



Blockchain for Banking

Case Studies – Global Overview



Introduction

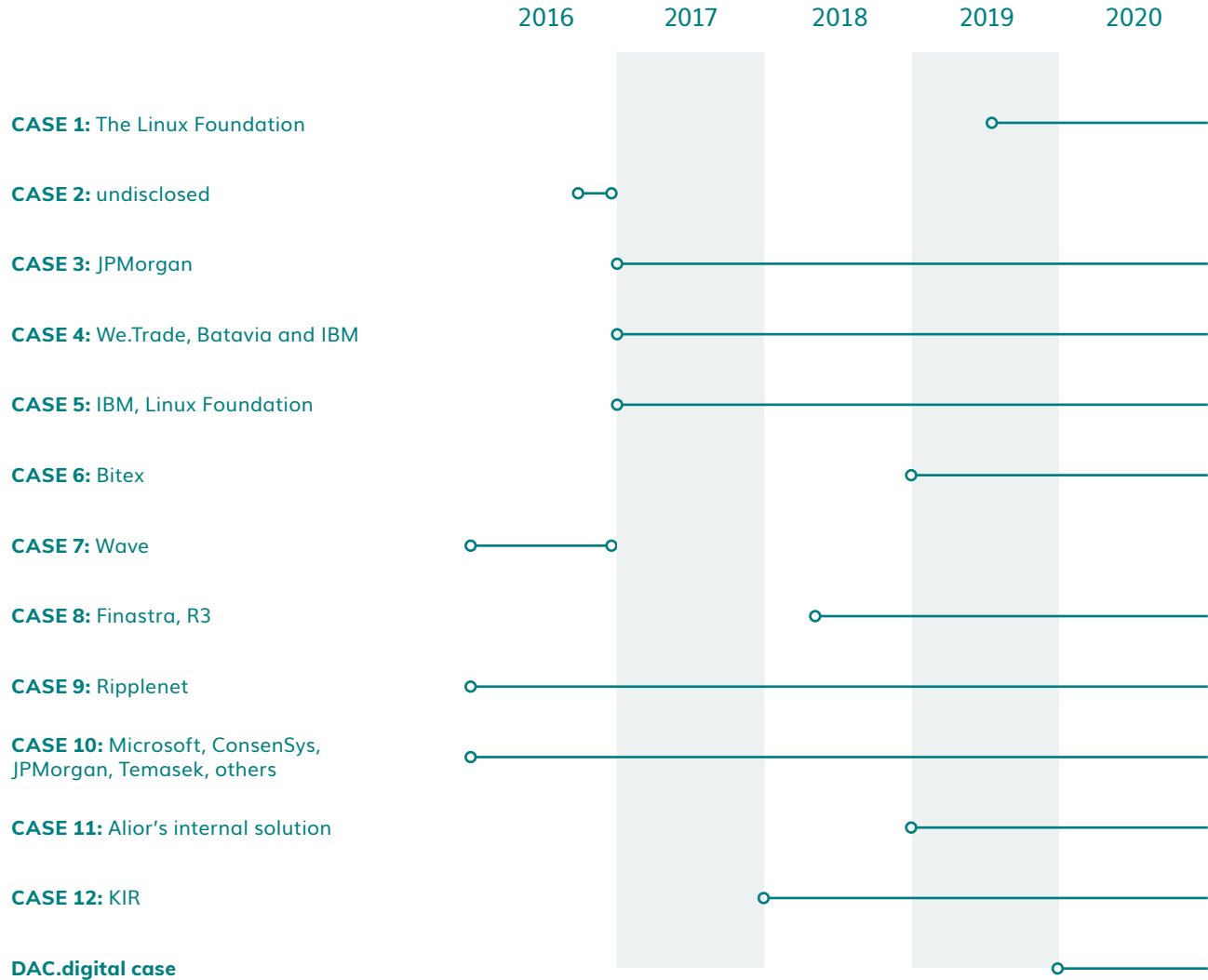
The history of blockchain dates back to 2008, however the development of blockchain in digital payments and currency transfers started in 2012. Blockchain is a decentralized, tamper-resistant, and immutable, ever-growing list of cryptographically linked records called blocks. It is maintained without a central oversight body and its integrity is ensured by consensus algorithms operating even in the absence of trust between the parties.

It is one of the most disruptive technologies, particularly in the financial sector. Banks can use blockchain potential to digitize identity verification for Know Your Customer policy, decrease costs of anti-money laundering procedures, and fraud prevention, as well as use it as a solution for Durable Medium issues. Financial services account for more than 60% of blockchain technology market value, spending about \$552 million on blockchain-related projects. It is expected that this market will grow up to more than \$7 billion and reach \$20 billion in annual revenues by 2024.

