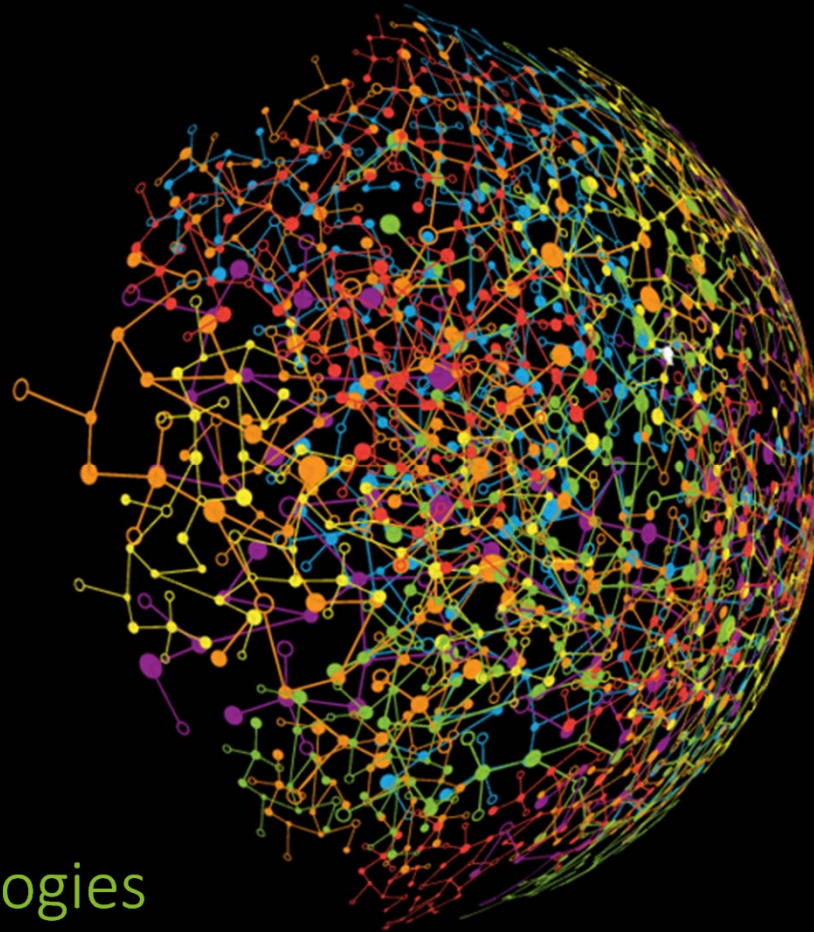


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Auditing New Technologies

Amy Steele, Audit & Assurance Partner, Deloitte & Touche LLP

Blockchain & Digital Assets

Blockchain & Digital Asset Trends

Deloitte's 2020 Global Blockchain Survey: From promise to reality



Research vehicle to gain greater insights into the overall attitudes and investments in blockchain as a technology.

The survey polled a sample of 1,488 senior executives and practitioners in 14 countries.

100 respondents who are specifically and directly engaged in blockchain technology development projects and have received a minimum of \$3 million of venture capital funding in the past year.

Key Survey Findings

39%	have already incorporated blockchain into production (+16 pts since 2019); 41% of respondents from companies with greater than US\$100 million
55%	say blockchain is a top five strategic priority (+12 pts since 2018)
82%	are hiring staff with blockchain expertise or plan to do so within the next 12 months (+9 pts since 2019)
83%	say their company will lose competitive advantage if they don't adopt blockchain (+15 pts since 2018)
89%	believe that digital assets will be very of somewhat important to their industries in the next three years
83%	believe digital assets will serve as a strong alternative to, or outright replacement for, fiat currency in the next five to 10 years
70%	call the pace of regulatory change as "very" or "somewhat" fast

Linda Pawczuk et al., Deloitte 2020 Global Blockchain Survey, Deloitte Insights, June 2020, <https://www2.deloitte.com/us/en/insights/topics/understanding-blockchain-potential/global-blockchain-survey.html>

Blockchain & Digital Asset Trends

Deloitte's 2020 Global Blockchain Survey: Six issue-specific messages



Digital assets find their footing

Digital assets represent a significant part of blockchain's enduring sustainability. They can make it easier to view and certify an asset's historical provenance and allow for otherwise indivisible physical assets to become divisible and more easily traded on secondary markets.

- 83% of respondents believe digital assets will serve as a strong alternative to, or outright replacement for, fiat currency in the next five to 10 years.



Blockchain consortia focus on how to govern

Today's conversations revolve more around how consortia are run, how decisions are made, and how profits are shared across the membership. We found that organizations are—and for good reason—placing an increasing emphasis on performing due diligence and addressing key governance-related concerns.

- 41% of respondents believe an inability to create fair and balanced governance rules represents the leading challenge to joining a consortium.

