



**Chain reaction:  
how blockchain  
technology could  
revolutionize  
the finance function**

# What is a blockchain?

## Of the many strands of digital disruption shaking up financial services, blockchain technology is one of the most fascinating.

Although it's still in its early stages of development – with practical applications in financial services focused mainly on payments and exchange – blockchain will revolutionize the way the finance function operates.

As Sir Mark Walport, the UK Government's Chief Scientific Adviser, said in the report *Distributed Ledger Technology: beyond block chain*: "We may be witnessing one of those explosions of creative potential that catalyze exceptional levels of innovation."

In financial services, that innovation could, for example, allow organizations to publish data simultaneously, enabling them to minimize reconciliation and automate accounting, which would save both time and money. But what, exactly, is a blockchain?

### Building blocks

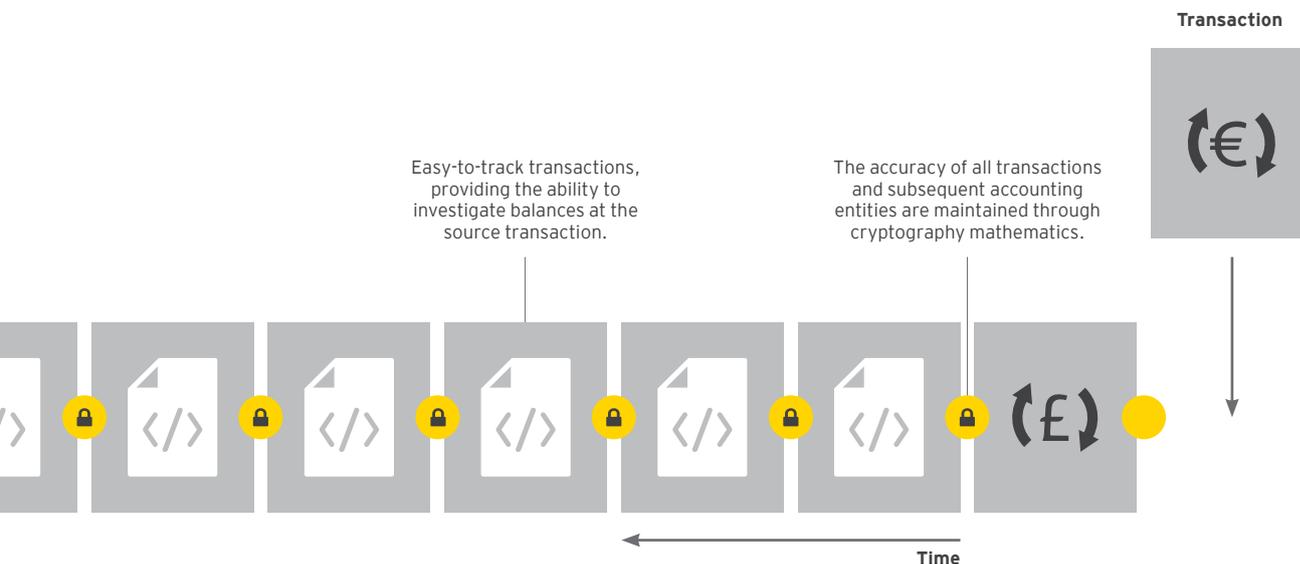
A blockchain is a type of database that takes a number of records and puts them in a block (rather like collating them on to a single sheet of paper). Each block is then "chained" to the next block, in a linear, chronological order, using a cryptographic signature.

This process allows blockchains to be used as ledgers, which can be shared and corroborated by anyone with the appropriate permissions. These distributed ledgers can be spread across multiple sites, countries or institutions.

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From executing capital planning to producing liquidity reports, there are many tasks that blockchain technology could help banks with.

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# Transforming the finance function

Finance functions in financial services institutions continue to be characterized by complex issues constraining finance professionals' ability to provide timely and accurate information to internal stakeholders, shareholders and regulators. At EY, we believe blockchain technology has the potential to significantly reduce these issues for finance functions. At the heart of these solutions is the shared ledger, which each party needing to see financial data will need to access. All copies of the ledger are simultaneously updated, ensuring identical copies, with no ledgers or versions of data out of sync. Such shared ledgers could be applied within financial services institutions across their businesses, legal entities and divisions as well as across a consortium of banks.

From executing capital planning to producing liquidity reports, there are many tasks that financial services institutions' finance functions carry out that blockchain will simplify. Here are just four of these challenges encountered by finance functions that we think the technology will impact directly.

**Delivery of statutory, management and regulatory reporting:** Slow and inaccurate reporting data can lead to poor decision-making, additional delivery costs and even unnecessary capital funding. With blockchain, data would be published simultaneously, removing the

need for the standard reporting cycles across statutory, regulatory and management reporting.

