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Blockchain Use Cases in Financial Services

By

Priya D. Dozier, University of South Florida

This study was motivated by the convergence of a relatively unknown technological innovation facing the Financial Services industry and a desire to understand the evaluation process organizations leveraged to decide how to adopt innovation as it is happening. The research question driving this study was: “How do Financial Services organizations evaluate blockchain technology for potential use?” This qualitative study followed the grounded theory methodology to generate a new model related to the innovation evaluation process. Grounded theory was used to allow the researcher to gain insights into the process involved when organizations evaluate technology innovation. The timing of the study allowed the researcher to capture the shared experiences of participants as they went through the process to explore the technology for potential use in their organizations.

The researcher conducted semi-structured interviews of participants from twelve U.S. banking organizations (a financial institution or technology service provider financial institutions) who actively participated in the evaluation of blockchain technology on behalf of their organization. Interviews occurred between February 2018 and July 2018 followed by a sur-

vey to participants in August 2020 and September 2020 to check-in on use case progress.

Twelve organizations participated in the study—seven large and five small. Large organizations had an annual revenue amount that was greater than \$1B and small organizations had an annual revenue amount that was less than or equal to \$1B. Organizations were further categorized by the type of service they provide

This qualitative study provides insight to help managers and practitioners prioritize the top blockchain use cases in the Financial Services industry based on input from industry leaders.

such as technology providers that provided services to financial institutions or financial institutions that provided services to consumers. Organizations and participants were also delineated by the following criteria:

- Organization criteria: Must be an incumbent/established organization operating as a bank or credit union in the United States or a third-party technology provider to banks or credit unions in the United States for the past five years.
- Individual criteria: Responsible for evaluating blockchain within the organization, titles such as Head of Technology Strategy, Head of Innovation Lab, Head of Debt Capital Markets, Head of the blockchain, and Head of Digitization (Beck & Müller-Bloch, 2017).

Keywords: Blockchain, Distributed Ledger, Financial Services, Use Cases, Technology, Innovation, Authentication, Payments, Cryptocurrency, Smart Contracts

Findings

A major theme associated with deciding on how to use blockchain was the lack of value or business case associated with the technology at the time of this study. This lack of value was likely causing blockchain technology to be mostly prioritized low at participating organizations. Participants were using their knowledge of blockchain along with their internal and external resources to pair use cases or emerging problems to blockchain as a potential solution, as described below.

I think it requires you to look at things differently, more broadly to understand what the implications of the technology will be. If all we are doing here is just applying new technology to make things operate more efficiently in the Financial Services space, there is much value to be gained there over the next three to five years. I think beyond that, though, if we are not open to other effects that this sort of philosophical context of this intermediation and this decentralization might have. We are sort of missing the larger picture. Moreover, so being open to other things that are happening in the space and the potential impact that they may have on the sort of intermediary-driven value exchange I think is (an) important context to keep in mind. – Senior Vice President and Product Innovation Director (Large Financial Institution)

The blockchain technology could potentially eliminate the need for a trusted third-party in a transaction where the value was moved, and trust was needed to ensure that the parties operated as agreed upon (e.g., ex. money, goods, property, or votes) (Beck & Müller-Bloch, 2017). Several industries were experimenting with blockchain such as retail to reduce counterfeit goods, healthcare to share data among providers, and academic and education to streamline verification of credentials (Accenture, 2018; CB Insights Research, 2018). However, due to the power of maintaining trust while transferring value, the Financial Services industry took an interest in the use of blockchain.

Methodology

The coding procedures of open coding, axial coding, and selective coding as outlined by Corbin and Strauss (2008) were used to analyze the qualitative data in this study. Initial line-by-line coding of the interview data started the process to identify concepts and categories of information. This process allowed the researcher to break each interview data apart and to identify properties and dimensions related to it. As lines were coded to concepts, concepts started to make sense when put into groupings. Categories, which were groupings of similar codes or concepts, started forming during the open coding process.

