the Deep Dive Strategy & Competition research document.
- We received 369 responses to the Survey.

Key Takeaways

- **Blockchain deployments are rapidly becoming mainstream.** Nearly 40% of respondents' companies are deploying blockchain technology, rising to 57% amongst companies with over 20,000 employees
- In part, this is due to **increased awareness and understanding of what blockchain entails**, particularly at Founder/CEO level.
 - a) While 76% of all respondents felt that blockchain could be 'useful' or 'quite useful', this rose to 82% amongst Founders/CEOs
 - b) 39% of all respondents stated that they had a good understanding of blockchain technology (47% amongst Founders/CEOs)

Respondent Top Level Perceptions of Blockchain



Sample: All Respondents (369)

Source: Juniper Research

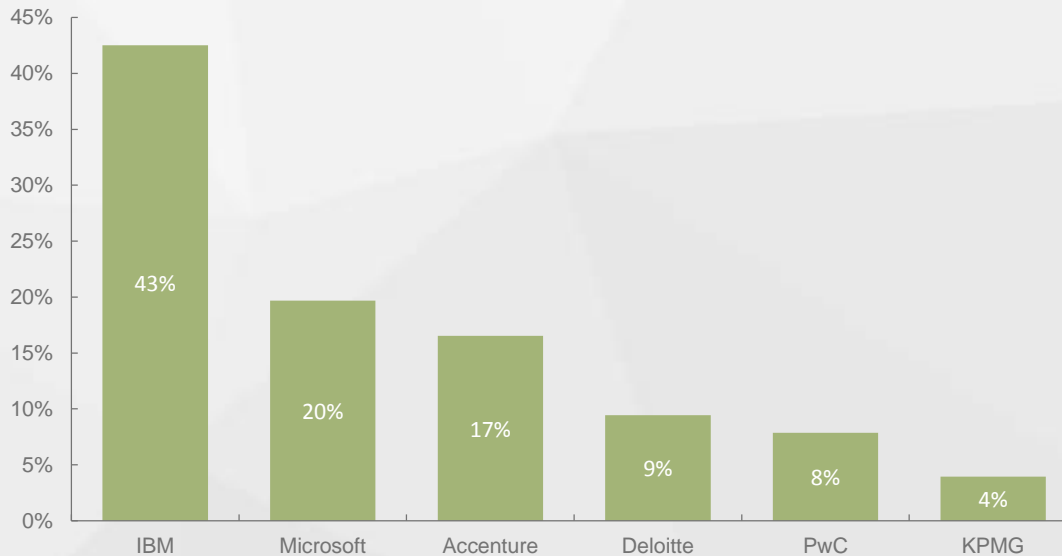
Key Takeaways



- **IBM is perceived to have the strongest leadership credentials amongst blockchain companies**, with 43% of respondents ranking it first amongst it's peers.
- Nearly 90% of all respondents with a good or little understanding of blockchain felt that **there are multiple significant benefits to be derived from deploying the technology**.
- **Companies implementing blockchain solutions are moving rapidly to full deployment**. Amongst companies who have reached the PoC (Proof of Concept) stage, two-thirds (66%) expected blockchain to be integrated into their systems by the end of 2018.

IBM Heads Blockchain Leadership Rankings

'IBM ranked first for leadership credentials amongst all industry verticals, regardless of company size'



■ Proportion of respondents either currently deploying or considering deploying Blockchain who ranked this company #1 for Blockchain leadership credentials (%)

Sample: Those deploying or considering deploying blockchain (126)

Source: Juniper Research

Key Takeaways:

- IBM was ranked first by 43% of all respondents, including 58% of telcos, 29% of banks, 53% of large companies and 40% of companies which had already invested in blockchain.

Analyst Comment

- IBM has established itself as the leading provider of blockchain technology in the world.
- Since January 2016, it has announced more than 30 clients for blockchain solutions, across an array of industry verticals.
- IBM Blockchain was the first commercial deployment of Hyperledger Fabric v1.0 and allows clients to create a skeleton application User Interface to expedite application development.

