

# Minimizing Friction Costs With Blockchain Technology

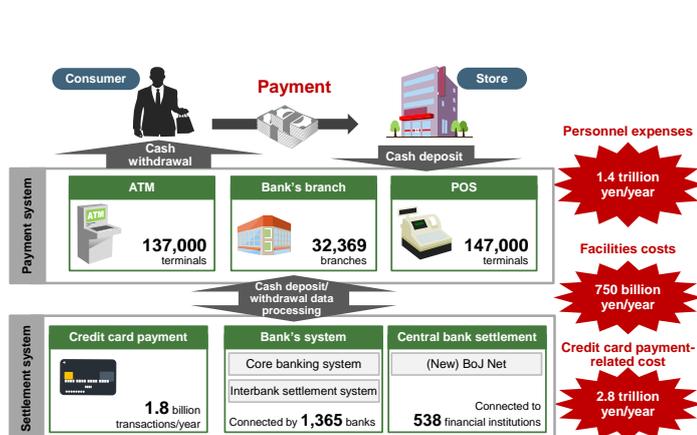
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With blockchain (BC) technology having emerged and becoming widespread, costs associated with fund movement such as money transfer and payment (the ‘financial distribution friction costs’ hereinafter) are being minimized and the presence of financial institutions which have been acting as financial intermediaries is getting smaller. This paper describes new business domains which banks should target for the use of BC that are reducing their profit opportunities.

## 1. Reduction of sources of profit for banks due to minimization of financial distribution friction costs

People bear costs which are incurred as if they are friction for each fund movement due to payments or money transfers, such as personnel expenses relating to administrative work and maintenance costs relating to systems and facilities, in other words, financial distribution friction costs (FC). FC, including the costs to run facilities relating to systems such as ATM for cash withdrawal and POS for deposit at retail stores and bank systems to manage deposit/withdrawal data themselves, amounts to 4 to 5 trillion yen annually in Japan (Figure 1).

However, the emergence of BC, which is a distributed ledger technology, in recent years enabled peer-to-peer fund movements without using the central management function for transactions. Payment and money transfer which circumvent intermediaries such as financial institutions enabled financial distribution FC to be minimized.



For example, ‘digital money using BC’ typified by cryptocurrencies such as Bitcoin is already becoming widespread for the payment/money transfer services for individuals. Thanks to digital money using BC, international money transfer of 100 U.S. dollars (about 10,000 yen) which used to require approximately 8,000 yen in commissions and two to three business days in processing time can now be completed in 10 minutes for a few hundred yen in commission. If BC is used for every money transfer, the commission revenue that banks have been generating from the money transfer and payment business may decrease by roughly 60% (our estimates). Profit opportunities for banks will shrink dramatically.

## 2. Strengthening and expansion of new business domains based on banks’ essential values

Banks’ essential values lie in their credit creation functions. They perform credit assessment and extend credit by combining rich ‘customer information’ including ‘deposit’ which is protected by laws and regulations, fund balances obtained from the banking business, and cash deposit/withdrawal patterns.

However, in the domain of individual users where digital money using BC is getting more widespread, customer information such as payment data obtained through deposit accounts is becoming increasingly ‘black box’ for banks. It results in the ‘no information even with deposit’ situation, giving rise to higher risk for banks to lose their credit creation function (Figure 2).

	Before	After financial distribution FC is minimized (in 2025 and beyond)		
Deposit	Individuals	⊙	• To be held in part in digital money	To be maintained due to regulations
	Corporations	⊙	• Funds are held in deposit accounts	
Information	Individuals	×	• The circulation of digital money by FinTech companies renders financial distribution information unavailable • Opening of banks’ API makes their financial distribution information accessible from the outside, causing their advantage to disappear	To be lost if the information remains as is
	Corporations	⊙	• Financial distribution information is concentrated in the BC payment/money transfer services • Banks cannot capture anything other than the netted balance of payments	
Credit creation	Individuals	×	• Banks’ advantage to disappear due to FinTech companies	
	Corporations	⊙	• Companies to which credit can be extended are unknown even with funds at hand	

⊙: (Relative to FinTech companies, banks are) at an overwhelmingly advantage, ⊙: at an advantage, Δ: in competition, and ×: at a disadvantage

