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Building Block(chain)s: 6 Key Findings – and Featured Predictions – from the World Economic Forum’s Blockchain Report

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The World Economic Forum threw a knockout punch this month when it released its report “*The Future of Infrastructure: An Ambitious Look at How Blockchain Can Reshape Financial Services*.”¹ When Giancarlo Bruno, the World Economic Forum’s Head of Financial Services Industries, stated powerfully and unequivocally, “Rather than stay at the margins of the finance industry, blockchain will become the beating heart of it,”² the world felt the impact.

Like so many other things that we know are important to do, but which we may struggle to find the time for, reading the roughly 130-page World Economic Forum report may not be at the top of your “to do” list. We wrote this article to reveal, in a user-friendly way, some of the World Economic Forum report’s central findings and key predictions, as well as to give you a sense of some of the potential financial services use cases identified by the World Economic Forum. Among other things, this article covers: **(i) the 6 Key Take-Aways from the World Economic Forum Report; (ii) the 5 Characteristics of Promising (Financial Services) Use Cases; (iii) the Top 9 (Financial Services) Blockchain Applications; and (iv) a Closer Look at What Blockchain Can Build (featuring Loan Syndication and Trade Finance).**

This article is the second in a series. If you are looking for a more basic introduction to blockchain and smart contracts generally, please see our article published August 18, “*The (Heart)Beat Has Sounded: The World Economic Forum Places Blockchain Front and Center*.”³

SETTING THE STAGE FOR DISRUPTION

The financial services industry arguably is, and has been, ripe for disruption. As noted in our previous article,⁴ The Economist has estimated that banks charged nearly \$1.7 trillion to process payments in 2014⁵ – in layman’s

¹ See “The Future of Financial Infrastructure: An Ambitious Look at How Blockchain Can Reshape Financial Services” (Aug. 12, 2016), <https://www.weforum.org/reports/the-future-of-financial-infrastructure-an-ambitious-look-at-how-blockchain-can-reshape-financial-services>.

² “Blockchain Will Become ‘Beating Heart’ of the Global Financial System” (Aug. 12, 2016), <https://www.weforum.org/press/2016/08/blockchain-will-become-beating-heart-of-the-global-financial-system/>.

³ See “The (Heart)Beat Has Sounded: The World Economic Forum Places Blockchain Front and Center” (August 18, 2016), <https://media2.mofo.com/documents/160817-world-economic-forum-blockchain.pdf>.

⁴ See, *supra*, note 2.

⁵ “High Tech Meets Low Finance” (Mar. 12, 2016), <http://www.economist.com/news/finance-and-economics/21694531-all-money-spent-technology-banking-not-efficient-high-tech-meets-low>.

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terms, roughly 2% of the entire world economy.⁶ Among other things, blockchain and smart contracts technologies promise to reduce costs drastically, including by eliminating the need for intermediaries and to provide significantly fewer opportunities for manual errors.⁷

According to the World Economic Forum's report, in the past three years, over US\$1.4 billion has been invested in distributed ledger technology (also known as blockchain), and over 2,500 patents have been filed.⁸ By 2017, it is expected that over 80% of banks will have launched blockchain projects.⁹ In other words, blockchain is here to stay, and it is less a matter of *whether* blockchain and smart contracts will disrupt the economy than it is a question of *when*.

6 KEY TAKE-AWAYS FROM THE WORLD ECONOMIC FORUM'S REPORT

The World Economic Forum's report presented the following six key findings and predictions with respect to the finance industry and blockchain intersection:¹⁰

1. "Blockchain technology has great potential to drive simplicity and efficiency through the establishment of new financial services infrastructure and processes."¹¹

As a change-driver, this prediction may be the most compelling of the six. Blockchain has the potential to reduce – or even eliminate – certain existing manual requirements and intermediaries, reducing errors and increasing efficiency, while providing real-time financial transaction monitoring, heightened transaction transparency and reductions in counterparty risk and fraud.