Blockchain-powered solutions can help with reducing the infrastructure costs by as much as 30%, according to Accenture Consulting. By adopting DLT for transfers and storage, financial sector could save as much as \$12 billion annually. Irrespective thereof, as of 2018 about 90% of U.S. and European banks have already started seeking ways to adopt blockchain for their needs.

Our study aims to show examples of blockchain implementation in banking. We believe that it will serve as an inspiration for both banking and technology organizations to develop new, groundbreaking solutions.

Timeline



Case 1



Solution provider: The Linux Foundation

Banks involved: Sponsored by National Bank of Cambodia, 16 banks involved.

Timeline: July 2019 – present

Source¹:

Overview:

Project Bakong was the first move in the development of a fiat-backed digital currency. This first retail blockchain-based payment system in the whole world was sponsored by the National Bank of Cambodia and co-created by Soramitsu. Bakong allows individual customers to transfer money and buy from merchants using a smartphone app. Thanks to this system, merchants have a fast, cashless, and secure payment system, and banks execute interbank transfers at a much lower cost.

More than 10 000 users and 16 banks participated in the successful pilot. The proposed solution achieved a retail throughput of up to 2,000 transactions per second. This helped Bakong with becoming the world's first CBDC-like payment system.

Case 2



Solution provider: undisclosed

Banks involved: the Commonwealth Bank of Australia, Wells Fargo

Timeline: October 2016

Source²:

Overview:

The first global trade transaction between two independent banks using blockchain technology was announced in October 2016. Commonwealth Bank of Australia and Wells Fargo carried out the transaction associated with financing a shipment of cotton from Texas, in the United States, to Qingdao, located in China. They used a distributed ledger algorithm known as the Skuchain's Brackets system.

Brighann Cotton US (the seller) and Brighann Cotton Marketing Australia (the buyer) conducted an open account transaction on a private ledger. In their particular use case, distributed ledger technology allowed them to mirror a letter of credit. The tracking feature played a crucial role in the process. It was crucial for the purpose of confirming the exact geographic location of transported goods, necessary to send the notification for the payment release.



Case 3



Solution provider: JPMorgan

Banks involved: now 415 institutions across 78 countries.

Timeline: 2017 – present

Source³:

Overview:

JPMorgan had a significant role in the development of blockchain technology. The bank launched a pilot in 2012, which resulted in JPMorgan's Interbank Information Network's creation. The Network was to address the weak points in cross-border payments and solve issues with emerging technologies. The first step involved testing the internal money flow using blockchain technology. After a successful trial run, the bank dropped the real-money transfer idea and decided to focus on banks' information sharing.

Interbank Information Network associates over 400 banks from more than 70 countries. This project involves a mutually accessible ledger built on Quorum, which is JPMorgan's private blockchain, based on Ethereum. Thanks to this solution, permissioned banks can exchange information about compliance checks and other issues and thus avoid executing payments in case of any discrepancies.

Case 4



Solution provider: We.Trade, Batavia and IBM

Banks involved: 16 banks across 15 countries

Timeline: 2017 – present

Sources⁴:

Overview:

We.Trade is Europe's first blockchain-based platform. Its goal is to simplify cross-border trades and increase national and international trading transactions' security and traceability. The platform was developed in 2017 by several banks, including Deutsche Bank, HSBC, KBC, Natixis, Nordea, Rabobank, Santander, Société Générale, and UniCredit. We.Trade facilitates conducting trade operations between SMEs in Europe in a purely digital format. It connects all parties in one place, helps with initiating trading relationships, and provides easy access to financing solutions.

Batavia was a similar platform. It started as a proof of concept initiated by UBS and IBM in 2016 and was developed with additional partners such as Bank of Montreal, CaixaBank, and Commerzbank. Both of the mentioned solutions were built on the Hyperledger Fabric platform and merged in 2018.

Case 5



Solution provider: IBM, Linux Foundation

Banks involved: China Construction Bank

Timeline: 2017 – present

Source⁵:

Overview:

BCTrade is a blockchain trading platform launched by China Construction Bank. The platform offers factoring and forfaiting services with cross-chain and inter-bank transactions, combining 60 financial institutions. Three thousand users have used the platform to transact more than CN¥440b (about \$70 billion).

