Pay Attention to These 4 Types of Blockchain Business Initiatives

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Blockchain offers enormous promise, but enterprises are unsure how to extract business value from it. Enterprise architecture and technology innovation leaders should focus on the four types of blockchain business initiatives and evaluate which ones will match their strategic objectives.

Key Challenges

- Establishing how to leverage blockchain in your organization will be complex, thanks to its foundational technology status, so businesses need a way of categorizing blockchain initiatives.
- Blockchain technologies are a portfolio of different features and constructs that drive value in different ways, individually and in combination, giving rise to a range of business possibilities.
- Enterprises gravitate to projects that can create efficiencies in today's business processes, but blockchain can aid or disrupt their business in other ways.

Recommendations

Enterprise architecture and technology innovation leaders seeking to exploit blockchain technologies should take these steps:

- Use Gartner's model to determine which of the four types of blockchain initiatives are suitable for your business, and expand beyond initial experimental efficiency plays to more productive initiatives.
- Map current blockchain initiatives to the model's types, and use the map as a guide to ensure that you are leveraging the different value drivers of blockchain technologies.
- Leverage the four types as a map for all your blockchain business and technology activity, whether those initiatives are from internal teams, peers in the industry, partners in current ecosystems or new startups.

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Strategic Planning Assumptions

Through 2020, 80% of enterprise blockchain-based applications whose goal is to save money will fail to do so.

By 2022, more than a billion people will have some data about them stored on a blockchain, but they may not be aware of it.

By 2022, a blockchain-based business will be worth $10 billion.

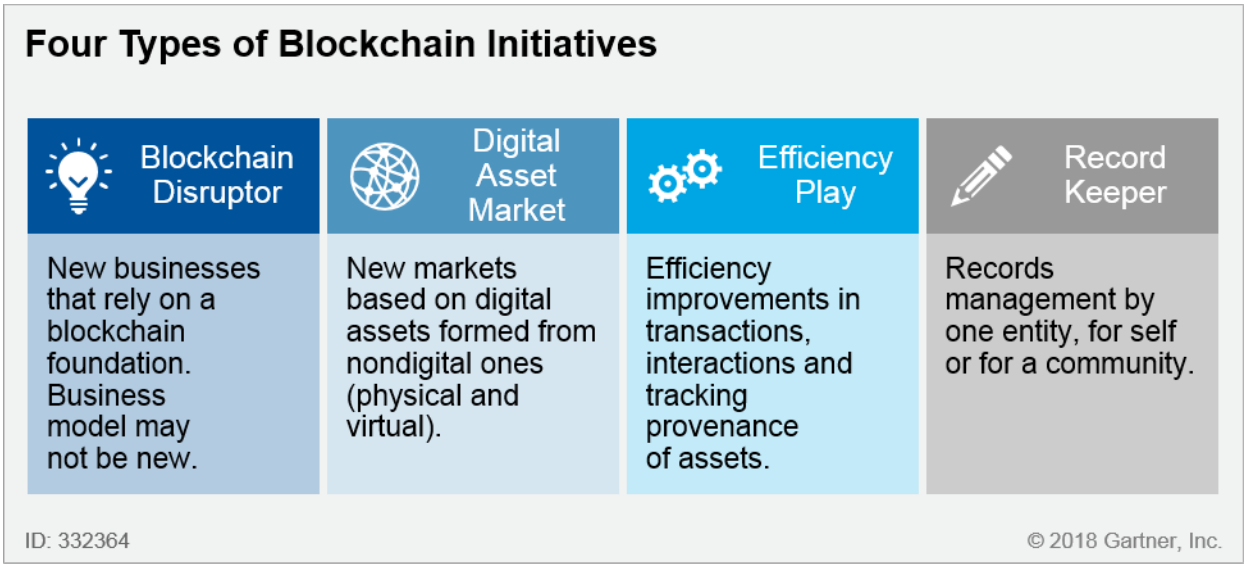
Introduction

As interest in blockchain continues to grow, Gartner analysts are fielding questions from clients and are reaching out to find out how early use cases and projects are working and evolving. The complexity of blockchain and the many roles it can play create challenges, but the benefits and value continue to boost the variety and number of projects. Gartner expects the technology to generate significant business benefits and value. Projections are for $176 billion by 2025 and more than $3.1 trillion by 2030 (see "Forecast: Blockchain Business Value, Worldwide, 2017-2030").