Blockchain & Digital Asset Trends

Deloitte's 2020 Global Blockchain Survey: Six issue-specific messages



Global Digital Identity has yet to fully realize its potential

Global digital identity is a vital tool in confirming the veracity of an individual's—or a corporation's—identity. The full array of benefits will likely remain untapped until the general population develops a greater understanding and acceptance of digital identity and its underlying technologies.

- 90% of respondents believe global digital identity will be very or somewhat important in their future blockchain and digital assets strategies.



Cybersecurity presents a persistent but manageable challenge

Cybersecurity remains a challenge to blockchain's adoption and acceptance worldwide. A vast majority of survey respondents say that cybersecurity plays at least some role in their blockchain and digital assets strategic planning.

- 66% of respondents think cybersecurity concerns may hamper the widespread acceptance and use of digital assets.



Blockchain is global, perspective is local

- Asia-Pacific: China considers cryptocurrencies illegal within its borders, which puts it at odds with regions such as Hong Kong and Singapore that encourage crypto's use and development. Still, China's central bank recently unveiled a digital version of its national currency.
- European Union: Crypto is gaining acceptance in countries such as Germany. In the Nordic region, the focus is often more on blockchain's distributed-ledger capabilities, while the United Kingdom tends to embrace digital asset concepts.
- Middle East: The UAE reportedly encourages growth of regulated digital asset exchanges. Israel, a longtime blockchain technology proponent and entrepreneurial hotbed, may be slowing its adoption slightly.

Polling Question

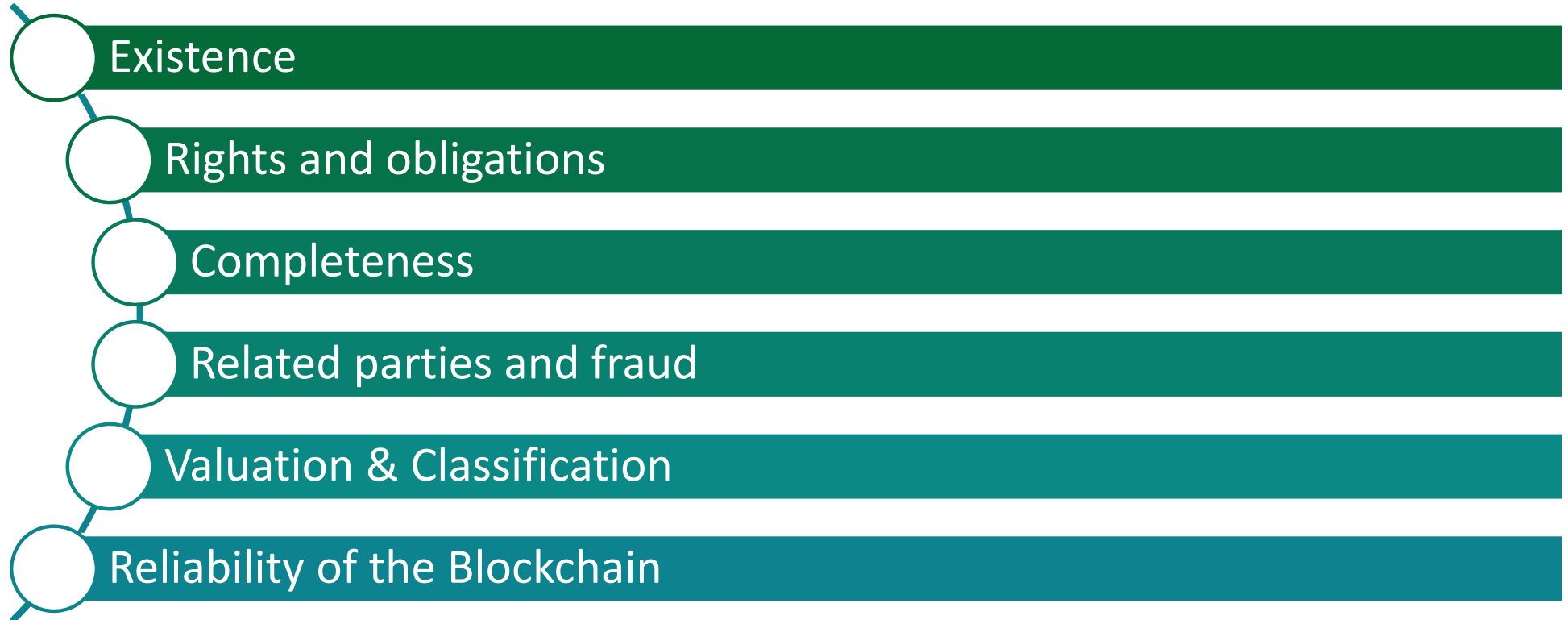


Deloitte's 2020 Global Blockchain Survey revealed that:

- a. Organizations are placing an increasing emphasis on governance of blockchain consortia.
- b. Cybersecurity is challenge to blockchain's adoption and acceptance worldwide
- c. Digital assets represent a significant part of blockchain's enduring sustainability
- d. All the above.