CCB announced BCTrade 2.0 after reaching 360 billion yuan (\$50 billion) in cumulative transaction volume. BCTrade 2.0 focuses on digitizing trade and financial services between 54 CCB branches and 40 external organizations.

China Construction Bank pursues numerous blockchain trade finance initiatives in China. Their project with CITIC processed 20 billion yuan (\$2.8 billion) with its forfaiting blockchain in 2019.

Case 6



Solution provider: Bitex

Banks involved: Bantotal and 60 Latin American Banks

Timeline: 2019 – present

Source⁶:

Overview:

Bantotal is a technology provider in Latin America. Together with cryptocurrency exchange Bitex, they facilitated cross-border payments over the bitcoin blockchain. Over 60 Latin American Banks joined this platform to facilitate remittances via Bitcoin. Blockchain benefits such as transparency, security, or improved record-keeping respond perfectly to distrust in the government's economic policies, inflation, and unstable currencies bothering this region.

Bitex is a competitive solution to the available alternatives. It makes cross-border payments up to five times cheaper than traditional international wire transfers and at the same time much faster. Thanks to Bitex, cross-border payment times dropped from even one month to one hour in case of international transactions.



Case 7



Solution provider: Wave

Banks involved: Barclays

Timeline: 2016

Source⁷:

Overview:

One of the pioneers in the adoption of blockchain technology in banking was Barclays. The bank wanted to use blockchain in its processes to increase security and transparency. Barclays announced the first blockchain-backed credit transaction, which was carried out between Ornuu and Seychelles Trading Company. Barclays was able to reduce the time of transaction from as much as 10 days to less than four hours.

The transaction guaranteed the trade of goods worth almost US\$100,000 between Irish agricultural food co-operative Ornuu and the Seychelles Trading Company. The platform used to carry out the whole process was developed by a fintech start-up from Israel called Wave, a participant of the Barclays Accelerator program from 2015.

Case 8



Solution provider: Finastra, R3

Banks involved: BNP Paribas, BNY Mellon, HSBC, ING, Natixis and State Street, CIH Bank, IFIC Bank

Timeline: April 2018 – present

Source⁸:

Overview:

Fusion LenderComm is a blockchain platform for syndicated loans developed by Finastra together with R3. It was the first app to go live on R3's Corda platform. The solution was initially supported by seven international banks – BNP Paribas, BNY Mellon, HSBC, ING, Natixis, and State Street.

This solution enables cost reduction as well as decreases the burden of agent-to-lender administration. It allows optimization of syndicated loan portfolios and facilitates on-demand access to the required information. Lenders gain access to the credit agreements, balances, and transaction data in real-time directly from the platform.

Case 9



Solution provider: Ripplenet

Banks involved: Westpac, Santander, other banks

Timeline: 2016 – present

Source⁹:

Overview:

RippleNet is a platform for real-time, cross-border payments. The biggest advantages for banks include end-to-end tracking and reliability. The platform is available in 40 countries across six continents and connects more than 200 financial institutions. Thanks to RippleNet, they can reach new markets that would be otherwise expensive to do businesses in.

That's not the only blockchain-based solution for banks developed by Ripple. In 2016 they partnered with Westpac, an Australian bank, to create a system for low-cost cross-border payments. They helped Santander to develop its One Pay FX service, which was launched in six countries. One Pay FX enables instant, low-cost international payments. What is distinctive, the system offers information about how much the recipients get and when they will receive the money.

Case 10



Solution provider: Microsoft, ConsenSys, JPMorgan, Temasek, others

Banks involved: Bank of America Merrill Lynch, BCS Information Systems, Credit Suisse, DBS Bank, HSBC, J.P. Morgan, Mitsubishi UFJ Financial Group, OCBC Bank, R3, Singapore Exchange, and UOB Bank

Timeline: 2016 – present

Source¹⁰:

Overview:

ConsenSys is a blockchain software technology company developing decentralized services and applications using in the Ethereum ecosystem. Together with Microsoft, they worked on a commercialization project of “smart contract function.” Their solution automatically executes transactions after meeting certain conditions.

Project Ubin resulted from a partnership between The Monetary Authority of Singapore (MAS), financial institutions, and enterprise blockchain technology companies such as ConsenSys. The main goal was to use blockchain potential in banking applications. These projects included real-time gross settlement (RTGS) systems, providing full transaction privacy, settlement finality, and failure prevention.

Project Ubin changed the institutional infrastructure in Singapore by applying distributed ledger technology and successfully presented how a tokenized dollar could be a means of daily inter-bank settlement.

