



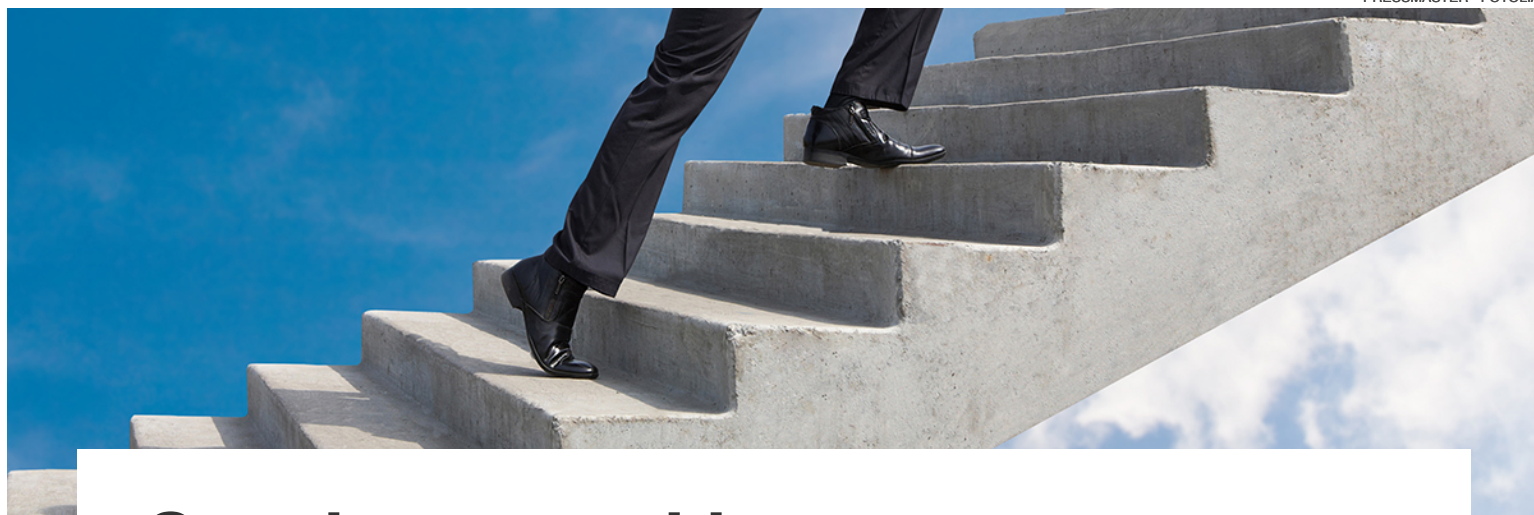
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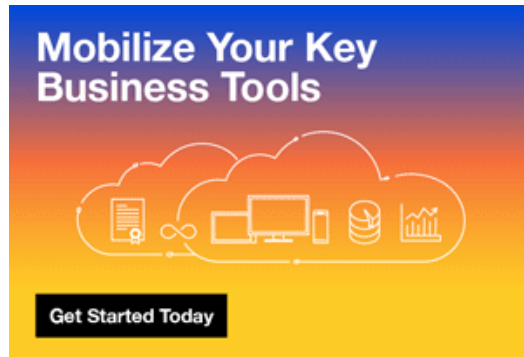
# Step-by-step guide to a blockchain implementation



by  
**Sue Troy**  
Editorial Director



If you're not educating yourself on blockchain technology right now, you can bet your competitors are. Read our two-part primer on launching a blockchain implementation.



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**CIO Decisions: The key steps to launching blockchain implementations:**

Bill Caraher envisions the day when blockchain technology will "substantiate and with zero doubt prove" the origins of documents and contracts used in the legal industry. For Caraher, CIO and director of operations at von Briesen & Roper, a 250-employee law firm in Wisconsin, this capability would be monumental.

Blockchain technology -- in which a peer-to-peer distributed network is used to validate transactions and other records and thereby create an immutable record -- will have "sweeping implications" around provenance and authenticity of legal documents, he said.

A blockchain implementation could determine "the authority of documents and [prove] their originality, their state, their disposition, their destruction, and just be the index of the real story," Caraher said. "It could lead to speedier resolutions, it could lead to better evidence gathering [and establishing] foundation for a case."

Caraher eagerly anticipates the development of technology that would help make that promise a reality. But like many of the potential use cases for blockchain technology, the one Caraher foresees hasn't yet been fully developed or productized.

Indeed, potential use cases are a favorite topic among blockchain observers, and it seems that every conversation about the technology yields a new one. But sorting through which blockchain use cases actually make sense takes some work. And then having software -- and in some

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cases hardware, for IoT-enabled scenarios -- to put that use case into action is another step. But companies will eventually get there, proponents say, through concerted and judicious efforts among CIOs, IT practitioners, IT vendors and developers alike.



Bill Caraher

## Impact across vertical industries

IT's involvement with blockchain implementations -- and therefore the level of urgency associated with putting this technology into operation -- will to some degree depend on the vertical industry the company is in, with financial services being the most urgent. But as evidenced by Caraher's enthusiasm for blockchain's application to legal services, interest in the technology is widespread. Vendors active around blockchain -- both broad IT vendors [such as Microsoft](#) and IBM, as well as niche blockchain suppliers -- say they're fielding calls from virtually all industries. In addition to [financial services and legal industries](#), others include: insurance, utilities, public sector, advertising, healthcare, auditing, supply chain, manufacturing and real estate.