Conclusions

Participants from 83% of the participating organizations (n=12) described a process to identify use cases for blockchain during the evaluation process. Use cases referred to the types of business problems or use that an organization may need a solution to, meaning what types of scenarios blockchain can help to resolve. Participants described that they looked to identify use cases based on their perceived opportunity to generate value, reach critical mass, and implementation ease. Here is how some of the participants described the use case identification process related to the blockchain.

Well, of course, we had to identify those top use cases, and then we looked to see who would provide that technology for those specific use cases. Then we would work with them. – Senior Vice President, Product Strategy (Large Technology Provider)

It is about finding the right use cases that make sense and add value. Moreover, the use cases that we decided on were [because of] ease of business buy-in, then ease of implementation, and add impact. Therefore, when we were looking into the use case that we are looking at now, it is right now also ease of implementa-

Table 1. Participant Summary by Type and Size

Type	Size	Organizations	Individuals
Financial Institution	Large (Annual Revenue >\$1B)	4	6
	Small (Annual Revenue =<\$1B)	3	3
Technology Provider	Large (Annual Revenue > \$1B)	3	5
	Small (Annual Revenue = <\$1B)	2	5
Total		12	19

tion. Where can we achieve quick wins to prove that this technology works and add value? – Blockchain Product Owner (Large Financial Institution)

That is what we see a lot of in discussions around use cases, discussions around business use, and different constituents coming together to decide what they think they could get critical mass around the process and implement it. – Head of Commercial and Investment Banking Technology (Large Financial Institution)

This study provided insights into the emerging blockchain use cases in the Financial Services industry shared by participants in this study and summarized in Figure 1 below. These use cases can help other Financial Services organizations that were contemplating blockchain to identify potential opportunities for collaboration or focus. Patterns related to use cases varied between large and small organizations regarding how they were concentrated and the number of use cases they identified. All of the participants from small organizations (n=5) identified Authentication and Identity as their use case, but participants from small organizations only identified 35% of the total use cases (n=17) identified in the study. On the other hand, large organizations identified 94% of the total use cases (n=17) in

Figure 1 below. Figure 1 provides insights into all use cases that were shared by participants in the study and summarized by the number of organizations associated with each.

One participant provided an interesting perspective on the use cases by encouraging Financial Services organizations to look more broadly at blockchain and beyond matching it to existing use cases but instead to look at the potential of the technology it relates to intermediation and decentralization. This participant’s assertion, noted below, was that blockchain could have an impact on the intermediary models that the industry relies on, which was an invitation for the industry and organizations to consider the long-term implications of such a technology on their business models during the evaluation process.

A follow-up survey to the original participants in this study was completed in September 2020 and revealed that none of the organizations in the original study has implemented blockchain technology; however, some have made progress on 4 of the 17 use cases including authentication, cross-border payments, loyalty & rewards, and smart contracts. The remaining use cases were either in the “considering it” phase where organizations were thinking about implementing them but have not started working on them yet or in the “not applicable” phase where organizations were no longer consid-