Case 11



Solution provider: Alior's internal solution

Banks involved: Alior Bank

Timeline: 2019 – present

Source¹¹:

Overview:

Banks are required to inform customers about changes relevant to their contracts using a Durable Medium in order to guarantee that the content remains unchanged.

In 2019, Alior Bank launched a platform exposing bank's T&Cs and other publicly relevant documents, the authenticity of which can be checked using the public blockchain network – Ethereum. This solution brought the bank significant savings on over a million letters with information about changes in regulations, tables of fees and commissions or interest rates on savings accounts and deposits. Alior's customers who opt for an electronic form of contact will no longer receive letters on paper.

This platform is the first example of a bank in Poland using a public ledger, i.e. an open and accessible to every user without exception. The use of a public blockchain facilitates complete transparency. Due to the generally available source code, it is possible to verify the correctness of its operation and the bank's declaration as to the truthfulness of the information placed on the platform. The document repository is available at: <https://dokumenty.aliorbank.pl>

Case 12



Solution provider: KIR

Banks involved: PKO Bank

Timeline: 2018 – present

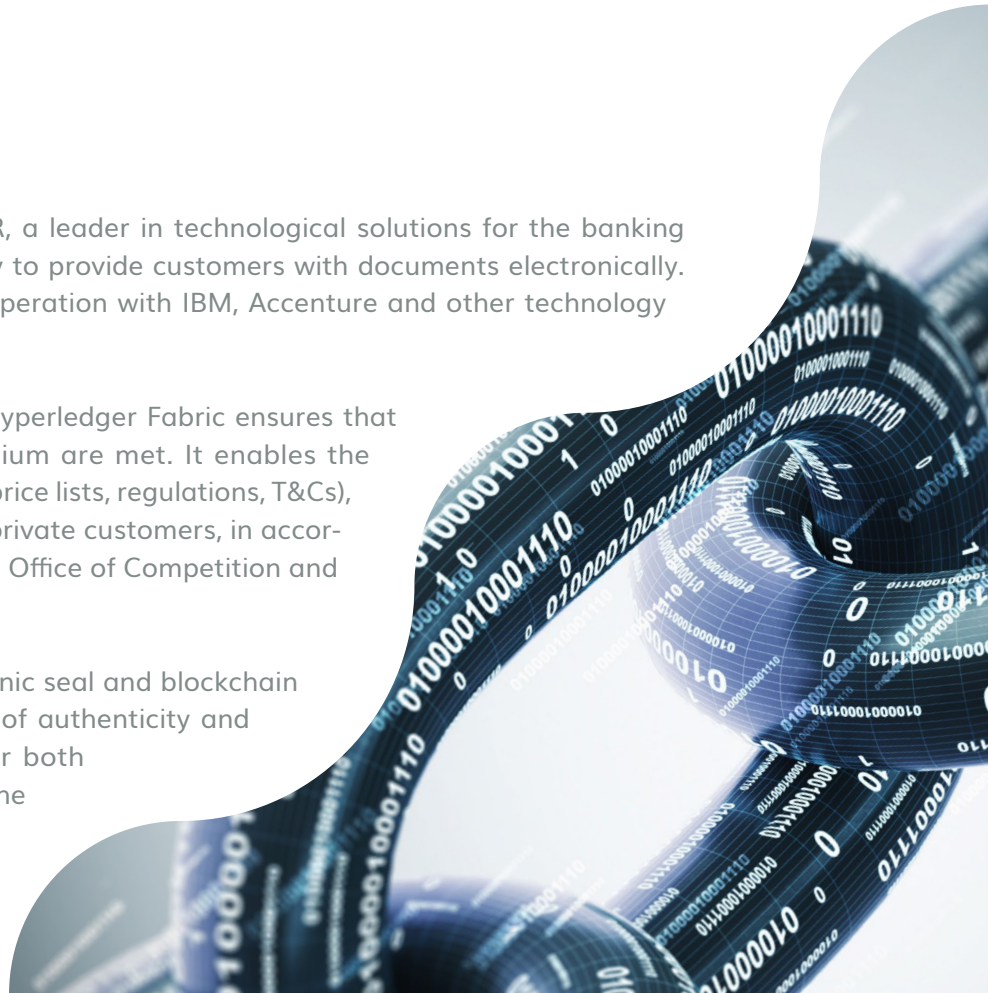
Source¹²:

Overview:

PKO Bank Polski together with KIR, a leader in technological solutions for the banking sector, used blockchain technology to provide customers with documents electronically. The solution was developed in cooperation with IBM, Accenture and other technology partners.