Blockchain Awareness, Deployment Status & Perceived Benefits

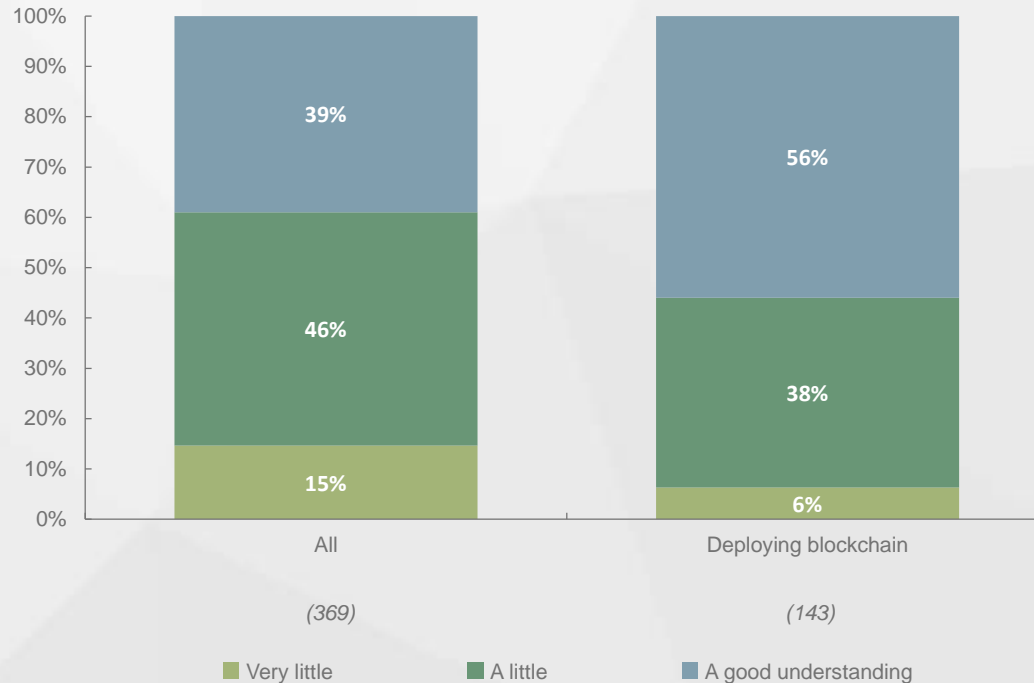


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The Awareness Barrier has Been Breached

'Nearly 4 in 10 respondents stated that they had a good understanding of blockchain'



Sample: All Respondents (369)

Source: Juniper Research

Key Takeaways:

- Awareness levels rose to 56% amongst those considering, or actively, deploying blockchain.
- Awareness is significantly higher amongst respondents from the largest companies (over 20,000 employees).

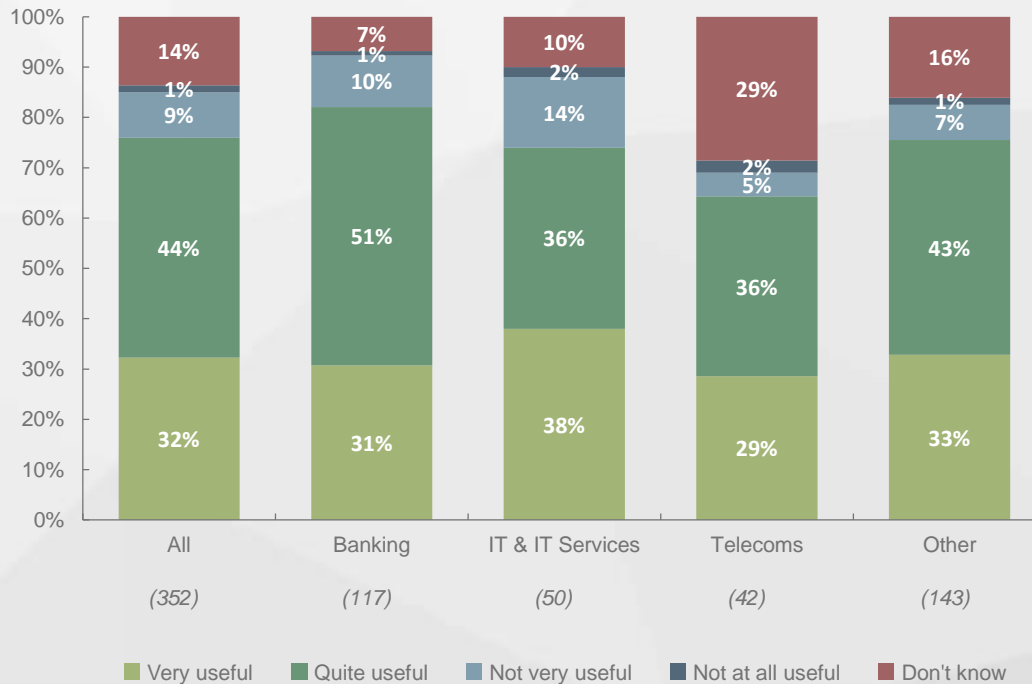
Analyst Comment

- The increasingly high levels of awareness significantly reduce the scale of the initial challenge facing platform and technology providers.
- Where previously discussions with technology providers might have begun with explaining the differences between Bitcoin and blockchain, they can now be pitched at, for example, the benefits of a particular blockchain.



How Useful Will Blockchain be for Me?

'More than three-quarters of respondents felt that blockchain would be very or quite useful'



Sample: Those who do not consider blockchain irrelevant to their business (352)

Source: Juniper Research

Key Takeaways:

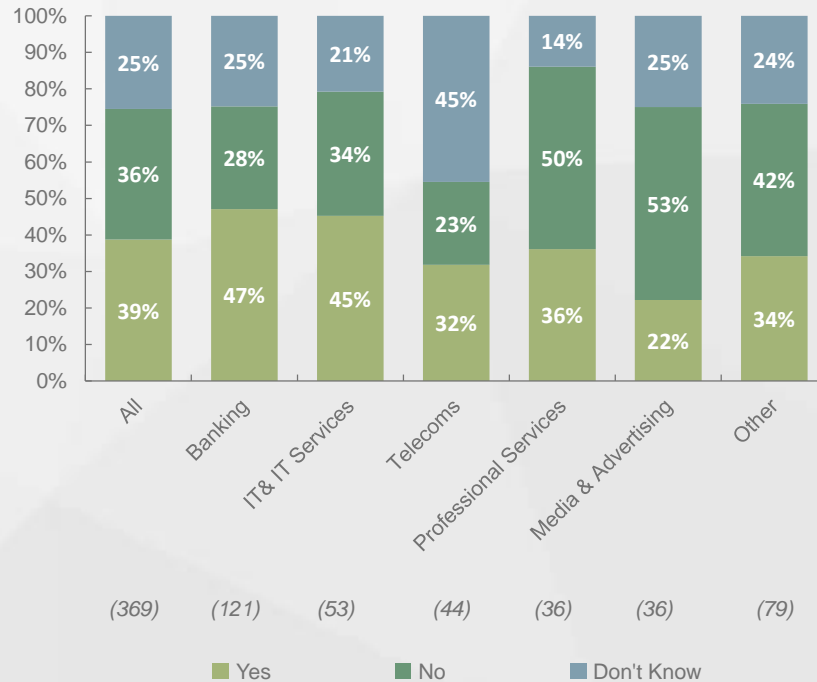
- There was a significantly higher level of uncertainty about the relative merits of blockchain amongst Telecoms respondents than in other verticals.
- Similarly, uncertainty levels were markedly higher amongst managers (21%) and analysts (17%) than founders and executives.

Analyst Comment

- Those who will be charged with the implementation and integration of blockchain technology have yet to be fully convinced of its benefits.
- However, the fact that over 60% of respondents in every vertical surveyed felt that blockchain would be useful for their industry suggests a wide range of use cases.

Who is Deploying Blockchain Technology?

'39% of all respondents indicated their companies are deploying blockchain technology'



Sample: All respondents (369)

Source: Juniper Research

Key Takeaways:

- Nearly 40% of respondents' companies are deploying blockchain technology, rising to 57% amongst companies with over 20,000 employees.
- Deployment rates are highest amongst banking and IT companies.

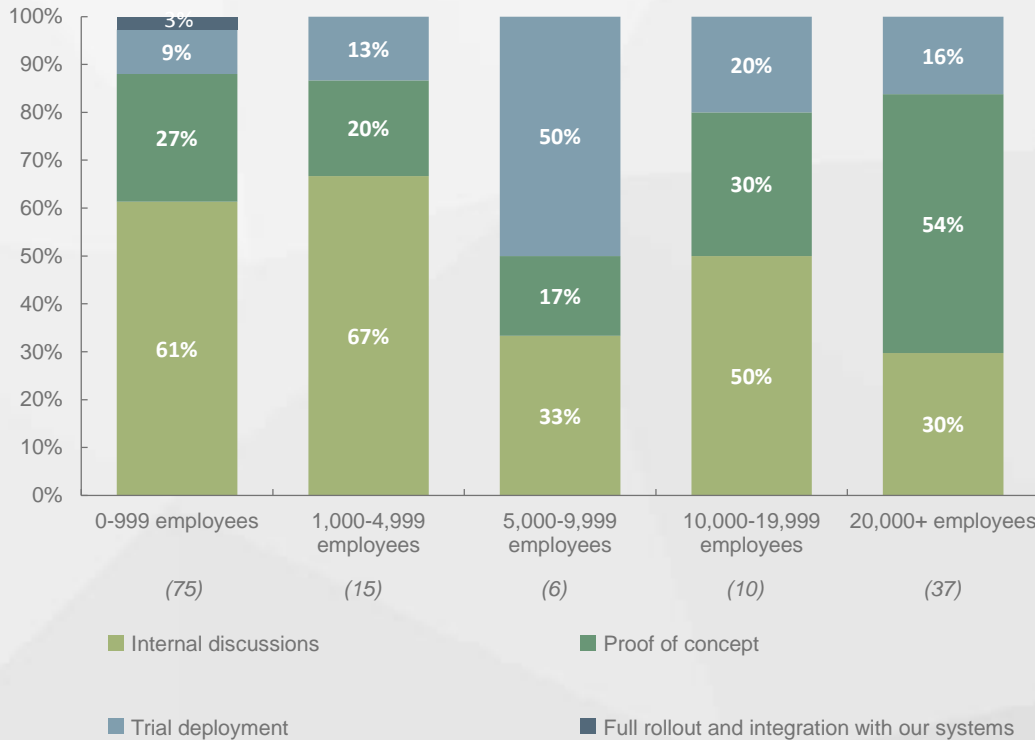
Analyst Comment

- Very high level of 'don't knows' in telecoms companies suggests uncertainty as to optimal use cases in this vertical.
- While some use cases identified in the media/advertising space, these are less well defined than the early adopter verticals, hence also a relatively high proportion in media/advertising who consider blockchain 'not very/not at all useful' for their business.

Largest Enterprises Accelerating Deployments



'Nearly half the companies considering deploying blockchain have moved past internal discussions'



Key Takeaways:

- Amongst all companies deploying blockchain, most (51%) are still at the internal discussion stage.
- However, amongst the largest companies deploying blockchain, more than half (54%) had reached the PoC stage, with a further 16% at trial deployment.