Even so, businesses struggle to turn this level of interest into actual implementations that generate business value. Blockchain technology is nascent, and while its application is seemingly broad, there are few successful business models or instances in enterprises that provide ready-to-use templates.

Gartner has identified a subset of all known blockchain initiatives. We looked at initiatives adopted by startups, big companies, market infrastructure companies and others, spanning different vertical industries and governments. For each, we determined which of the value drivers were applicable. (See Table 1 later in the document for an overview of the value drivers.) We looked to see whether groups emerged among the projects in terms of the value drivers they use. Gartner's model for the four types of blockchain initiatives is the result of this research (see Figure 1).

Figure 1. Four Types of Blockchain Initiatives



Source: Gartner (March 2018)

This research provides enterprises with a mechanism to uncover areas where business can exploit blockchain. Our interactions with enterprises consistently show that many wish to use blockchain to improve efficiencies in existing processes. But a single-minded focus on efficiency is limiting and does not appreciate all the possibilities of blockchain.

The four types covered in this research provide enterprise architecture and technology innovation leaders with a guide to applying this radical and promising technology. This broader view encompasses both cost-saving and revenue-generating initiatives.

We have defined four types of blockchain initiatives:

- Blockchain disruptor
- Digital asset market

- Efficiency play
- Record keeper

Enterprise architecture and technology innovation leaders can use this model to gain the attention of business leaders as part of their overall digital transformation. They may find other niche use cases among the four primary types. Note that this classification focuses on business projects and excludes solutions where blockchain is used as a substitute for another technology to provision an IT service. Examples of such excluded services include blockchain-based identity services and blockchain-based storage.

See the Methodology section for more information on how these four types were created.

Analysis

Understand the Four Types of Blockchain Initiatives, and Investigate How Your Business Could Use Them

The four types of blockchain initiatives meet the needs of most businesses. These initiatives can originate from any type of organization, including a new business startup, a consortium of institutions with a specific blockchain project, or a project run by one enterprise or government entity. A particular type of organization is not limited to one type of initiative.

The four types of initiatives differ in terms of blockchain value drivers. Among the four, blockchain disruptors and digital asset markets are focused on new revenue, whereas efficiency plays and record keepers are focused on efficiency improvements and cost savings.

Here is an overview of the four types of blockchain initiatives:

- **Blockchain disruptor:** These initiatives rely primarily on a blockchain foundation to achieve decentralization of business and/or technology functions. Their critical business functionality is enabled by most of blockchain's capabilities, including the distributed ledger, a strong consensus mechanism, the immutability and traceability of records, and acceptance of cryptocurrency tokens. In most cases, they employ smart contracts to encapsulate certain business functionality. Their business models may or may not be new. Many of them tend to raise capital through initial coin offerings (ICOs).

  Examples are mostly startups, but they can include spin-offs from large enterprises (see "Cool Vendors in Blockchain Applications, 2017"). Blockchain disruptors include:

  - Synereo — A decentralized content management and a social platform
  - OpenBazaar — A decentralized B2C marketplace
  - Gnosis — A decentralized prediction market platform

