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**Crunch time IV**  
Blockchain for Finance

# Ridiculously ambiguous

Ten minutes into a discussion with a group of blockchain *experts*, one CFO shook his head. “This is ridiculously ambiguous,” he complained. It didn’t take long for everyone to agree.

With that short introduction, here’s our take on what CFOs should know about blockchain for Finance.

## Blockchain basics

- 1** Blockchain is a distributed ledger technology that enables digital assets to be transacted and traded in real time. The record it keeps is permanent and irreversible.
- 2** Blockchain has two main applications. One familiar use of blockchain technology involves trading and managing cryptocurrencies like Bitcoin. More on that later. The other main use of blockchain is for managing transactions related to trade and commerce, including finance processes like payables, receivables, and compliance. We think of these as business blockchains.
- 3** CFOs should learn about both, but understanding business blockchains and their potential for finance operations should be your focus in the year ahead.

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# Business blockchains

Business blockchains are being used today to help reinvent how transactions are managed. They can take time and costs out of almost any process, enabling near real-time operations. And they deliver a high degree of accuracy and control, with much less risk than many alternatives.

Blockchains perform recordkeeping using automated, low-cost mechanisms. They enable asset transfer through secure, real-time methods. And they provide governance in the form of smart contracts. A smart contract makes sure each part of a transaction is validated the instant it happens, triggering the next required action, exactly when it is supposed to occur, until the process is complete.

Common finance applications for blockchains include order-to-cash, trade finance, intercompany transactions, and reconciliation. Processes that extend beyond Finance, such as supply chain management, asset tracking, warranty service, and regulatory compliance can also be streamlined using blockchain technology.

Business blockchains can operate as standalone solutions, but the value realized increases significantly when they're combined with other technologies, such as automation or artificial intelligence, to reimagine an entire end-to-end process.

All that said, blockchain is a new and nascent technology. No one has put it all together yet. There's time to explore your options.

## Frequently asked questions

CFOs we talked with about blockchain have many questions about what they should be doing and why. Here are the most common questions we've encountered.

### Do I really need to be thinking about this now?

Over the next five years, blockchain technology could upend how businesses and marketplaces operate. Sooner or later, you should come to grips with that. Whether "sooner" makes sense for your business depends on how efficiently you're managing finance processes today. If you're trailing competitors in terms of cost, or want to leapfrog to new performance levels, blockchain could be an effective strategy.

### I don't have to scrap anything?

With business blockchain, legacy technologies and systems remain in place. A blockchain simply shares data you select with specified parties so they can see the same information you're seeing at the same time.

### What finance processes can blockchains improve?

Blockchains can be used to improve almost any finance process: procure-to-pay, accounts receivable, accounts payable, general ledger, reconciliation, and even payroll. Procure-to-pay is getting a lot of attention now because some payers enjoy a position of relative strength to dictate changes.

## Why are we talking only about business blockchains?

Business blockchains are set up by a single company or a group of companies where participants are specified and known. They're designed to improve transaction processing. Public blockchains that support cryptocurrencies like Bitcoin are an entirely different thing. Finance can generate significant value from business blockchains without having anything to do with digital currencies.

## What does business blockchain actually do?

Blockchains integrate different systems to get data right at the point of origination, which can eliminate downstream reconciliations. This enables straight-through processing, also known as touchless transactions. For example, a company uses blockchain to match a customer purchase order with the buyer order, and records that action on a blockchain. Now there is one source of the truth, which is visible to both parties.

## Some people say blockchains are largely free of risk. Is that true?

Yes. Blockchains enable trust through transparency. A shared ledger is visible only to participating organizations and access to data on the blockchain is restricted by users.

## How are blockchains governed and controlled?

Smart contracts provide the governance mechanism for business blockchains. Once a smart contract is locked down, the terms and conditions can't be changed unless all those affected agree.