Digital Assets & Blockchain

Common Audit Challenges and Areas of Focus



**Substantive procedures alone may not provide sufficient appropriate audit evidence
Internal Controls are important**

Digital Assets & Blockchain

Responding to Audit Challenges and Risks



Management Skillset

- Level of experience in the digital asset and blockchain ecosystem
- Understanding of applicable regulatory environment
- Engagement of appropriate specialists and accounting consultants when needed
- Understanding of the applicable reporting framework

Audit Skillset

- Level of experience of the engagement partner and other senior engagement team members
- Access to specialists and consultation resources
- Understanding of the technology
- Understanding of applicable regulatory environment
- Specialized technology-based audit tools needed to identify, assess, and respond to risks of material misstatement

Risk Assessment

- Understanding of the nature of digital asset transactions
- Understanding business strategies and objective and associated business risks associated with digital assets
- Fraud Risks associated with operating in the digital asset ecosystem

Internal Controls

- Controls over inputs to the blockchain
- GITC controls over the blockchain technology
- Controls over outputs from the blockchain

Polling Question



The dependability of information recorded on a blockchain is reliant on:

- a. the reliability of the blockchain
- b. the existence of third-party administrator
- c. the source of the information
- d. All the above

Artificial Intelligence & Algorithms

Artificial Intelligence & Algorithms



No Artificial Intelligence

Basic Data Analytics
(Descriptive & Diagnostic)

Automation

Robotic Process
Automation

Basic Algorithms

Artificial Intelligence

Cognitive Process Automation (with AI)

Artificial Intelligence (including Machine Learning)

Data Analytics (Predictive &
Prescriptive)

Algorithms using Neutral Networks

Natural Language Processing

Artificial Intelligence (including Deep Learning)

Algorithms using large complicated
Neural Networks

Cognitive Technologies

Computer Vision

- **AI** uses conditional instructions and defined rules to carry out a task or solve a problem such as “if this, then that.”
 - This approach has been in practice for a long time and has been the underlying premise for AI until recent advances in machine learning and deep learning, which are techniques within AI.
- **Machine Learning** uses algorithms to guide its predictions. Its name is derived from the ability of algorithms to “learn” from experience (i.e., use data sets) rather than relying on a rules-based system.
- **Deep Learning** (also known as hierarchical learning) is a subset of machine learning. This form of AI that can identify relationships and linkages in vast volumes of data that would be impossible for humans to process and apply them to similar situations.

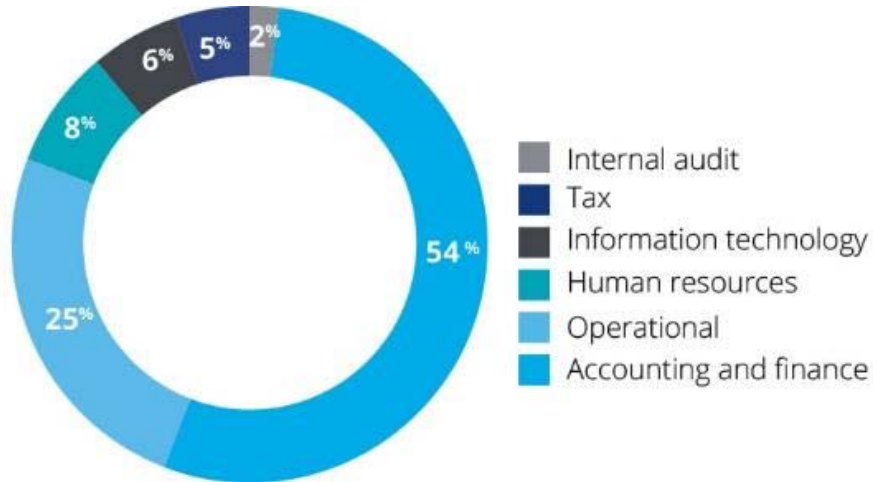
Spending on AI-focused systems including software and services is growing at 50% CAGR and will reach \$57.6B annually by 2021

(Source: International Data Corporation)

Robotics Process Automation



Which departments are using RPA?



Deloitte Perspectives: Internal Controls Over Financial Reporting Considerations for Developing and Implementing Bots, September 2018

A key risk presented by the rapid adoption of RPA processes is an organization's failure to consider the effects of these operational changes on its internal control over financial reporting (ICFR), specifically those controls over IT.

Internal Control Considerations

Understanding the nature and impact of RPA processes employed by the accounting and finance organization may be important to focus procedures on those most relevant to the financial statements

Accounting procedures, process-flow diagrams, and internal control documentation should clearly articulate where and how RPA is used within the accounting and finance organization.

A proper control frameworks should include controls over the entire transaction cycle including source data, outputs and points where human intervention is required, such as investigating exceptions or making judgments

General information technology controls (GITCs) are important to facilitate effective operation

Polling Question



What subset of artificial intelligence uses algorithms to guide its predictions?

- a. Basic Algorithms
- b. Machine Learning
- c. Robotics process automation
- d. Deep Learning



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