Analyst Comment

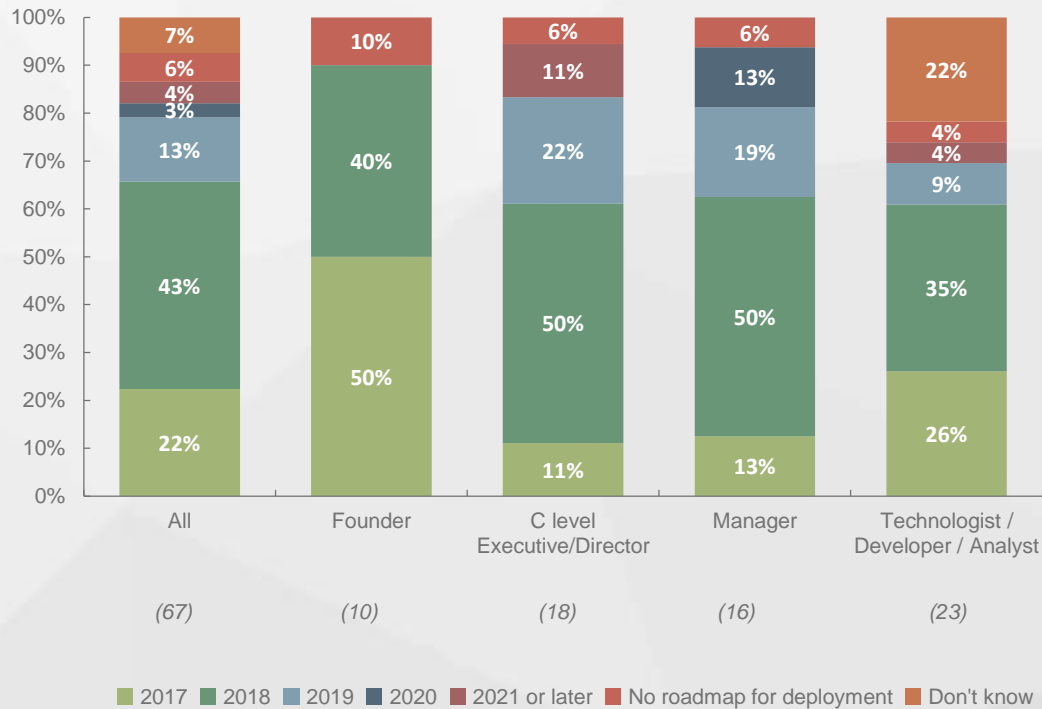
- Many large enterprises have moved swiftly to PoC stage and beyond, suggesting that they have already been convinced that blockchain can deliver tangible benefits.

Sample: Those considering or actively deploying blockchain (143)

Source: Juniper Research

When Will Blockchains be Deployed?

‘Two-thirds of companies deploying blockchain anticipate completing integration by 2018’



Base: Those deploying who have a proof of concept or trial deployment (67)

Source: Juniper Research

Key Takeaways:

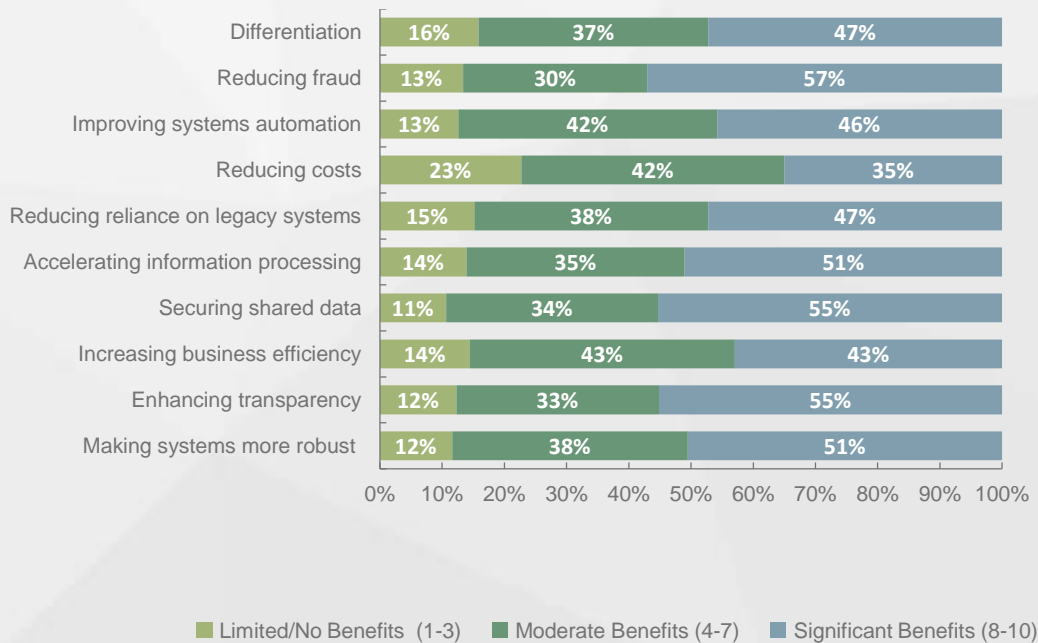
- Amongst companies who have reached PoC stage, two-thirds (66%) expected blockchain to be integrated into their systems by the end of 2018.
- Integration is taking progressively longer as companies get larger. Amongst smaller companies (0-999 employees) that had reached the PoC stage, 81% expected integration by 2018, versus 57% of the largest (over 20,000 employees).