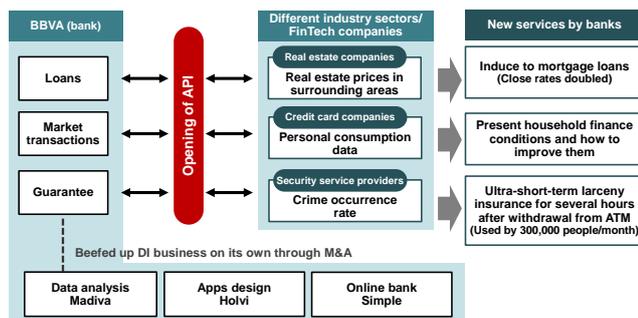
Material: Prepared by Hitachi Research Institute based on various materials  
Figure 1: Image of financial distribution friction costs to be incurred by payment action

Material: Prepared by Hitachi Research Institute based on various materials  
Figure 2: Changes in the banks’ business model expected following the minimization of financial distribution FC

In the domain of corporate users, banks have a relative advantage to FinTech companies at this point because credit and financial strength commensurate with the amount of funds to be dealt with is required; however, the net interest margin for banks has been stagnant due to the chronic low interest rate environment. Also in the corporate user domain, to maintain profitability, banks need to beef up their capabilities to gather customer information and develop new businesses by capitalizing on IoT, BC, and so on.

### 3. Creation of new businesses by using IoT and BC to secure new corporate customer information

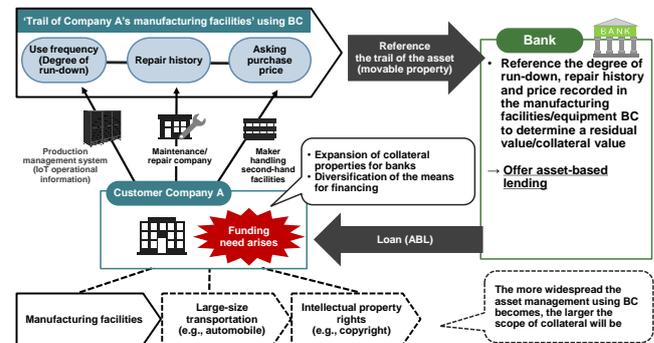
Banco Bilbao Vizcaya Argentaria S.A. (BBVA), one of the two largest banks in Spain, can be mentioned as a pioneer bank which has been strengthening its capability to gather customer information. Chairman of BBVA, Mr. Gonzalez, publicly proclaimed that “we will be a software company in the future” in 2015 and it has been working to create new businesses through the data integration (DI) function which integrates data held by different industry sectors and FinTech companies with those by itself (Figure 3). For example, by collecting real estate price data in the customer areas and running simulations on its app for mortgage loans in an area/for a building which customers liked, it improved efficiency in inducing them to mortgage loans and doubled the close rates. BBVA has been aggressive in opening API, entering into tie-ups with data analysis companies as well as online banks which are good at gathering digital data, and undertaking M&A to constantly enhance its DI function.



Material: Prepared by Hitachi Research Institute based on various materials  
Figure 3: Image of DI function by Spain's BBVA

By expanding the use of IoT/BC further and making it more real-time to gather customer information, the domains of banks' new businesses will expand. An example can be 'asset-based lending in asset management' (Figure 4). For instance, by collecting the latest operational information and repair history with an IoT device installed in a manufacturing facility and keeping them as 'a trail which cannot be falsified' in BC, asset-based lending (ABL) where a bank makes a loan under a credit facility as calculated based on the trail becomes feasible.

ABL transactions are still rare in Japan today, with its market size being one-seventieth of the U.S. (about 1 trillion yen a year). However, its potential is high, and more players are about to enter the market in areas including precious metal, automobile, and copyright. Banks will achieve new ways of credit creation using IoT/BC by collaborating with manufacturing facilities makers and maintenance services providers.



Material: Prepared by Hitachi Research Institute based on various materials  
Figure 4: Image of asset-based lending based on the trail of manufacturing facilities using IoT/BC

### 4. Future outlook

On the one hand, BC will reduce the opportunities for banks to earn profits from conventional types of financial services, along with the minimization of financial distribution friction costs. On the other hand, banks will be able to make use of the corporate customer platform and take in information obtained through IoT/BC to create new businesses, by combining BC and IoT and incorporate various commercial distribution information. It will lead to strengthening of banks' credit creation function, which is their essential value, and expansion of profit opportunities.

Since financial institutions and corporations used to keep to themselves financial distribution data, such as assets/property rights information of products and services, and commercial distribution data including order placement/receipt information, respectively, customer information in financial and commercial distribution have not been shared, and are segregated from each other. However, integration and sharing of various financial and commercial distribution data through IoT/BC will enable the creation of new businesses beyond the boundaries of industries.

Hitachi Research Institute will continue to study the minimization of financial distribution friction costs by BC, direction of new business creation, and impacts on the financial services industry.