## Some CFOs are creating blockchains for use inside their own companies. Why?

The sale of goods and services across internal legal entities involves reconciliation, transfer pricing, internal audit, and similar transactions. Using blockchain for these purposes can give you a chance to learn about the technology in a manageable way. In some cases, this kind of intercompany solution is viable on its own, without external trading partners. One company we work with, for example, has more than 2,000 people involved in managing transactions across dozens of business units. An intercompany blockchain to document agreements, confirm receipt of goods and services, facilitate settlement, and process payments could cut that number by half or more.

## How does blockchain fit with ERP?

The relationship between ERP and blockchain is evolving. Major ERP vendors are making significant investments to integrate blockchain technology into their platforms, but for most companies, technology isn't the hard part. The hard part is establishing a sustainable group of trading partners, with transactions governed by effective smart contracts and clear rules of engagement.

## Why is this more secure than the tools I already have?

Blockchain is not a magic bullet in terms of risk reduction, but it does have significant benefits in how the technology operates. The permanent and irreversible nature of blockchains greatly reduces the possibility of fraud and errors.

## What are auditors and regulators going to say?

In the short term, they'll be skeptical. Blockchain is new, and companies are still working through operational and compliance issues. But because blockchains rely on self-executing smart contracts and the transactions are irreversible, many auditors and regulators see the technology as a way to save time and improve compliance.

## Why is it called blockchain?

This technology uses data elements encrypted in blocks of computer code. The blocks are chained together across a shared ledger through cryptology. If someone tries to hack the ledger, it is immediately known by the involved parties and the chain falls apart.

# Assessing blockchain opportunities

Whether blockchain makes sense for your particular situation depends on a number of “fitness factors” you’ll want to consider.



Fitness factor

### Number of participants involved

#### Limited or no fit

Blockchain doesn't make sense when there is no need for multiple parties to share in creating or maintaining a transaction record. For multiple trading parties inside of a single parent company, blockchain could be an effective solution for processing intercompany transactions. Intercompany is also a good way to pilot a blockchain solution.

When multiple separate companies need to write or add to the ledger, blockchain can be an effective way to streamline transaction processing. By using blockchain you create one source of the truth.

#### Strong fit

**Blockchain is an excellent solution when participants include multiple manufacturers, suppliers, customers, service providers, transportation providers, regulators, and possibly tax authorities.**



Fitness factor

### Complexity of business purpose

#### Limited or no fit

When the business purpose is narrowly focused on a single process or transaction, blockchain may not be practical—unless one of the other fitness factors is compelling.

When a group of companies shares a targeted purpose within a sector (e.g., food safety, health care claims adjudication, or mortgage underwriting compliance), blockchain has good potential.

#### Strong fit

**Groups of companies facing a broad set of complex purposes can benefit greatly from standing up blockchains across their trading ecosystems. Blockchains enable the management of things like asset purchases, financing, warranties, insurance, regulatory compliance, and public safety—in an integrated manner and all at the same time.**



Fitness factor

**Need for long-term recordkeeping and regulatory compliance****Limited or no fit**

Blockchain may be overkill when there is little or no need for long-term records.

In some transactions, high-quality records add value at the time of the transaction, and for a limited time after. Blockchain delivers immediate benefit for real-time recordkeeping.

**Strong fit**

**Blockchain is an excellent solution when many parties need to access, create, and maintain records over an extended timeframe (e.g., decades-long asset lifecycle, or the entire lifetime of a patient). Also, for many regulatory considerations, blockchain is a reliable way to document and manage compliance.**



Fitness factor

**The need for real-time transfer of assets or payments****Limited or no fit**

If you don't need—or are already getting—near real-time payment transfer and instant recording of transactions, blockchain may not provide any new or additional benefit.

For companies that want to improve working capital or liquidity, the lower friction of blockchain enables near real-time transfer of assets.

**Strong fit**

**Blockchain can eliminate the lag in payment cycles and asset transfer, which can help reduce cost, improve accuracy, and provide compliance efficiency. Additionally, the transparency of blockchain can help streamline trade finance or supply chain financing in a multi-party network setting.**

Business blockchains can operate as standalone solutions, but the value realized increases significantly when they're combined with other technologies, such as automation or artificial intelligence, to reimagine an entire end-to-end process.