Blockchain technology based on Hyperledger Fabric ensures that the conditions for a Durable Medium are met. It enables the publication of general documents (price lists, regulations, T&Cs), but also individual documents for private customers, in accordance with the requirements of the Office of Competition and Consumer Protection and GDPR.

The service uses a qualified electronic seal and blockchain technology. It enables verification of authenticity and provides access to documents for both current and former customers of the bank.



DAC.digital case

Solution provider: DAC.digital

Banks involved: Delega Banks

Timeline: 2020 – present



Overview:

Managing signatory rights is a well-known challenge for both corporates and banks around the world. But until recently, little progress has been made in creating innovative, integrated solutions to this issue. Delega's goal is to build a solution that works for all parties.

DAC.digital is working together with Delega on a solution for signatory management for banks and corporations using blockchain technology. Financial documents in large organizations require signatory management. This process not only can be simplified and automated but additionally secured with a DLT based layer. Fully digitizing the signatory management process across banks will eliminate inefficient processes, save time, and free up resources.

Summary

Blockchain technology offers a multitude of applications. The presence of a private and public blockchain offers opportunities that not only increase competitiveness but also have a real impact on security and transparency. It is these features that are increasingly important to bank customers.

Decentralization changes our approach to finance and at the same time poses a challenge for banks to meet the increasingly demanding customer requirements. In order to gain a strong market position, organizations will have to implement changes and use innovative solutions.

This creates a huge field for startups, but also for mature technology companies. The cooperation of the banking sector with startups and SMEs with expertise in narrow blockchain applications is growing in popularity. This relationship is a mutually beneficial one. Banks benefit from the know-how of companies experienced in this sector, and startups can deploy their solutions on a larger scale.

The banking sector will change dynamically with the advancement of technology and digitization, and blockchain will have a huge impact on this. Contact us if you are looking for a partner for the development of blockchain-based solutions in your company.

About

DAC is a company born out of numerous R&D projects completed in the past 11 years. We are a team of engineers & problem solvers who deliver value across areas of IoT, hardware, embedded systems, big data, machine learning, DLT, DevOps, and software engineering.

The solutions we deliver to our customers are a result of the unique blend of research and management methodologies embedded in software development and hardware integration processes. We work on the intersection of technology, science, and business.

We specialize in Custom Software Solutions, SaaS applications, Blockchain, IoT, Data Analytics, Enterprise Integration for Mobility, Agro, FMCG, Automotive, and Logistics industry.

DAC has been named Leading Service Provider 2020 by Clutch as one of the top IoT developers in Poland. Our international projects have been recognized by PwC, which awarded us with the title Polish Company – International Champion in 2020. The innovative spirit of the company has been acknowledged by MIT Sloan Management review and ICAN Institute in the Master of Innovative Transformation competition in 2021.

www.dac.digital

References:

- 1 <https://www.hyperledger.org/learn/publications/soramitsu-case-study>
- 2 <https://www.commbank.com.au/guidance/newsroom/CBA-Wells-Fargo-blockchain-experiment-201610.html>
- 3 <https://www.omfif.org/wp-content/uploads/2020/05/The-role-of-blockchain-in-banking.pdf>
- 4 <https://www-03.ibm.com/press/us/en/pressrelease/52706.wss>
- 5.1 <https://www.gtreview.com/news/fintech/we-trade-and-batavia-merge-blockchain-platforms-for-trade-finance/>
- 5.2 <https://www.ledgerinsights.com/china-enterprise-blockchain-trade-finance-63-billion/>
- 6 <https://www.coindesk.com/latest-bitcoin-movie-plot>
- 7 https://unctad.org/system/files/non-official-document/dtl_eWeek2018c04-ICCBrazil_en.pdf
- 8 <https://www.gtreview.com/news/fintech/blockchain-solution-for-syndicated-loans-becomes-first-app-to-go-live-on-r3s-corda/>
- 9 <https://ripple.com/rippletnet/>
- 10 <https://consensys.net/blockchain-use-cases/finance/project-ubin/>
- 11 <https://www.forbes.com/sites/hanktucker/2019/06/17/polish-bank-alior-uses-public-ethereum-blockchain-for-new-document-authentication-feature/?sh=7cee335444a6>
- 12 <https://www.kir.pl/o-nas/aktualnosci/kir-i-pko-bank-polski-jako-pierwsi-w-sektorze-bankowym-wdrzaja-trwaly-nosnik-oparty-na-technologii-blockchain,241.html>