- **Digital asset market:** These initiatives are new markets that facilitate the creation (or representation) and trading of new digital assets. Blockchain's cryptocurrency mechanisms

enable creation of new digital assets or representation of physical ones. Digital asset markets tend to use all the value drivers of blockchain, including its ability to create/represent digital assets, the distributed ledger, a strong consensus mechanism, the immutability and traceability of records, acceptance of cryptocurrency tokens, and smart contracts. See "How to Evolve Your Trade Finance Strategy With Smart Assets and Blockchain" for a broader treatment of digital assets. Blockchain's capabilities in tracking the provenance of an asset, as a consensus mechanism to consummate a transaction, plus having the ability to improve clearing and settlement functions and records management, all contribute to developing these markets. Note that a digital asset market is a specific kind of blockchain disruptor, one that uses blockchain's ability to represent a digital asset and offers a market based on it. Examples include:

- NYIAX — An exchange for advertising contracts
- RMG — A market to trade and hold gold
- Energy Blockchain Labs — A platform to trade and manage carbon assets

- **Efficiency play:** These initiatives attempt to improve efficiencies in existing business processes within a company or at an industry level. They tend to preserve the current business models and the actors within. Decentralization is attempted only at the technology architecture level, if at all. In these initiatives, there is no new market such as those created in the digital asset market initiative. The use of blockchain is limited to activities once a transaction or interaction is complete. That is, blockchain is not used to facilitate one. The key value drivers of blockchain for these initiatives are the distributed ledger and the immutability and traceability of records. Consensus can be strong or not, depending on how much decentralization is sought in the use case. Smart contract usage is optional. These initiatives tend to not have new digital assets or to use cryptocurrencies for payments.

  They can be led by a dominant player in an ecosystem, such as a large multinational using blockchain in its supply chain. Market infrastructure companies, where they exist (such as stock exchanges in financial services), play a pivotal role in initiating such projects in their markets. They can also be initiated by informal or formal alliances (such as consortiums) between enterprises in a market. Examples include:

  - DTCC — A derivate processing system
  - B3i — A reinsurance processing system
  - Maersk — A global trade and supply chain

- **Record keeper:** These are initiatives whose primary purpose is to ensure that records cannot be corrupted and that they can be audited on demand. Projects could be led by one organization that primarily benefits from it, or they could provide a common service for multiple organizations. Government entities tend to be suitable for a range of initiatives where the focus is on the key value drivers of immutability and traceability. These initiatives do not involve digital assets or a strong consensus-based decision mechanism. The intent of use of the distributed ledger is resiliency, rather than decentralization across parties. Examples include:

  - Dun & Bradstreet — Business identification (D-U-N-S Number)

- Government of the Republic of Georgia — Registration of land titles
- Government of Estonia — Health records for residents

While this model serves as a basis for most initiatives, it does not claim to include all business initiatives. There will be blockchain initiatives that combine value drivers in ways different from what we discuss here. Further, while the model shows which of the value drivers are applicable, the amount of value derived can vary across different value drivers in an initiative. Lastly, this model does not attempt to cover initiatives where blockchain technology is used instead of other technologies to provide IT services such as identity or security.

A comparison of the four types of initiatives (see Figure 2) provides a guide on how they can be used.

Figure 2. Comparison of the Four Types of Blockchain Initiative

Comparison of the Four Types

	Blockchain Disruptor	Digital Asset Market	Efficiency Play	Record Keeper
Uses Blockchain For	▪ Payment mechanism ▪ Distributed ledger ▪ Immutability ▪ Traceability ▪ Consensus	▪ Digital asset creation ▪ Payment mechanism ▪ Distributed ledger ▪ Immutability ▪ Traceability ▪ Consensus	▪ Distributed ledger ▪ Immutability ▪ Traceability ▪ Consensus	▪ Immutability ▪ Traceability
What Is Exchanged?	▪ New or current value exchange	▪ New digitized assets	▪ Current value exchange	▪ Current or no value exchange
Why Should Enterprises Care?	▪ Monitor emerging threats ▪ Look for opportunities to invest	▪ Expand through new markets ▪ Look for opportunities to invest	▪ Improve efficiency ▪ Ensure cost parity with competitors	▪ Improve efficiency
Revenue Growth Versus Expense Reduction	▪ Revenue growth	▪ Revenue growth	▪ Expense reduction	▪ Expense reduction
Nature of Business	▪ Startup	▪ New marketplace ▪ Market infrastructure provider	▪ Market infrastructure provider ▪ Large enterprise	▪ Government ▪ Market infrastructure provider ▪ Large enterprise
Usage Styles	▪ Permissionless ▪ Public permissioned — multi-industry ▪ Public permissioned — single industry	▪ Permissionless ▪ Public permissioned — multi-industry ▪ Public permissioned — single industry	▪ Public permissioned — multi-industry ▪ Public permissioned — single industry	▪ Public permissioned — multi-industry ▪ Public permissioned — single industry ▪ Private permissioned

