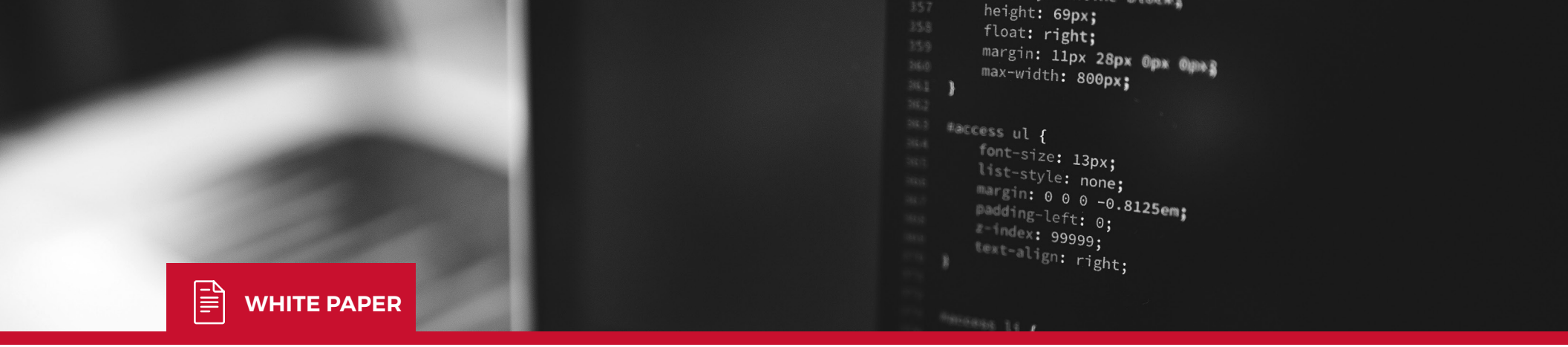


WHITE PAPER

The Secret Sauce for Implementing Blockchain:

Your Own People

Mike Hendrickson
Vice President,
Technology & Developer Products

skillsoft

EXECUTIVE SUMMARY

Blockchain is gaining traction as more executives and business leaders understand the technology's true potential beyond cryptocurrencies. Billed as the ideal way to transfer information in a trustless system, blockchain was considered over-hyped and in the fringe for many years. Today, that's no longer true.

This paper explores industry sectors and business models primed for disruption by blockchain and the ways in which it's already being incorporated by global industry leaders. CIOs must prepare to harness the distributed ledger's technology in the near future to remain competitive, and future-facing organizations are already investing in the people and processes to make blockchain work today.

BLOCKCHAIN: DISTRIBUTED DISRUPTION COMING SOON TO YOU

The pseudonymous Satoshi Nakamoto first conceptualized blockchain in 2008 with their white paper introducing Bitcoin. Today this technology is finally embraced beyond the cryptocurrency's loyal circles with a shared recognition of its true promise across various industries and sectors. Beyond the fintech sector, enterprises everywhere are exploring blockchain as a solution to current challenges in addition to future decentralized and distributed business models.

Blockchain is streamlining businesses today with improved efficiency of supply chain management, increased security of contracts, and greater transparency into business operations and production of goods. As blockchain's technology is increasingly understood and utilized in altering existing business models or developing new ones, expect considerable disruption in some of the largest global industries. Healthcare, the energy sector, manufacturing, fintech and the automobile industries are some of the places major disruption is anticipated.

But what exactly is blockchain? Beyond the technological architecture that underpins the cryptocurrency Bitcoin, a blockchain is a type of system that allows individuals or entities to connect, transfer, and communicate without the need for a centralized authority. This system enables the transfer of information in a "trustless" model, making reliable transactions with an unknown, and therefore untrusted, entity possible.

Blockchains exists in two major forms: public and private. Public blockchains are behind cryptocurrencies like Bitcoin, Ethereum, Litecoin, and others and are open to any participant, without the vetting or authentication performed by a trusted, central authority. Private blockchains are increasingly being developed by government institutions and companies to handle law enforcement, tax returns, supply chain management, and to authenticate goods, among other uses.