2. "Blockchain technology is not a panacea; instead, it should be viewed as one of many technologies that will form the foundation of next-generation financial services infrastructure."¹²

Technology is evolving constantly, and it does not evolve in a vacuum. Blockchain will not be the only financial services infrastructure disruptor. In the 1980s, the advent of ATMs changed the ways in which consumers interacted with their banks; the internet explosion led to a new global finance era (including online banking); and smart phone apps largely have eliminated consumers' needs for paper bank statements and checks. While blockchain and smart contracts may be next in line to shake up the financial services industry, many other technologies are being developed simultaneously, including, among others, biometrics, cloud computing, artificial intelligence and quantum computing. Blockchain and its uses are likely to shape, and be shaped by, such other technologies, and symbiotic relationships are likely to emerge.

⁶ See World Development Indicators Database, World Bank (July 22, 2016), <http://databank.worldbank.org/data/download/GDP.pdf> (providing the combined global GDP for 2015).

⁷ See, e.g., "Blockchain Wallet FAQ," <https://blockchain.info/wallet/wallet-faq> (explaining how blockchain technology enables completing bitcoin transactions easily via an email-like platform).

⁸ See *WEF Report*, *supra* note 2, at 14..

⁹ *Id.*

¹⁰ See *id.* at 18.

¹¹ See *id.* at 19.

¹² See *id.* at 20.

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3. “Applications of blockchain technology will differ by use case, each leveraging the technology in different ways for a diverse range of benefits.”¹³

There is no single application for blockchain. Blockchain may be applied to a vast variety of use cases, some of which are explored in the World Economic Forum report. The powers of blockchain and smart contracts may be harnessed in myriad ways and are capable of providing a wide range of benefits, which may or may not be applicable to each use case. For example, the securities market can take advantage of blockchain’s ability to provide real-time settlements. Enhanced reporting and automated compliance can revolutionize the regulatory system. Secure identity reports are likely to make “know your client” and other similar processes and requirements faster and more accurate, eliminating a point of anxiety for banks and other financial institutions.

4. “Digital identity is a critical enabler to broaden applications to new verticals; digital fiat (legal tender), along with other emerging capabilities, has the ability to amplify benefits.”¹⁴

Accurate, secure and tamper-proof digital identities are among the most promising blockchain technology applications. Creating such identities will reduce the information asymmetry that contributes to mistrust of online strangers. In addition, a digital identity system could be integrated directly into the financial services infrastructure, leading to faster and more accurate compliance with various regulations, including the USA PATRIOT Act, as well as seamless customer onboarding and improved counterparty matching.

5. “The most impactful blockchain technology applications will require deep collaboration between incumbents, innovators and regulators, adding complexity and delaying implementation.”¹⁵

Significant investments of time and money by individuals, entities and governmental bodies will be required in order to take full advantage of blockchain’s and smart contracts’ potentials. Among other things, a new financial infrastructure will need to be built and implemented, and laws, regulations and other governmental frameworks will need to catch-up to the new technology. In addition, individual legal decision-makers, including judges, lawmakers, regulatory authorities and others will need to develop a deep understanding of what blockchain and smart contracts are, as well as their implications. We will need an entirely new legal lens through which to view blockchain. As a recent Florida criminal case highlights, trying to fit blockchain technology into the existing legal framework may require new laws and a new way of thinking about long-standing legal issues.¹⁶

In a promising example of bipartisanship, Democrats and Republicans have united around the first U.S. federal legislative attempt to adopt a national policy promoting citizens’ access to emerging financial innovations, including blockchain and digital currencies.¹⁷ That bill expressly calls out blockchain, declaring that, “[...]”

¹³ See *id.* at 21.

¹⁴ See *id.* at 22.

¹⁵ See *id.* at 23.