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Source: Gartner (March 2018)

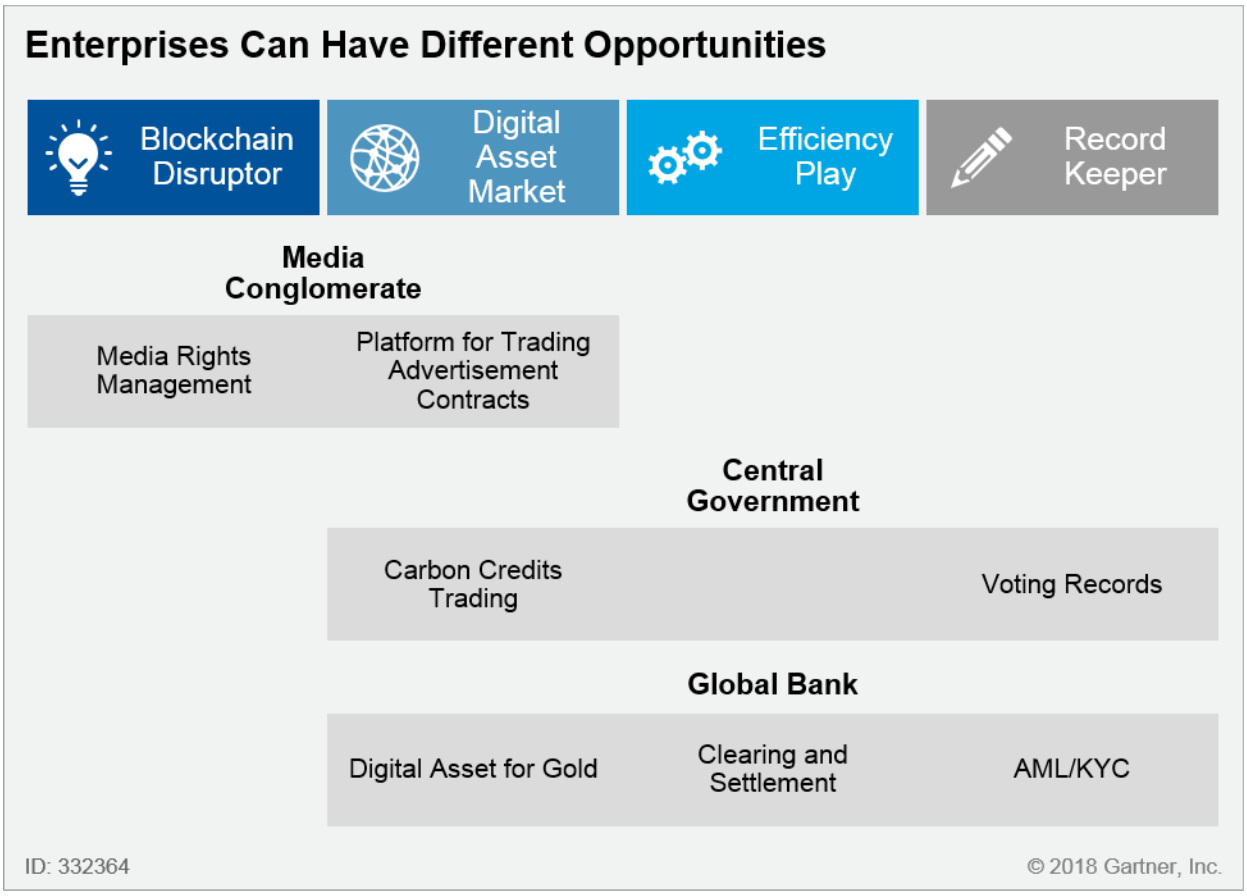
The first two are typically operated by new companies and are meant to generate revenue, whereas the latter two are meant to improve efficiencies. As can be seen from the chart, they vary in the value exchanged, the form they take and the architectural styles that suit them. See "Understanding Blockchain Platform Architectures and Implementation Styles" for more information on the different architectures.