Analyst Comment

- It is possible that some respondents are being overly ambitious on deployment schedules; technologists and analysts were significantly less willing to commit to completion dates (22%) than managers and CEOs.

What Benefits will Blockchain Bring?

'Fraud reduction, data security and increased transparency perceived as key benefits'



Sample: Those who have a little/a good understanding of blockchain (315)

Source: Juniper Research

Key Takeaways:

- Nearly 90% of all respondents felt that there were multiple significant benefits to be derived from blockchain deployments.
- However, blockchain is generally thought to be less likely to deliver cost reductions.

Analyst Comment

- While there is a degree of commonality around overall scores, verticals have disparate rationales behind blockchain deployments.
- Hence, 89% of healthcare respondents felt that blockchain would deliver significant benefits in securing shared data, while 78% believed there would be similar benefits in terms of making systems more robust against hacking.

Blockchain Barriers, Challenges & Regulatory Requirements



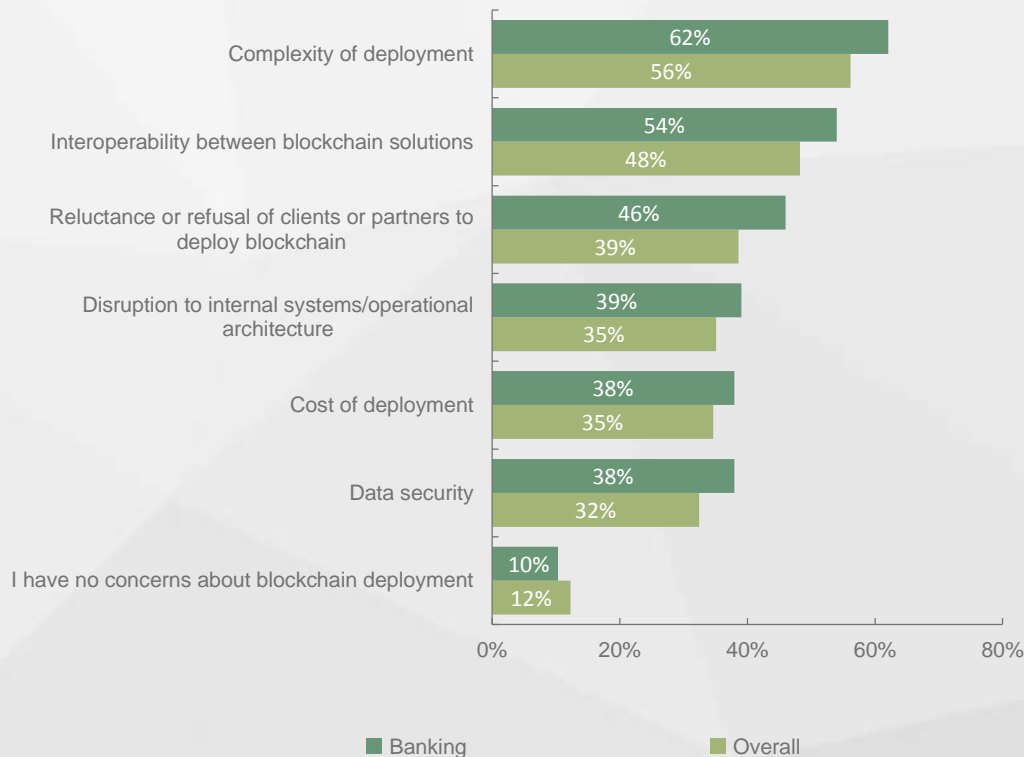
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What are Your Concerns about Blockchain Deployment? (1)



'Banks raise complexity, interoperability concerns'



Key Takeaways:

- Banks were notably more concerned about the complexity of deployment (62%), interoperability of solutions (54%) and security (38%) than other industries.
- Smaller companies were more concerned about the reluctance of their partners to deploy blockchain (46%) than other companies.

Analyst Comment

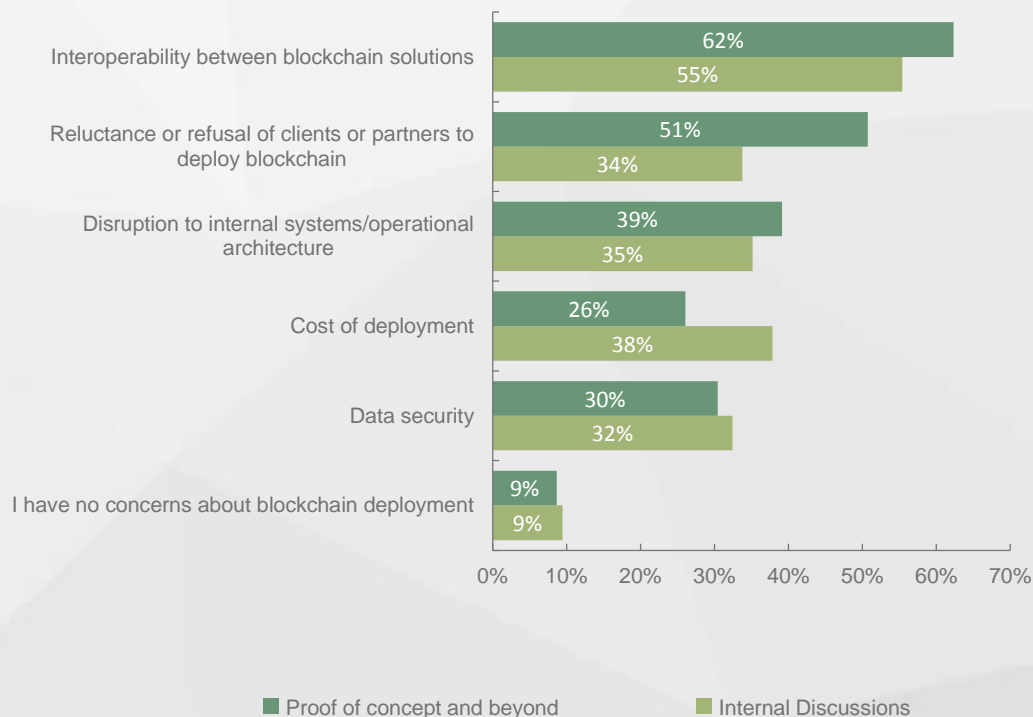
- Ledger interoperability will be essential if blockchain is to be widely used for financial settlement.
- Smaller companies dependent on a small number of key clients might be exposed should those clients not adopt interoperable solutions.