¹⁶ See Ovalle, David, “Bitcoin Not Money, Miami Judge Rules in Dismissing Laundering Charges” (July 25, 2016), <http://www.miamiherald.com/news/local/crime/article91682102.html> (discussing case in which judge held that “Bitcoin has a long way to go” before it becomes a monetary equivalent, as it is not backed by any government and is not tangible).

¹⁷ See H. Res. 835 (July 14, 2016) https://legiscan.com/US/text/HR835/id/1423419/US_Congress-2015-HR835-Introduced.pdf

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blockchain technology with the appropriate protections has the potential to fundamentally change the manner in which trust and security are established in online transactions through various potential applications in sectors including financial services, payments, health care, energy, property management, and intellectual property management [...].”¹⁸

6. “New financial services infrastructure built on blockchain technology will redraw processes and call into question orthodoxies that are foundational to today’s business models.”¹⁹

As blockchain technology expands and develops, the business community will need to adapt to the changing financial services infrastructure. Many of today’s business assumptions will be rendered false by the increased immutability, transparency and autonomy that blockchain promises to provide. For example, tamper-proof data is expected to alter information silos that currently exist among market participants, reduce arbitrage fears and create clear asset and transactional audit trails. The existence of truly shared information will challenge existing competitive-advantage models that leverage information asymmetry. Greater asset transparency will disturb current pricing models and may weaken ratings agencies’ relative power. Real-time monitoring will reduce regulatory “friction costs,” while smart contracts may decrease the time and energy spent on contract enforcement.

5 CHARACTERISTICS OF PROMISING (FINANCIAL SERVICES) USE CASES

Blockchain and smart contracts are exciting emerging technologies. Because they are so new, it is impossible to specify in advance the scenarios and use cases that will benefit most from blockchain technology. In its report, however, the World Economic Forum enumerated five characteristics that the most promising (as determined by the World Economic Forum) financial services blockchain use cases appear to share.²⁰

1. There is a *shared repository* of information, which is used by multiple parties.
2. *Multiple writers* generate transactions that require modifications to the shared repository.
3. *Minimal trust* exists between the parties.
4. *Intermediaries* exist that are designed, among other things, to engender and enforce trust.
5. *Transaction dependencies* are created by different parties.

The World Economic Forum identified these five factors by analyzing commonalities across nine proposed financial services blockchain use cases, which are described in the next section of this article. Awareness and understanding of these attributes may be useful in predicting the utility of blockchain and smart contracts solutions to other potential use cases.

¹⁸ See *id.*

¹⁹ See *WEF Report*, *supra* note 1, at 24-29.

²⁰ *Id.* at 36.

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TOP 9 POTENTIAL (FINANCIAL SERVICES) BLOCKCHAIN APPLICATIONS

The World Economic Forum's report explored in detail the nine different blockchain use cases described below. These use cases span the financial services sector, including payments, market provisioning, investment management, capital raising, deposits, lending and insurance.

1. *Global payments* (reducing risk in international money transfers),
2. *Insurance claims processing* (facilitating claims management),
3. *Syndicated loans* (automating syndicate formation),
4. *Trade finance* (enabling faster and safer trade),
5. *Contingent convertible bonds* (minimizing need for point in time stress tests and thus reducing market volatility),
6. *Automated compliance* (eliminating audit errors and other costs),
7. *Proxy voting* (counting votes via smart contracts),
8. *Asset rehypothecation* (tracking assets and transactions), and
9. *Equity post-trade* (clearing trades automatically and instantaneously).

For each of the above use cases, the World Economic Forum first identified current processes and their limitations before proposing improved processes driven by blockchain technology.

A CLOSER LOOK AT WHAT BLOCKCHAIN CAN BUILD

While the World Economic Forum's report takes an in-depth approach (including by providing valuable graphics and flowcharts) that we cannot replicate in this article, this section is intended to give you a flavor for two of the nine "deep dive" use cases that appear in the World Economic Forum's report, namely Syndicated Loans and Trade Finance. Those two use cases were selected due to the authors' interests, not because such applications were qualitatively "better" than the other seven use cases.