Look Beyond Efficiency Improvements in Today's Business Processes

Experimentation in blockchain technology is rapid and expanding, but Gartner's interaction with clients indicates that most experiments are focused on current business processes. Enterprises are mainly trying to determine how blockchain technologies could solve intractable business problems that have been resistant to other technologies so far. This approach is not wrong, but it is incomplete as it addresses only one type of blockchain initiative — the efficiency play. Enterprises should evaluate all four types and identify suitable ones to address the opportunities that Gartner calls "business moments" (see "The Anatomy of a Business Moment").

Further, a company need not be restricted to an initiative of one kind. Instead, a company could find itself using more than one type of initiative across its business (see Figure 3).

Figure 3. Blockchain Initiatives Can Create Different Opportunities Within an Organization



AML = anti-money laundering; KYC = know your customer

Source: Gartner (March 2018)

While these four types try to capture the primary ways of using blockchain technologies, they are not inclusive. Further uses include accepting cryptocurrency payments, integrating with external services that store data on a blockchain, and blockchain-based technology services (such as identity services).

Before you implement blockchain solutions, you still need to check if there is a valid business case and if blockchain is best-suited for the job (in comparison to other technologies). It is also critical to consider the maturity of the technology, the business model and the process change required before you embark on it. See "How to Develop a Business Case for Blockchain Projects" for more information.

Blockchain will play an increasingly important role in all areas of business. Enterprise architecture and technology innovation leaders need to be highly aware of product developments and evolutions in their markets, and how blockchain can benefit multiple areas of your business.

Methodology

Gartner's model for the four types of blockchain initiatives is the result of research on a subset of publicly announced initiatives. Our objective was to develop a robust model that shows the primary types of blockchain projects based on the actual initiatives being launched. Since blockchain provides value drivers, we decided that it was important to do this analysis against these value drivers. Value drivers are capabilities of blockchain technology that can drive new or additional business value to the organization that employs them.

These value drivers (see Table 1) show that business value encompasses both tangible and intangible items, including economic value, customer value, employee value and societal value. They also show that employment of technology does not guarantee extraction of business value. While some value drivers are typically used together, it is not necessary that all are used together in each initiative. See "Hype Cycle of for Blockchain Technologies, 2017" for a deeper treatment of the various blockchain technologies.