Sample: Those deploying, considering deploying or who don't know if they're deploying blockchain (237)

Source: Juniper Research

What are Your Concerns about Blockchain Deployment? (2)

'Interoperability fears rise as enterprises move to full deployment'



Sample: Those considering or actively deploying blockchain (143)

Source: Juniper Research

Key Takeaways:

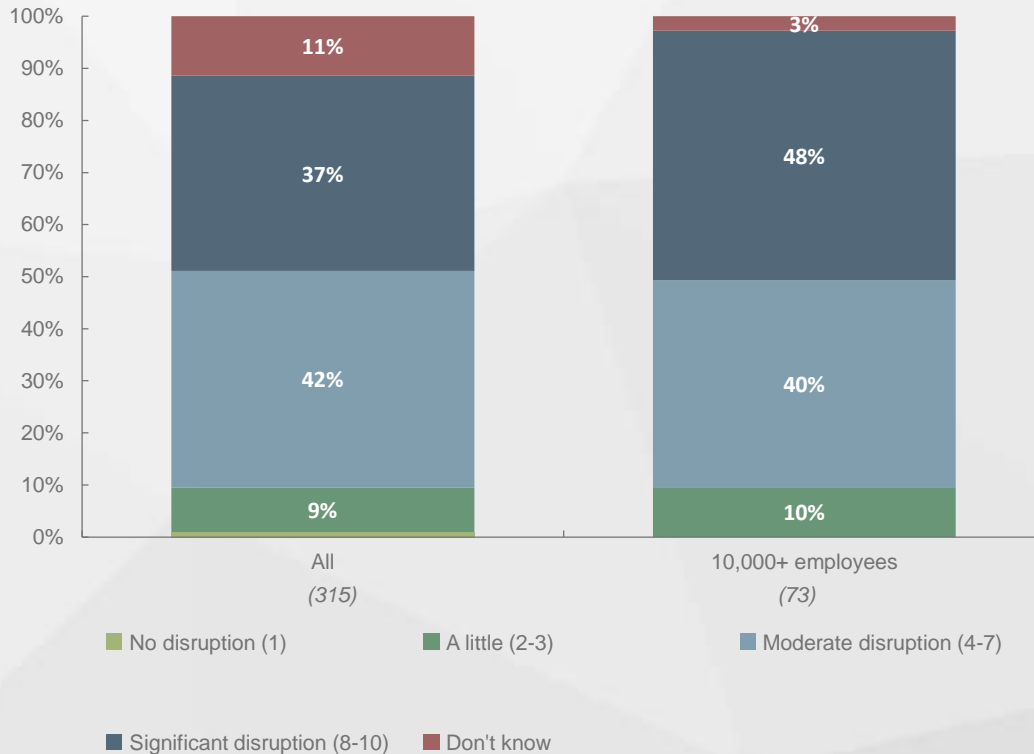
- The volume of concerns are significantly higher amongst companies committing to blockchain.
- Issues such as interoperability levels progressively increase as companies proceed to full deployment, while concerns rise sharply regarding client refusal to embrace blockchain.

Analyst Comment

- The findings suggest that companies may have underestimated the scale of the blockchain challenge, particularly around interoperability.
- Conversely, cost becomes less of an issue as deployment moves past internal discussions, suggesting that initial fears may have been overstated.

How Much Internal Disruption will Blockchain Cause?

'Around 37% of respondents felt that it blockchain deployments would cause significant internal disruption'



Sample: Those who have a little/a good understanding of blockchain (315)

Source: Juniper Research

Key Takeaways:

- Proportions were similar amongst both those who are and are not deploying the technology.
- Employees at larger companies (over 10,000 employees) feel it would cause significantly more disruption to their internal systems than other respondents.

