Blockchain Technology: Strategic Threat of Opportunity?

This article was originally published on August 8, 2017 by Ambassador Financial Group, Inc.

Technology pioneers’ never-ending quest to simplify, accelerate, and improve the quality of life is without question and to-date insatiable. While this continuous movement has proven to be largely favorable over time during periods of introduction and transition, the steady drum beat of change can be annoying if not outright frustrating. Similar to the fundamental transformation initiated by electronic communication and the Internet that germinated some 40 years ago, blockchain technology is a foundational technology that has the potential to fundamentally transform how business is conducted worldwide.

This article examines at a very high level the technology known as blockchain and provides a starting point for a community bank or thrift to begin exploring its impact. As the technology evolves and becomes more prevalent in commercial application, it will become an open debate whether it represents a strategic threat or an unlimited opportunity for a bank or thrift. To help initiate those internal management discussions, I’ve provided a simple SWOT (strengths, weaknesses, opportunities, threats) analysis to tease out some of the high-level implications of this expanding platform.

Let’s begin with a brief conceptual description of what blockchain is all about. First, in the spirit of full disclosure, much of the “plumbing” enabling this technology is beyond my level of expertise. I had some basic coding classes in college, but that was many moons ago. Accordingly, my explanations are potentially oversimplified from a technical point of view; but from a strategic perspective at the executive level, the simplicity is still a workable foundation for further exploration.

In its simplest form, blockchain represents a distributed digital ledger or database on a network of computers, which is used to track and simultaneously validate a growing list of records that are called blocks.¹ Each block has a unique identifier, which also includes a time stamp and a link to a previous block. The database is typically run over a peer-to-peer network wherein communication occurs directly between peers rather than through a central trusted intermediary. As a result, every transaction or block created is visible to anyone with access to the network. Each user has a unique 30-character alphanumeric address that provides identification. The user can elect to remain anonymous or provide their identity. Combined, the blocks create a chronological “chain” such that records cannot be altered because they are linked to all other blocks in the chain. Further, when a new block is created in the chain, all associated accounts are instantaneously updated. Because all the records are digitized and linked, they can be programmed to trigger automatic interaction among the different nodes in the network.²

To provide a commercial example, let’s step back from the technology concept. Assume there are three separate organizations involved in a transaction to purchase office supplies that form a peer network. Company A needs envelopes, Company B sells envelopes, and Company C produces envelopes. When Company A orders new envelopes, it automatically adjusts the inventory of B, which then places an order to C for more envelopes. B taps A’s account for payment, and C taps B’s account for payment. The whole transaction is completed with one initial entry and happens instantaneously. In the real world, aside from a few specific networks that have formed, blockchain technology has not yet reached this stage of application but there is little question about the direction in which it is heading.

Perhaps the most recognized brand name working with blockchain technology is Bitcoin. This cryptocurrency is becoming more widely accepted and has even been suggested for consideration as a fully recognized reserve currency. Bitcoin is just the tip of the iceberg when it comes to blockchain application. Computer specialists using mathematical algorithms mine the Internet for peer-to-peer networks with which to engage and are rewarded with deposits to a Bitcoin account that can be used to purchase goods and services directly from separate peer-to-peer networks. Bitcoin also has an active secondary market as users buy and sell the awards in their various accounts.
Other cryptocurrencies are also being formed, such as the recent entry Ethereum. It is important to understand that blockchain technology is still in its infancy, but the growth rate is extremely high. Cryptocurrencies have a role to play today as a common connection between unlinked peer-to-peer networks by making payment possible through a common digital currency standard.

As for the evolutionary path forward, in studying the historical pattern of previous foundational technologies it is helpful to consider four stages.² As we study the adoption pattern of transmission control protocol/Internet protocol (“TCP/IP”), the foundational backbone of the Internet, we see that blockchain will likely evolve from single use to localized use to substitution then ultimately to transformation. The adoption rate is also likely to vary by industry and application based on the complexity of the situation and the cost benefits available to the entities involved. During the single-use stage, blockchain is utilized for a single purpose between small groups of users. In the localized use stage, the single group of users expands to interact with a broader network of interrelated peers, such as two divisions within a larger organization.