# How blockchain could affect Finance

Blockchain has the potential to reshape processes that are defined inside Finance, primarily because of its cost and control benefits. Even more interesting, though, is the impact on broader business processes that intersect with Finance such as supply chain management.

## Big picture blockchain

Here are examples of blockchain applications that are getting underway across different industries and sectors.

- A consortium of retailers, producers, and freight providers is collaborating to ensure the integrity or authenticity of products. Examples include organic products, jewelry, prescription drugs, and replacement parts.
- In health care, a group of companies is working together to track deductibles and out-of-pocket expenses across providers, insurance and prescription plans, pharmacies, life science companies, device manufacturers, patients, and employers.
- Companies, customers, and even regulators are working together to monitor the manufacturing, sales, registration, and maintenance of large-ticket assets in aerospace and defense, transportation, industrial equipment, and electronics.

## Blockchain for Finance

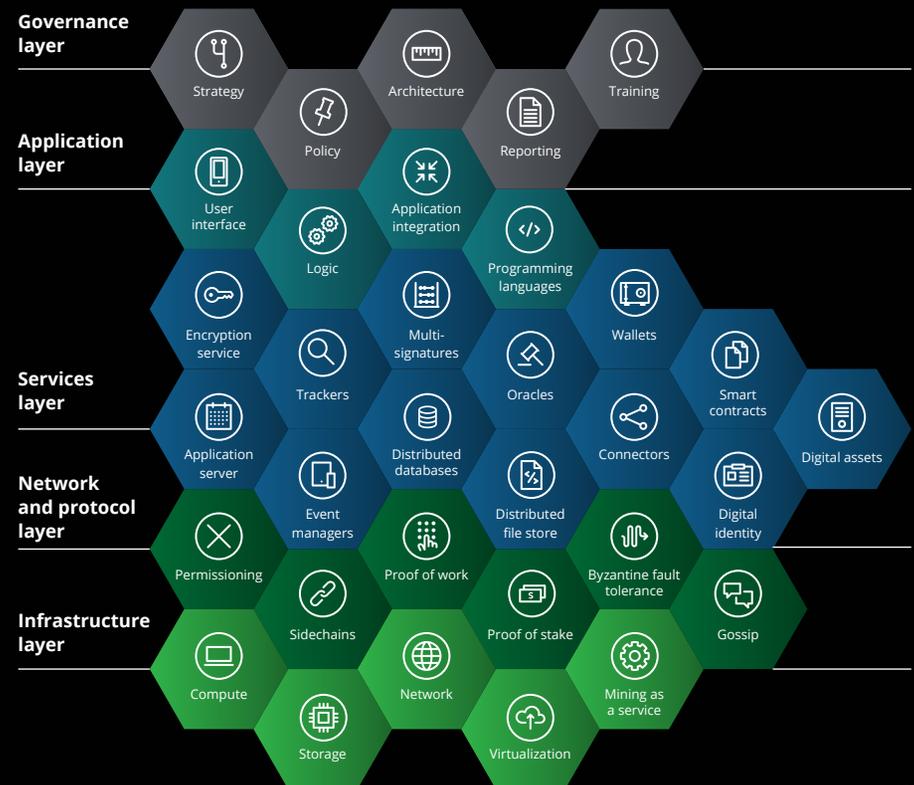
The finance applications for blockchain apply to almost any kind of transaction processing. These examples are being piloted or moving into production in companies all around the world.