Table 1. Value Drivers of Blockchain Technology

Value Driver	Capabilities of Blockchain Technology That Can Drive New or Additional Business Value to the Organization That Employs Them
Digital asset creation/ representation	Ability to create a unique representation of any asset that enables exchange of value, while preventing duplication. See "How to Evolve Your Trade Finance Strategy With Smart Assets and Blockchain" for a broader treatment of digital assets.
Payment token	Ability to use a digital token for payment that transfers value, while preventing double spend.
Distributed ledger of records	An expanding list of cryptographically signed, irrevocable transactional records shared by all participants in a network. Each record contains a time stamp and reference linkages to the previous transactions. This definition is from "Hype Cycle for Blockchain Technologies, 2017."
Immutability of records	A characteristic that prevents something from being changed, once it is created. Data elements recorded in the distributed ledger cannot be changed. Only new records can be appended for any corrections.
Traceability of records	Ability to audit all historical changes to a record in a blockchain.
Consensus mechanism	A process by which all nodes in a distributed network agree on the latest status of a given ledger. Consensus mechanisms, therefore, enable the execution of transactions under certain conditions. This definition is from "Hype Cycle for Blockchain Technologies, 2017."
Smart contracts	A computer program or protocol that facilitates, verifies or executes the terms of a contract. Smart contracts are digital representations and extensions of the traditional notion of a contract. This definition is from "Hype Cycle for Blockchain Technologies, 2017."

Source: Gartner (March 2018)

Our next step was to analyze how these value drivers are applicable in blockchain initiatives. We identified a subset of all known blockchain initiatives across the spectrum. We included those adopted by startups, big-company projects, market infrastructure companies and others. Projects

spanned different vertical industries and governments. For each one, we determined which value driver was applicable. We looked to see if groups emerged among the projects in term of which value drivers they use.

Sure enough, four key groups emerged, leading to four kinds of blockchain projects (see Figure 4). Among them, the first three had variations that allowed for the use of smart contracts among parties. The last one (record keeper) did not. Ostensibly, that is because it is primarily for record keeping within one organization and does not involve transactions across multiple entities.

Figure 4. Blockchain Initiatives Grouped by Type

Blockchain Initiatives Grouped by Type

	Blockchain Disruptor				Digital Asset Market								Efficiency Play														Record Keeper			
	OpenBazaar	Gnosis	Synereo	YOYOW	Nasdaq Linq (Private Market)	China's Carbon Credit Market	NYIAX	Ripple (Interbank Payments)	Healthcoin (Healthcare Rewards)	Loyalty and Rewards	Singapore (Trade Invoice Fraud)	Gold (Euroclear, CME, etc.)	YES BANK (Vendor Financing)	ICICI Bank (Trade Finance)	Postal Savings Bank of China	Supply Chain (Manufacturing, Retail, etc.)	Internal Payments	DTCC Trade Information Warehouse	Reference Data Management	Claims Processing	Natixis and Trafigura (Oil Trade Finance)	Medical Records	Northern Trust	Shipping (Maersk and Others)	BHP Billiton (Sample Tracking)	AML and KYC Tracking	AT&T Secure Subscriber Server	Estonia (Proxy Voting)	Republic of Georgia (Land Titles)	Learning Machine (Academic Credentials)	SecureKey
Digital asset creation					x	x	x	x	x	x	x	x																			
Payment token	x	x	x	x	x	x	x	x	x	x	x	x																			
Distributed ledger	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x				
Immutability of records	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Traceability of records	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Consensus for updates	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x				
Smart contracts	x	x			x	x	x						x	x	x	x															

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Source: Gartner (March 2018)

Gartner Recommended Reading

Some documents may not be available as part of your current Gartner subscription.

"Predicts 2018: Top Predictions in Blockchain Business"

"Digital Disruption Profile: Blockchain's Radical Promise Spans Business and Society"

"Blockchain Primer for 2018"

"Hype Cycle for Blockchain Business, 2017"

"Hype Cycle for Blockchain Technologies, 2017"

"What CIOs Should Tell the Board of Directors About Blockchain"

"Blockchain: Managing Business Expectations"

"Cool Vendors in Blockchain Applications, 2017"

"Cool Vendors in Blockchain Platforms"

"Blockchain Trials Across Industries Show the Pulse of a Rapidly Moving Professional Services Market"

More on This Topic

This is part of two in-depth collections of research. See the collections:

- The Future of Your Business Ecosystem in the Age of Digital Business: A Gartner Trend Insight Report
- Blockchain-Based Transformation: A Gartner Trend Insight Report

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