> What we're seeing is the continuing evolution of blockchain from a capable yet underdeveloped technology into a more refined and mature solution poised to deliver on its initial promise to disrupt.
> **Deloitte**[1]

1 *"Deloitte's 2019 Global Blockchain Study." Linda Pawczuk, Rob Massey, Johnathan Holdowsky, Deloitte Insights, Deloitte, 2019.*

With innumerable use cases and applications, it's easy to see why demand for blockchain engineers is at an all-time high. According to data from Hired.com, demand for blockchain engineers is growing at more than 500% year over year.[2] LinkedIn's analysis is similar, with blockchain engineer stealing the top position for emerging job in 2018 with 33-fold growth in a single year.[3] As blockchain's popularity and prevalence becomes commonplace in business, higher education struggles to keep up. Aside from programs at top universities like MIT, Stanford and Princeton, there are relatively few higher education options for those eager to learn blockchain. Instead the responsibility to train employees lies with the organization.

In a world where anyone can edit a Wikipedia entry, blockchain is the answer to a question we've been asking since the dawn of the internet age: How can we collectively trust what happens online?[4]

FOR CIOS, IT'S TIME TO CARE ABOUT BLOCKCHAIN

Blockchain is here to stay. CIOs and tech leaders are well-advised to understand how the technology works, the potential use cases for their organizations, and the ways blockchain could disrupt their business model completely. Leaders increasingly believe in blockchain's true power, and yet most have not taken steps to incorporate it into their organizations: only 23% of respondents surveyed by Deloitte have deployed projects integrating blockchain technology.[6] As such, there exists a growing opportunity for CIOs to capture future market share by investing in the people and systems needed to make blockchain work today.

A majority of respondents to Deloitte's 2019 blockchain survey call the technology a top-five priority, but less than a quarter have initiated projects where the technology is deployed.[5]

Businesses need to start planning investments in order to create and capture future value and stave off competitors. Consider:

- Gartner predicts that blockchain's business value-add will surge from $360 billion in 2024 to $3.1 trillion by 2030.[7]
- PwC estimates it's possible that 10-20% of the global economy will be running on blockchain by the same year.[8]

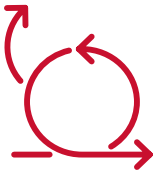
Yet Gartner also found that 77% of CIOs note their organization has no interest or plans to develop blockchain applications or uses today, a fact they believe "is a more dangerous attitude."[9]

2 *"2019 State of Software Engineers Report." Hired.com, 2019.*
3 *"LinkedIn's 2018 U.S. Emerging Jobs Report." LinkedIn's Economic Graph Team, LinkedIn.com, December 13, 2018.*
4 *"The Invisible Technology That's Changing the World." Rob Marvin, August 29, 2017.*
5 *"Deloitte's 2019 Global Blockchain Survey." Linda Pawczuk, Rob Massey, Jonathan Holdowsky, Deloitte, May 6, 2019.*
6 *"Deloitte's 2019 Global Blockchain Survey." Linda Pawczuk, Rob Massey, Jonathan Holdowsky, Deloitte, May 6, 2019.*
7 *"The CIO's Guide to Blockchain." Kasey Panetta, Gartner, July 13, 2018.*
8 *"Blockchain is Here. What's Your Next Move?" Steve Davies, Scott Likens, PwC, 2018.*
9 *"The CIO's Guide to Blockchain." Kasey Panetta, Gartner, July 13, 2018.*

It's clear new business models and markets will evolve as blockchain matures with adoption and application. CIOs should be asking a broad set of questions regarding blockchain to determine blind spots, forecast new market opportunities and articulate long-term goals for the technology in the organization.[10] Tech leaders with an in-house team poised to take on blockchain roles quickly and at scale will fare best. For enterprises, this means identifying individuals who possess the curious mindset and technical skillset intrinsic to the challenging world of blockchain development and upskilling them—today.

58% of respondents to Deloitte's 2019 Global Blockchain Survey say the potential of smart contracts as a benefit of blockchain implementation is "highly important."[14]

HOW BLOCKCHAIN IS USED TODAY



SPM: The marriage of supply chain management and blockchain is a sensible one. The global economy ships more than four trillion in goods annually, all of which require a growing stream of paperwork and documentation. Estimates reveal that documentation is 20% of actual transportation costs.[11] Blockchain simplifies the exchanges between suppliers, producers, clients and third-party entities, streamlining the process and creating the potential to save hundreds of millions of dollars per year. With a blockchain in place, any form of exchange or agreement can be managed more fluidly, and self-executing smart contracts further streamline the permissions needed to move to the next step of the supply chain.