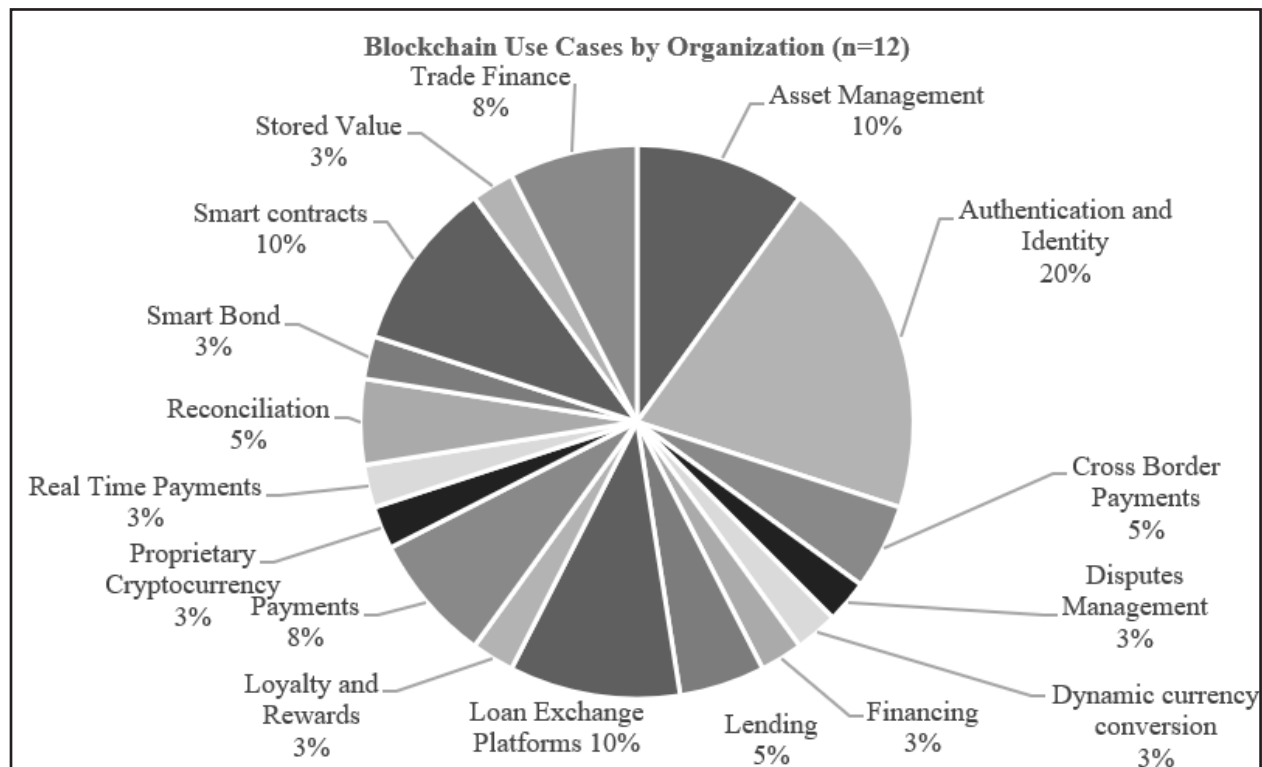


Figure 1. Blockchain Use Cases in Financial Services

ering blockchain technology as a solution. Despite the limited progress towards implementation, all organizations in the follow-up study indicated that they might be able to create value from blockchain technology in the next 5-years. Participating organizations cited a variety of barriers and drivers to adopting blockchain technology, which will be explored further in a forthcoming article.

Where to Find Out More

The source publications from this study can be found below (author contact: ppersau2@usf.edu):

- P. D. Dozier and T. A. Montgomery, "Banking on Blockchain: An Evaluation of Innovation Decision Making," in *IEEE Transactions on Engineering Management*, doi: 10.1109/TEM.2019.2948142.
- Dozier, Priya and Saunders, Carol, "The Inter-organizational Perspective in Blockchain Adoption within an Ecosystem" (2020). In *Proceedings of the 28th European Conference on Information Systems (ECIS)*, An Online AIS Conference, June 15-17, 2020. https://aisel.aisnet.org/ecis2020_rp/38

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Author



Priya D. Dozier is currently an Instructor of Management at the University of South Florida (USF). Prior to joining USF in 2019, she served as Vice President of Digital Solutions and Innovation at PSCU, a credit union service organization located in St. Petersburg, FL, USA. Dr. Dozier has almost 20 years of experience in various roles in product management, product development and business analysis in the Financial Services industry.

Dr. Dozier is a board member and business mentor at Northeast High School in St. Petersburg, FL, USA and a member of the Product Development and Management Association. She received the B.S. in management information systems from the Florida State University and the MBA and DBA degrees from the University of South Florida. Her research interests include innovation decision-making processes and impacts to organizations and strategic alignment, with a recent study related to blockchain adoption in the Financial Services industry.