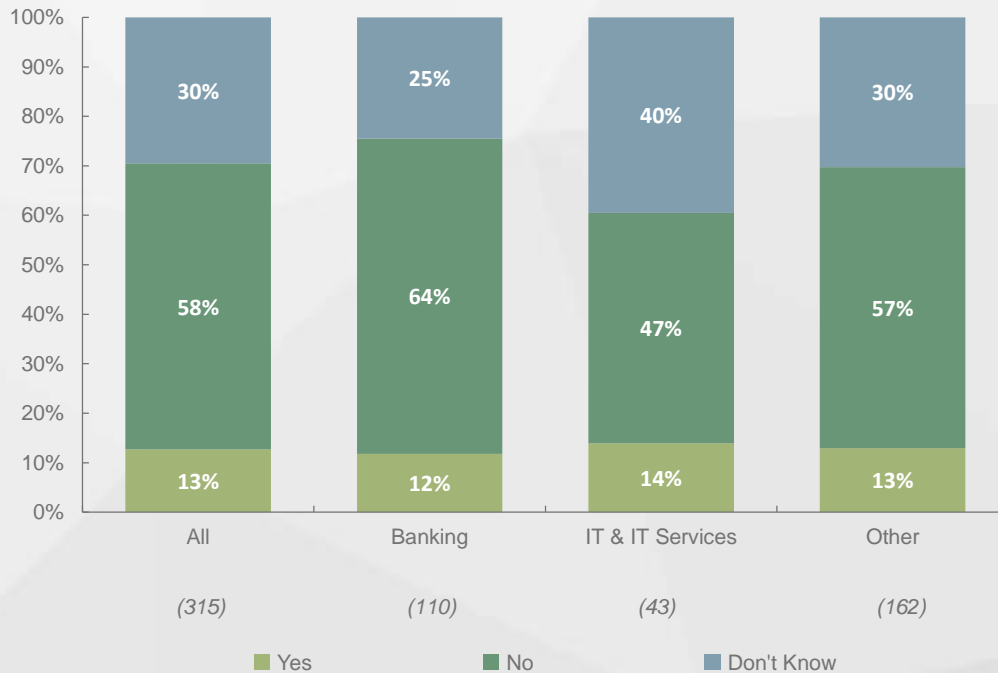
Analyst Comment

- All verticals recognise that the implementation of the technology would result in a degree of disruption; hence the need for rigorous analysis to gauge whether the medium term benefits are likely to outweigh any disruptive impacts.



Does Blockchain Require Additional Regulation?

'A majority of respondents (58%) felt that there was insufficient regulation in place'



Sample: Those who have a little/a good understanding of blockchain (315)

Source: Juniper Research

Key Takeaways:

- When 'don't knows' are excluded, this proportion rises to 82%.
- Respondents cited arenas including KYC/AML, privacy and data security where legislation would need to be created or updated

Analyst Comment

- Integrating ledger technology into existing regulatory regimes as SEC and CFTC have sought to do, may be a challenge.
- Hence, most verticals/use cases will require new legislation..
- Some bodies (eg UK's FCA) have introduced sandbox frameworks to test innovation and identify potential weaknesses in legislation arising from tests.

Juniper Leaderboard and Competitive Landscape

Introduction

Introduction

This section details a number of vendors active in the blockchain technology space. We have profiled 12 such companies here; these have been analysed and placed in our Juniper Leaderboard.

It is worth pointing out that the nature of the companies profiled in the Juniper Leaderboard in this sector has shifted markedly since the first iteration of the Leaderboard in January 2015. At that time, the main players in the space were primarily cryptocurrency exchanges. In its second iteration (July 2016), the players covered had become more diverse. While some were direct competitors in that they offered exchanges, wallets and, in some cases, Bitcoin mining equipment and services, others used blockchain technology for a much more diverse range of products and services.

In this edition, as market attention has focused far more on blockchain applications, so the Leaderboard now covers players that design and develop blockchain platforms and technologies. Indeed, the window of opportunity for start-ups to achieve dominance has significantly diminished, as the larger technology and consultancy companies seek to develop their own offerings.

Vendor Analysis - Vendor Assessment Criteria

Our approach in this edition of the blockchain research is to use a standard template to summarise vendor capability. This template concludes with our views of the key strengths and strategic development opportunities for each vendor. In this section we provide our view of vendor positioning using our Juniper Leaderboard analysis.

This analysis, which applies quantitative scoring to qualitative information, enables us to assess each vendor's capability and capacity as well as its product and position in the blockchain environment. The resulting matrix exhibits our view of relative vendor positioning. We have assessed each vendor's capabilities against the criteria in following table.

Vendor Capability Assessment



Table Blockchain Vendor Capability Assessment Factors

Source: Juniper Research

Category	Factor	Description
Capability & Capacity	Scale of R&D Activity	The scale of a company's R&D activities in the blockchain field, as measured by the number of designers and developers working in the space.
	Customers & Deployments	Based on the number and scale of reported trials and commercial deployments, weighted in favour of deployments beyond the PoC stage.
	Distribution/Partnerships	The extent to which vendors have marketing or distribution channel partnerships in place.
	Marketing	The strength of the vendor's brand and marketing capability of its blockchain as perceived by a review of the company's website and an analysis of its relative popularity, together with a comparative analysis of brand media coverage.
	Experience in Sector	Based on the length of time a company and its key developers have been engaged in blockchain-related activities.
Product & Position	Blockchain Product Portfolio	Breadth and depth of a company's product range in its core area, including range of verticals addressed by solution.
	Technology Assessment	Has the company developed its own blockchain network technology? Does it offer test networks? What volume of transactions does the technology permit?
	Technology Partnerships	The extent to which vendors have agreed deals with key technology partners, consortia and alliances, enabling them to gain ready access to third party solutions and/or leverage partner technology capabilities.
	Creativity & Innovation	How is the player differentiating itself from the field? Has it innovated in its utilisation of blockchain technology?
	Future Business Prospects	An analysis of the longer term prospects for the company based on its likely impact upon its target verticals.