Smart Contracts: Business leaders agree: blockchain-enabled smart contracts are one of the most exciting and immediately applicable frontiers of this burgeoning technology. Smart contracts are a way to "automate processes and make them legally binding and self-enforcing at the same time."[12] 58% of respondents to Deloitte's 2019 blockchain survey say the potential of smart contracts as a benefit of blockchain implementation is "highly important."

Smart contracts are multi-party, rule-based contracts that trigger an action or event after a requirement has been met. For example, after payment is received, a smart contract can trigger a delivery. Conversely, if a requirement has not been met, smart contracts can prompt penalties or halt the process. No manual checking is required, and errors are nearly impossible as the smart contract receives input from the distributed, immutable ledger and operates exactly as programmed.[13]

10 *"Deloitte's 2019 Global Blockchain Survey." Linda Pawczuk, Rob Massey, Jonathan Holdowsky, Deloitte, May 6, 2019.*
11 *"The CIO's Guide to Blockchain." Kasey Panetta, Gartner, July 13, 2018.*
12 *"Blockchain and Smart Contract Automation: An Introduction and a Forecast." Alan Morrison, PwC, March 2016.*
13 *"How Blockchain Can Transform the Supply Chain." Rob O'Byrne, Logistics Bureau, January 9, 2019.*
14 *"Deloitte's 2019 Global Blockchain Survey." Linda Pawczuk, Rob Massey, Jonathan Holdowsky, Deloitte, May 6, 2019.*

IoT and Data Security: With devices that are interconnected and connected to a network where they must be smart and secure enough to automate processes and keep data private at the same time, it's easy to see why security has long been a chief concern in the Internet of Things (IoT) industry.

Blockchain-based systems work to bypass the security concerns endemic to traditional cloud-based IoT networks. The intersection of IoT and blockchain allows data to be securely transferred to and from a blockchain running a set of decentralized apps (dApps) where smart contracts and user input feed the IoT device. Ensuring not only a more secure device but a smarter one, blockchain enables communication between devices to manage bugs, check energy usage, and update software. When many devices are connected, the IoT blockchain acts as a public ledger that removes the need for third parties to monitor communications between them.[15]

RIDE THE NEXT WAVE OF DISRUPTION WITH BLOCKCHAIN

Eager to dip their toes in without committing fully, risk adverse markets and companies are slow to implement blockchain. Reticence is preventing the game-changing disruption that would help transform industries like healthcare to meet modern demands.[16] With a closer look, it's not hard to see why. The U.S. healthcare system is a behemoth of procedures, protocols and people—not to mention their highly personal information. While blockchain is anticipated to be instrumental in securing patient data and insurance payouts in the future, the industry is not ready to make the jump just yet.

Blockchain's transformative powers will reach beyond well-established institutions to impact new companies and services. Even modern-day disruptors like Airbnb and Uber are expected to face disruption from blockchain in the coming years. These tech titans operate in the sharing economy through peer-to-peer services but still rely on a centralized hub—the company. However, the trustless system facilitated by blockchain will create the opportunity for real P2P models in the ride and home sharing industries.

Consider the case of UChain. UChain is a "distributed intelligent network for sharing economy" aiming to disrupt P2P as we know it. Enabled by a decentralized platform, UChain supports various dApps to be launched and run via the network. Here, users can exchange value for services and goods and publish content freely, without the need for a

15 *"The Intersection of Blockchain and IoT." CIOReview, January 8, 2019.*
16 *"The CIO's Guide to Blockchain." Kasey Panetta, Gartner, July 13, 2018.*

third party. According to UChain, users save up to 25% through the decentralized approach which removes the third-party middlemen central to current P2P models.[17]

Blockchain does more than cut out the middleman. It offers transparency and traceability for businesses, the likes of which we've never seen before.

BIG BRANDS BACK BLOCKCHAIN TODAY

Luxury goods conglomerate LVMH Group implemented blockchain technology to ensure the authenticity of products sold online. The group manages brands like Louis Vuitton, Christian Dior, Dom Pérignon, TAG Heuer, and more than 60 others with revenues exceeding 50 billion in 2018. Aiming to curb the problematic counterfeiting rampant to e-commerce, LVMH partnered with Microsoft and ConsenSys to develop AURA, a traceability system based on the Ethereum blockchain to thwart counterfeiting and offer consumers guaranteed authentic goods.