Loan Syndication²¹

Current State: Loan syndication is a key component of today's large-scale bank financings. Unfortunately, the syndication process is burdened by several significant factors, including, among others: (i) manual diligence of obligor's financial health, (ii) potential syndicate members' relative risk-appetites, (iii) labor-intensive documentation processes, (iv) slow payments settlements and (v) widespread use of costly service intermediaries.

²¹ See *id.* at 66-73.

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Blockchain's Promise: Blockchain technology can enhance syndication by significantly streamlining the current process. For instance, by using an obligor's corporate digital identity, diligence can be automated, saving time and money and minimizing opportunities for error. Financial institutions will include, as part of their digital identities, their respective financial records and risk tolerances. By using programmable selection criteria and those digital identities, agents will be able to form syndicates more quickly, by, for example, matching banks' relative risk tolerances with particular transactions. Using blockchain, information can be shared seamlessly among diligence and underwriting systems, eliminating duplicative efforts, mistakes and inconsistent results. Smart contracts are expected to decrease – or eliminate – the need for intermediaries and to assist with management of the loan life cycle, and loans will be able to be funded in real time.

Hurdles to Overcome: Although we can see it on the horizon, significant work will be required in order to transform automated syndication from vision to reality. Among other things, financial institutions will need to collaborate to develop a standard counterparty rating system. Truly automated diligence will be possible only if financial institutions agree on standard data fields to be populated. And getting financial institutions and potential obligors to make their respective financial details available on blockchain may be the greatest challenge of all. The mass storage of such proprietary information would be unprecedented. If financial institutions can overcome these obstacles and automate syndications, however, the World Economic Forum's report predicts that the rewards will be great.

Trade Finance²²

Current State: Trade finance is a US\$10 trillion annual market,²³ and letters of credit and other financial backing systems are integral to global trade. Trade finance exists to mitigate the risks faced by parties dealing with unknown counterparties. Today, financial institutions act as intermediaries, using their heft to guarantee that sellers will be paid upon the proper delivery to buyers of specified goods. The current trade finance process contains several friction points that are less than ideal. To list a few, (i) labor-intensive, manual contracts creation is required, (ii) financial information (that may or may not be trustworthy) must be exchanged and (iii) delivery times are uncertain and subject to delays, including for third party checks, bank verifications and the like.

Blockchain's Promise: Smart contracts and digital acknowledgments can streamline and expedite trade finance, benefiting both traders and financial institutions. Real-time information and data transparency will speed the initiation process by assisting import banks to review and understand the underlying trade agreements. Smart contracts can govern the terms and conditions of letters of credit between the import and export banks. In addition, delays will be minimized, because parties can digitally acknowledge shipment and receipt of the goods, respectively, and blockchain records can establish and track the locations and ownership of shipped goods throughout their journeys.

Hurdles to Overcome: The work needed to implement this improved trade finance structure is real, but not insurmountable. Financial institutions, customs agencies, transport companies, buyers and sellers will need to use blockchain-compatible technologies and systems. Bills of lading and invoice details must be made

²² See *id.* at 75-82.

²³ *Id.* at 75.

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electronically accessible and verifiable, so that counterparties will be able to rely upon smart contracts, and regulators will need to create procedures to facilitate real-time data monitoring. And all parties will need to devise and adapt to a new fee structure that will accommodate and reflect all of these changes. If these challenges can be overcome, however, the World Economic Forum's report predicts that embracing blockchain and smart contracts will transform for the better global trade finance.

NEXT STEPS

The World Economic Forum has declared, in no uncertain terms, the importance and immediate relevance of blockchain and smart contracts technologies. Put simply, blockchain can revolutionize the financial services industry, and we fully expect that it will.

In a future article, we will identify and examine some of the latest trends in M&A and venture capital investments – including the related financings – in the blockchain and smart contracts space. In the meantime, contact us at blockchain@mofo.com with any questions or concerns.

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