Assessment & Market Positioning



4.2.2 Vendor Analysis: Capability Assessment & Market Positioning

Table 4.2: Juniper Blockchain Leaderboard

	Capability & Capacity					Product & Positioning				
	Scale of R&D Activity	Customers & Deployments	Distribution/ Partnerships	Marketing	Experience in Sector	Blockchain Portfolio	Technology Assessment	Technology Partnerships	Creativity & Innovation	Future Business Prospects
BlockCypher	●	●	●	●	●	●	●	●	●	●
Chain	●	●	●	●	●	●	●	●	●	●
ChromaWay	●	●	●	●	●	●	●	●	●	●
Circle	●	●	●	●	●	●	●	●	●	●
Credits	●	●	●	●	●	●	●	●	●	●
Deloitte	●	●	●	●	●	●	●	●	●	●
Digital Asset	●	●	●	●	●	●	●	●	●	●
EdgeVerve Systems	●	●	●	●	●	●	●	●	●	●
IBM	●	●	●	●	●	●	●	●	●	●
Intel	●	●	●	●	●	●	●	●	●	●
Microsoft	●	●	●	●	●	●	●	●	●	●
Ripple	●	●	●	●	●	●	●	●	●	●
Symbiont	●	●	●	●	●	●	●	●	●	●



Source: Juniper Research

IBM Profile



1.1.1 IBM



i. Corporate

IBM is a technology and consultation company founded in 1911, which manufactures hardware and software for the technology sector, including cloud computing and nanotechnology. IBM and its wholly-owned subsidiaries had around 380,000 employees at the end of 2016.

Table 1.1: IBM Financial Snapshot 2014-2016 (\$m)

	2014	2015	2016
Revenue	\$92,793	\$81,747	\$79,919
Net Income	\$12,022	\$13,190	\$11,872

Source: IBM

Virginia Rometty is the Chairman, President and CEO, whilst Martin J Schroeter is SVP and CFO. Jerry Cuomo, is VP of Blockchain Technology.

IBM's blockchain activities are driven via various segments and subsidiaries of the company:

- Its GBS (Global Business Services) division, which provides clients with consulting, application management services and global process services, is backed by its globally integrated delivery network and integration with IBM solutions and services including cloud, blockchain and technology services.

- Its R&D operations are currently conducting work in the blockchain field.
- IBM Z systems (an enterprise platform for integrating data, transactions and insight; part of its Systems Hardware division) is driving new workloads in blockchain.

ii. Geographical Spread

IBM has its headquarters in the US, whilst IBM Research has laboratories located in Africa; it has further offices in every continent.

iii. Key Clients & Strategic Partnerships

IBM was a founder member of Hyperledger in late 2015, with the aim of developing tailored blockchain solutions for business.

Since the beginning of 2016, IBM has announced more than 30 clients with which it is working to deploy blockchain solutions, across an array of industry verticals. These include:

- London Stock Exchange and Japanese Exchange Group (capital markets infrastructure, February 2016)
- BNY Mellon (securities, April 2016)
- Everledger (diamond tracking, July 2016)
- UBS (trade finance, September 2016)
- China UnionPay (loyalty points programme, September 2016)
- SBI Securities (bond trading, October 2016)

IBM Profile

i. High Level View of Blockchain Offerings

In February 2016, IBM unveiled BaaS for Developers, donating nearly 44,000 lines of code to the developer framework, Hyperledger.

Indeed, IBM's blockchain solution (IBM Blockchain Platform) was the first commercial deployment of Hyperledger Fabric v1.0 when it was introduced in March 2017. The solution allows clients to build blockchains using open source Fabric Composer and to create a skeleton application user interface to expedite application development

IBM now offers a range of blockchain services on the IBM Blockchain Platform. IBM claims that its solutions allow chains to be built 'in hours instead of weeks' and offers a managed blockchain option. It also states that the solution offers the 'highest transaction rates on a performance-optimised stack across compute, software and high-speed network'. The solution features a new consensus algorithm developed by IBM Research tailored to specific blockchain use cases.

IBM also offers IBM Garages in London, New York, Singapore and Tokyo: these enable clients/developers to determine whether blockchain is the optimal solution for their companies, followed by interactive and design workshops.

Watson is IBM's 'cognitive computing' system, which leverages natural language processing and machine learning algorithms to ingest and process data with a view to making predictions and inferences. Using the Watson IoT Platform, IBM is also developing means through which information from devices such as RFID-based locations, barcode-scan events, or device-reported data can be used with its Blockchain

IBM has also launched the IBM Blockchain Founder Accelerator Program to help 8 enterprises get blockchain networks into production in 2017. The Accelerator is the first program available that provides expertise and support across the technology, legal and business considerations of establishing new blockchain networks. This program provides participants deeper access to IBM and its blockchain client partners blockchain expertise, in addition to IBM's blockchain security for regulatory compliance along with performance.