With AURA, the multiple steps of luxury good production from design to raw material processing, manufacturing, and distribution are recorded on the blockchain. Customers can then access a certificate of authenticity that relies on the various steps of production recorded in the blockchain ledger to ensure authenticity. This use of blockchain can deliver greater transparency and a "single-source of truth" for consumers.[18]

Global retailer Walmart is also incorporating blockchain. After the costly and harmful 2018 romaine and Boston lettuce E. coli outbreaks, Walmart partnered with IBM to develop a blockchain system for purveyors of green vegetables in attempt to cut down on food borne illness outbreaks. By using blockchain to handle supply chain management, Walmart will improve traceability and have greater visibility in the sources and destinations of products. As of September 2019, Walmart is requiring all purveyors of its green vegetables upload data to their blockchain.[19]

Toyota is investing in blockchain, too. The company's R&D division Toyota Research Institute and MIT's Media Lab are collaborating to develop blockchain technology for autonomous vehicles in order to anonymously collect the necessary data required to build safe and reliable self-driving cars.

17 *"UChain—The Next Level Blockchain Innovation to Ensure the Possibility of Shared Economy." VC News Network, Reuters, October 20, 2018.*
18 *"Louis Vuitton Launched a Blockchain in Ongoing Fight Against Counterfeits." Fintech News, May 2019.*
19 *"Walmart Is Betting on the Blockchain to Improve Food Safety." Ron Miller, Tech Target, September 2018.*

Speaking to the massive pools of mileage data needed to build autonomous vehicles, CFO Chris Ballinger says, "Blockchains and distributed ledgers may enable pooling data from vehicle owners, fleet managers, and manufacturers to shorten the time for reaching this goal, thereby bringing forward the safety, efficiency and convenience benefits of autonomous driving technology."[20]

The partnership is also exploring the opportunity for usage-based insurance, car sharing, vehicle access and carpooling through blockchain.

HARNESSING BLOCKCHAIN TECHNOLOGY

For all the talk of blockchain as a disrupter, the technology has begun to deliver on its initial promises. Operating as a distributed ledger that records actions in a series of hashes linked together, blockchain offers an immutable ledger that allows for the transfer of information or exchange of goods, services and communication in a secure manner.

Currently used in supply chain management, to create self-enforcing and self-executing smart contracts, and as the technology underpinning cryptocurrencies like Bitcoin and Ethereum, blockchain has already cemented its role as an emergent technology. We're seeing major global organizations embrace blockchain for better traceability of goods and more secure transmittance of data. As blockchain continues its journey toward everyday technology, major industries will need to ensure their tech professionals have the right skills to support the modern technology stack —as well as entirely new business models and markets.

As organizations transform for the digital economy, Skillsoft helps learners start at the right place, and help employers navigate the many areas they need to re-skill and upskill talent in both mission-critical technologies and business/leadership. Our intentionally-designed learning programs, support key career paths, such as blockchain, data science and DevOps, all while minimizing time away from the job and maximizing learning effectiveness.

Learn more about Skillsoft's Aspire learning paths.

Global demand for blockchain engineers is through the roof, at a 517% increase year over year.[21]

20 *"Toyota Pushes Into Blockchain Tech to Enable the Next Generation of Cars." Johnathan Shieber, Tech Crunch, 2017.*

21 *"2019 State of Software Engineers Report." Hired.com, 2019.*

ABOUT THE AUTHOR

Mike Hendrickson is Vice President, Technology & Developer Products at Skillsoft. Prior to Skillsoft, Mike spent 15 years at O'Reilly Media, Inc. where he most recently was the VP of Content Strategy.

Mike is a technology strategist with extensive experience establishing, building and maximizing relationships with industry leaders, companies, and partners. Throughout his career, Mike has demonstrated success leading, directing and managing the development, sales and delivery of thought-provoking content.

Mike Hendrickson
Vice President,
Technology & Developer Products

linkedin.com/in/mikehendrickson

@mikehatora

skillsoft

linkedin.com/company/skillsoft

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skillsoft.com

US 866-757-3177
EMEA +44 (0)1276 401994
ASIA +65 6866 3789 (Singapore)
AU +61 2 8067 8663
FR +33 (0)1 83 64 04 10
DE +49 211 5407 0191
IN +91-22-44764695
NZ +64 (0)21 655032

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