[Banks are under particular pressure](#) to get going on blockchain implementations because they're facing pressure on three fronts, said [Jeff Garzik](#), co-founder of blockchain services and software company Bloq and a core Bitcoin developer: Technology companies like Apple and Google are rolling out payment software; telecom companies are enabling consumers to use their mobile phones as a bank account, to pay bills and send money; and [cryptocurrencies such as Bitcoin](#) and Ethereum, which are underpinned by blockchain technology, are being used to disrupt banks much the same way tech and telecom companies are. But, he said, the disintermediation to banks will not be all-encompassing. "You're not going to have Aunt Joan and Uncle Joe store all of their wealth on their smartphone, for example. Banks are still going to exist and provide loans and provide services that strictly cash-like Bitcoin and Ethereum systems do not provide."

[Yorke Rhodes](#), global business strategist at Microsoft, said that the

financial services industry got a head start on developing uses for blockchain technology because it had early awareness of Bitcoin. "It's pretty easy for people to be able to pivot and say, 'Well, we understand Bitcoin and the underlying technology. What else can we do with this? And, oh, by the way, this may be more disruptive to our business than Bitcoin because Bitcoin is really

just a payment vehicle.'" Despite the first-mover status of the financial services industry, many other industries will benefit from the technology, Rhodes said.

**What areas of blockchain deliver the most customer value? That's the key question that CIOs should be asking.**

**Jeff Garzik**

co-founder, Bloq

## **Getting started on a blockchain implementation**

Garzik identified four stages to a blockchain implementation, and they apply no matter the industry a company is in: In Stage 1, [a use case](#) is identified and a technology plan scoped out. Stage 2 is a [proof of concept](#) (POC). Stage 3 is a field trial, which involves a limited-production run with customer-facing data, which is stepped up to involve more customer-facing products and data volumes, he said. And Stage 4 is a full-volume rollout in production. Almost no organizations have reached Stage 4, Garzik said.

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When it comes to Stage 1, "the most pragmatic question [for IT to ask about blockchain] is, 'To what products does blockchain apply, but more pragmatically, how does blockchain not apply?'" Garzik said. "Some of the systems that are being converted are being explored more out of interest rather than being directly driven by customer value. So what areas of blockchain deliver the most customer value? That's the key question that CIOs should be asking."

[Joe Guastella](#), global leader at Deloitte Consulting's financial services practice, said that some clients are approaching the firm with a clear idea that they want to understand how blockchain might be used, whereas others come to the firm with a business problem, with [no preconception that blockchain should be used](#).

"There are people who are saying, 'We have these problems. ... We've got to take costs out.' And we kind of shape out and scope out the problem statement. And then you look at what the solutions may be," Guastella said. "And then you have some that say, 'You know what? This may lend itself to a blockchain solution because it'll cut out these 10 post-transaction reconciliation steps and therefore you can save this much money.'"

Regardless of how the use case is discovered, companies that have identified a use case for a blockchain implementation will either look to their vendor partners for a product that fits the bill, or will work to develop the technology internally.

Smaller companies are more likely to look to a vendor to supply a product. "I would see us working with one of our existing vendors to say, 'Are you



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to the firm?" Caraher said. He said that von Briesen & Roper would most likely work with its niche vendors in the [document management space](#) to see how they could incorporate blockchain technology into their products.

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Use of products employing blockchain technology would be a competitive advantage for his firm, Caraher said.

For larger companies, once a use case has been identified, Rhodes said, the next step is to identify an architecture to address the use case. And as with all IT projects, IT will need to determine budget, deadline and whether the work can be taken on using internal resources or whether outside help is needed. He said most companies will choose to [contract for outside help](#) with blockchain. "It's going to be way too hard to get up to speed in a sensible way across multiple complex technologies that are three or four different potential competing variants," he said.

Garzik, however, noted that whether doing a blockchain implementation internally or with outside help, it's important for companies to gain expertise in-house with blockchain technology because the technology is both new and complex.

For IT shops looking for help with a blockchain project, there's a very broad if still-immature ecosystem developing around the technology. According to a [recent report from 451 Research](#), there are almost 300 Bitcoin and blockchain-related startups across the globe, operating to develop technology in the financial, productivity, storage, smart contracts, social networking, supply chain management, identity management, governance, retail and IoT product spaces. Most big IT vendors are active around blockchain, notably, IBM, which has put considerable resources behind the Linux Foundation's [Hyperledger Project](#), and Microsoft, which is working with banking industry consortium R3 CEV to enable [testing of blockchain systems using Microsoft Azure](#). And the large consultancies and systems integrators have also developed practices around the technology.

*In [part two of this primer on blockchain technology](#), SearchCIO editorial director Sue Troy covers the next steps in getting a blockchain implementation off the ground: proof of concept, limited-production field trial with customer-facing data and full-volume rollout.*



**Sue Troy** asks:

# What is your company's understanding of and interest in blockchain technology?



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