- Self-validating sub-ledgers for receivables and payables
- Intercompany accounting and consolidations
- Order-to-cash and procure-to-pay integration
- Revenue cycle management
- Trade finance
- Working capital and cash-cycle improvement
- Fraud and risk detection
- Warranty accruals and management
- Capital planning and performance management

## Show this to your CIO

# The anatomy of a business blockchain

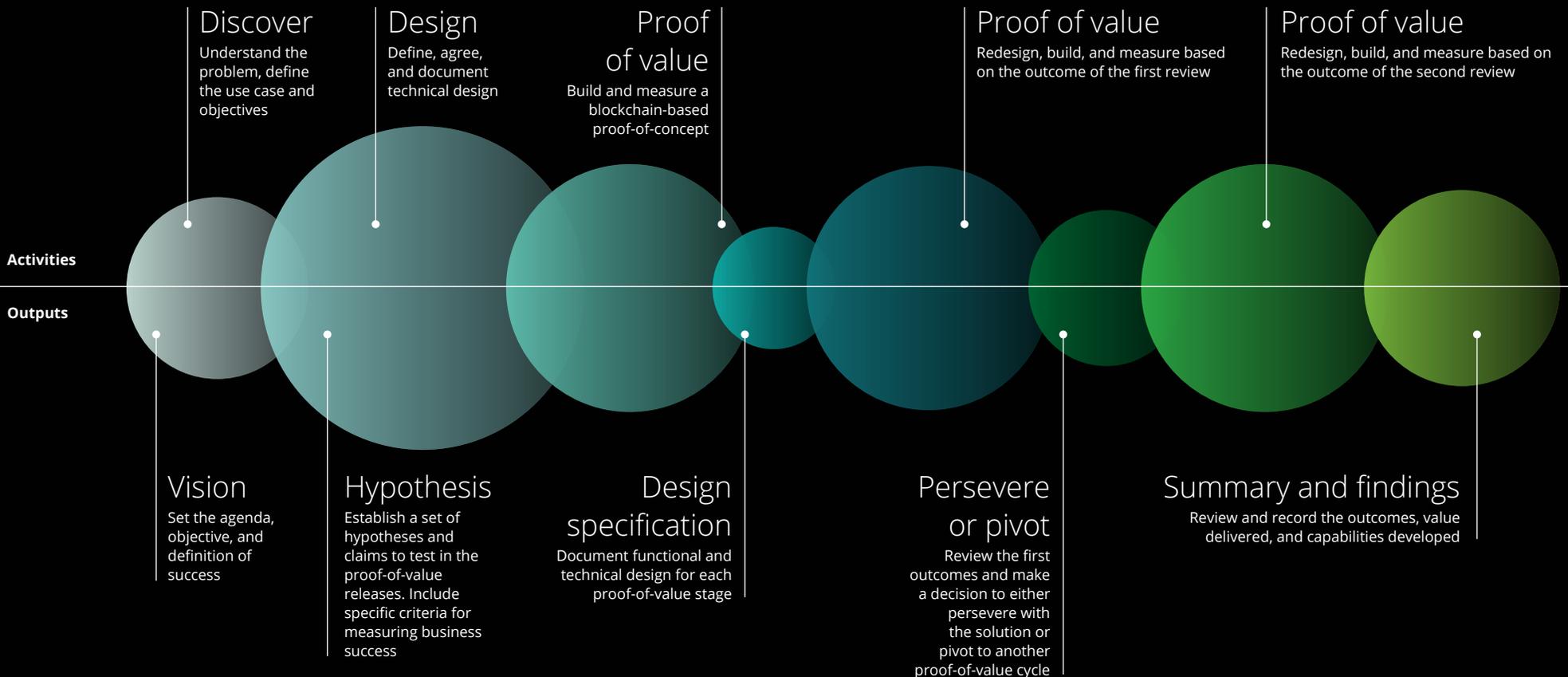
Here's a simple graphic that breaks out the main layers of blockchain technology. This landscape is evolving quickly, and that means there aren't standard "flavors" of blockchain yet. As the technology matures and the components in these layers become enterprise-ready, you can expect your finance technology team to be both skeptical and intrigued by the promises of blockchain. They'll be your co-pilot on any blockchain journey.



## Make it real

# How to get a blockchain up and running

Think big, but start small. Prove value with iterative bursts of design, build, and review to quickly learn from results—and adjust.



# Alternatives to blockchain

Like any new technology, blockchain comes with skeptics and evangelists. It requires investments, and it isn't a good fit everywhere. As one CFO pointed out, a good process with good data can achieve many of the same benefits as blockchain.