As the technology enters the substitution stage, the networked organization interacts with the outside world, reducing the need for intermediaries. Finally, as the technology enters the transformative stage, it becomes the defined standard upon which all commerce is conducted. With respect to blockchain, reaching the transformative stage would also mean reaching the point of seamless global integration with self-executing contracts as illustrated by my previous example of ordering office supplies. Comparatively, in the case of TCP/IP the platform was first introduced within the U.S. Department of Defense in 1972 for use by just one group, known as ARPAnet.

If you then consider the introduction of the World Wide Web sometime in the early 1990s, you will see that it took more than 20 years for TCP/IP to evolve from the single-use stage to the substitution stage. Thereafter, it took another five to 10 years for the substitution to reach transformation. Amazon.com’s birth in 1996 is probably a reasonable marker for the beginning of transformation stage, which continues uninterrupted to this day as on-line commerce gains significant market share from bricks-and-mortar retail operations. Blockchain technology is more complex than TCP/IP, so adoption may not be exactly the same; but just because there may be a longer runway for evolution, it shouldn’t be viewed as a reason to keep this technology as a low strategic priority as an executive.

With the basic understanding of blockchain technology now complete, we turn our attention toward envisioning how it can be used in banking. Is it a threat or an opportunity? As a starting point, we constructed a classic SWOT analysis from the perspective of a middle-market bank. Figure 1.0 on the next page shows these initial entries.

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**Figure 1: SWOT Analysis**

- **Strengths**
  - Already process significant transaction volumes
  - Size and capital advantages

- **Weaknesses**
  - Competitors are ahead on discovery

- **Threats**
  - Online retailers can shave deposits

- **Opportunities**
  - Limited scope of services could leave door open
  - Challenging to think outside the box
Beginning in the top-right quadrant: a typical bank has some critical strengths that provide a great foundation to exploit blockchain opportunistically. First, a bank already processes significant transaction volume across numerous interrelated ledgers. Second, adequate capital and critical technology mass is already in place to pursue development. Moving to the bottom-right quadrant: while these entries could become opportunities, the inability of a bank’s leadership team to think beyond basic banking services could constrain the internal development of blockchain technology, leaving the bank vulnerable to competition.

As for threats, on-line retailers can eat into traditional bank deposits. To the extent that an individual chooses to directly fund the ledgers they keep with the firms offering the goods and services they consume rather than on deposit with their bank, the marginal cost of funds could push higher for a bank unprepared for greater blockchain integration. Finally, given the competitive landscape within the banking industry, falling behind peers in technology development could be a significant threat. As a result of this last point, an industrywide consortium has formed that is being directed by a technology company known as R3CEV LLC (“R3”) to enable many competitive peers to remain current with blockchain technology development efforts.

Without question, many high hurdles remain for full blockchain adoption in the years ahead as it moves through the likely evolutionary stages. Two of the most prevalent immediate challenges are banks’ unwillingness to accept cryptocurrencies such as Bitcoin for payment and significant regulatory uncertainties. A recent article addressing problems encountered in the cross-border payment space highlights the current deficiencies. Nonetheless, delaying activity to explore blockchain’s strategic potential and the operational impact it might have on a bank’s performance could prove devastating for an executive or board of directors. Companies are already using blockchain technology to send payments and redesign how trades are settled. Financial giants like JPMorgan Chase and Bank of America could save billions by standardizing their record-keeping for all sorts of financial processes – at a time when they have come under increasing pressure to raise margins and cut costs. And it shows promise in other areas, from insurance to medical record keeping to energy trading. Even traditionally conservative financial companies are speaking of the technology in world-changing terms.

“Blockchain technology isn’t just a more efficient way to settle securities,” said Fidelity Investments Chairman and CEO Abby Johnson at a blockchain conference in May. “It will fundamentally change market structures – and maybe even the architecture of the Internet itself.” Johnson has a unique viewpoint: She’s mined Bitcoin herself. Thomas Olsen, a Bain Consulting technology expert, expects blockchain to gain wider acceptance soon, spreading in a piecemeal fashion, rather than a “big bang,” like how Uber changed taxi service. What’s true of Bitcoin – and really all money – is true of blockchain too: It has value only inasmuch as everyone believes it has value. Then, perhaps, the sky’s the limit.

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