**Inter company transparency:** By creating just one version of the ledger, blockchain technology would allow inter company transparency and the opportunity for simultaneous settlement. This would free up time for the finance function to focus on added-value activities such as strategic planning and supporting wider business decisions, particularly at the critical period of the final stages of the consolidation process.

**Reconciling transactions:** EY estimates that, within a typical finance team at banks and insurers, between 50 and 100 working days are lost each month reconciling differences. Adopting a shared ledger approach will help, by enabling all parties concerned to identify the same transactions at source, with data being published simultaneously – significantly reducing the number of reconciliations required.

**Maintaining financial data standards:** Most of our clients take several months to reflect organizational structure changes within their finance systems. But with blockchain, any changes to the ledger would be reflected in all copies in minutes, allowing for financial data

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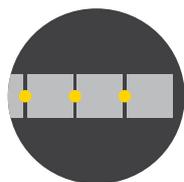
## How would the ledger operate?

Each participant would ultimately access the same ledger. All copies of the ledger would be simultaneously updated ensuring identical copies of the ledger, with no ledgers or versions of data out of sync. The shared ledger could be applied to a consortium of banks or even applied to one multiple group financial institution.

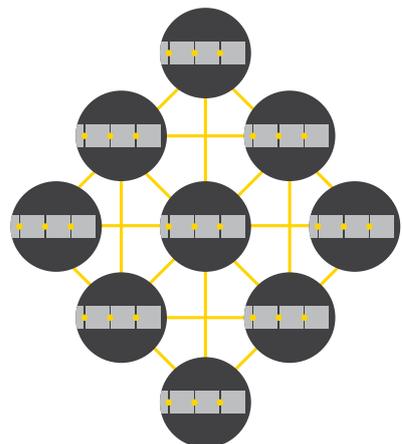
A single blockchain



With a shared ledger, data is validated at the source and is difficult to corrupt, helping to combat fraud and allowing for accurate and complete information.



The distributed ledger



# Applying the technology

standards – such as charts of accounts and reporting hierarchies – to be updated easily.

## Ensuring source system accuracy

Blockchain technology possesses a number of characteristics that can ensure financial data is accurate, secure and simple to analyze.

The technology can make transactions easy to track, making it possible to investigate balances at the source transaction. The accuracy of all transactions and subsequent accounting entities are maintained through cryptography mathematics.

And with a shared ledger, data is validated at the source, making it difficult to corrupt, which helps to prevent fraud and ensure data is both accurate and complete.

## Adopting blockchain

Despite the possibilities, it's important to remember that blockchain is a very new technology. As a result, there are only a small number of instances in which the technology has been applied to the finance function.

There are also a number of factors that could deter financial services organizations from adopting blockchain technology.

One is scalability. Blockchain is likely to require a single, centralized database if binary traditional computer systems are applied; implementing blockchain could prove to be costly.

Another is the cost of migration. Moving from legacy finance systems is likely to require significant investment from organizations.

## Implementing blockchain

Which finance function tasks is blockchain most capable of revolutionizing, and in which areas is the technology easiest to implement?

Area of application	Ability to revolutionize		Complexity of implementation	
	Very low	Very high	Very low	Very high
Improve business decision support by delivering planning, budgeting and forecasting, capital planning, and supporting business pricing decisions.				
Deliver mandatory external reporting.				
Produce management reporting.				
Record business transactions, including reconciling financial transactions to source.				
Maintain financial data standards such as chart of accounts, cost and profit centers and reporting hierarchies.				
Provide consolidated views such as balancing inter company position and delivering group-consolidated view.				
Execute financial accounting: deliver product accounting, account for accruals and prepayments and account for impairments.				

# Exploring its potential

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Ultimately, blockchain could help you to create a faster, cheaper, more efficient and more transparent finance function.

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The potential rewards from adopting blockchain, though, are likely to far outweigh the cost of migration. At first, banks may well decide to adopt a modular approach that allows them to use blockchain within their organization, but has the potential to be expanded for intercompany use. For a fully shared ledger to work, it would require a consortium of banks to participate, with all banks agreeing to adopt the technology in a similar time frame to one another.

While it might take time for organizations to realize the full benefits of blockchain, the technology's potential for transforming financial services is unlimited.

Because of this, at EY we're already working to understand fully how blockchain could be applied to the finance function – and we recommend that you too (if you haven't already) start playing with the technology and exploring how you could adopt it in your organization, rather than waiting and having to react later on. Because, ultimately, blockchain could help you to create a faster, cheaper, more efficient and more transparent finance function.

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