Blockchain adoption is accelerating because it has benefits that other technologies have a hard time replicating. But that doesn't mean it's the right solution for every need. For many companies, ERP systems augmented by cognitive tools and automation can cover many transaction processing needs.

In addition, many companies are participating in procurement hubs, using evaluated receipt contracts, adopting advanced EDI practices, and using process automation to integrate ledgers and manage cash. These alternatives are appropriate point solutions that may be easier to implement independently than blockchains. On the downside, they require continuous development efforts to sustain the benefits.

Blockchain starts to enjoy unique advantages when the network of trading partners reaches a level of complexity or scale that is difficult for today's tools to manage. Automation, transparency, reliability, speed, and compliance in complex environments are not easily available with traditional solutions.

## Public blockchains and commercial cryptocurrencies

For many people, blockchain is colored by skepticism about cryptocurrencies like Bitcoin, Ether, and Ripple. In those arenas, it seems as though the risks can often outweigh the benefits. But that doesn't mean there aren't opportunities for pioneers to capture value. For more information about cryptocurrencies, take a look at *Bitcoin: Fact, Fiction, Future*.

Business or enterprise blockchains operate outside the realm of commercial cryptocurrencies. Companies can gain substantial value simply by using blockchain as a transaction management platform without any consideration of digital money.

That said, we do see a role for "private label" digital currencies that can be used as part of business blockchain solutions. The value to CFOs is the potential for real-time visibility to net position and the ability to settle transactions digitally—without cash. We're currently working on a number of digital wallet and token applications to do just that.

# How to think about blockchain today

Some CFOs expect blockchain to transform their finance organizations—and maybe their whole businesses—in the years ahead. They see significant efficiency and control benefits on the horizon, and they're evaluating options now so they can capture savings sooner. These CFOs place a premium on their role as catalysts for business transformation in their companies.

A larger number of CFOs are just now beginning to look at blockchain, but aren't yet ready for Finance to take the lead. They see blockchain as a potentially valuable tool, and will have a seat at the table in blockchain discussions. Their priority is to ensure that security, controls, and regulatory requirements are baked in from the outset.

A third group of CFOs is taking a wait-and-see approach to blockchain. Some may not have the transaction volumes or cost structures that would justify investing in blockchain solutions. Others already have excellent systems in place to get that work done. They expect the demand for blockchain to come from other parts of the business and will support it as appropriate.

**As we said at the beginning of this paper, blockchain can sometimes seem ridiculously ambiguous. So rather than worrying about how the technology works, focus instead on identifying a pilot project where you can assess the business case. Making it real is the best way to make it understandable.**

## Disrupting the disruptor

Are there scenarios that could interrupt blockchain adoption in the marketplace? Here's one way to look at it:

Business blockchains are going to happen, with significant impact across the board. There are simply too many benefits to ignore. But how it happens could vary widely. In some industries, discussions around marketplace consortia to capitalize on blockchain are already underway. The same is true for development work related to smart contracts and governance standards.

ERP vendors also want to be part of the blockchain future. They're working to integrate blockchain technology into their products to help companies capture efficiencies in all kinds of processes.

It won't be long before blockchain goes mainstream. Over the next five years, it will likely become a commonly used technology that is baked right into other solutions companies are using to improve operations and manage risk. In the meantime, consider focusing on building awareness, skills, and experience by finding opportunities to collaborate with close business partners on specific use cases.

# CFO blockchain checklist

- Develop a reading list that includes both skeptics and evangelists. Blockchain is moving fast. Keep up.**
- Assign a team to stay on top of blockchain developments in Finance. Include both technical and business people.**
- Monitor what leaders are doing in your industry.**
- Meet with a few of your major trading partners to find out how they're thinking about blockchain opportunities.**
- Make sure your Chief Risk Officer is tracking regulatory and compliance issues related to blockchain.**
- Identify a handful of opportunities where the efficiency gains of blockchain are obvious. Assess the business case for each.**

**If you're going to start, start small.  
Blockchain has the benefit of scalability.  
Use it to your advantage.**

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