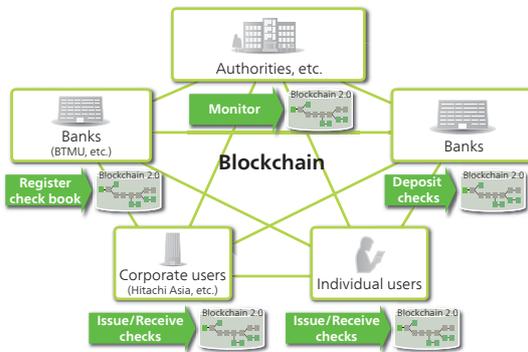
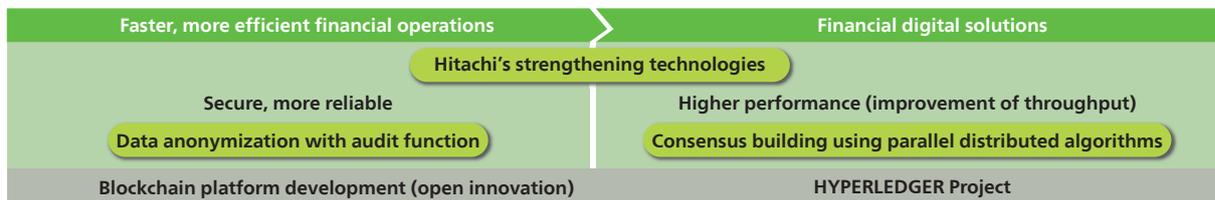
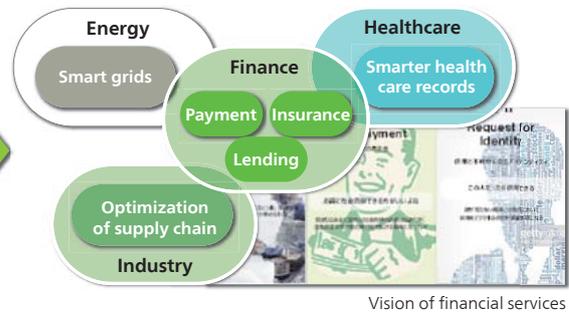


Financial Systems

PoC testing with BTMU for using blockchain technology for digitalization of checks in Singapore



Creation of new financial services (business sector/IoT cooperation)



IoT: Internet of Things

1 Blockchain initiatives

1 Application of Blockchain Technology to Financial Services

Blockchain is attracting attention as new platform technology for financial transactions. With the benefits of reducing costs of intermediaries and making transactions more transparent and tamper-proof, blockchain has the potential to create new financial services and businesses.

Hitachi is a member of the Linux* Foundation*'s Hyperledger Project, which is working to develop standardized blockchain platform, and is developing the technology to achieve the high levels of security and reliability required for social infrastructure systems. As part of collaborative creation with customers, Hitachi and the Bank of Tokyo-Mitsubishi UFJ, Ltd. (BTMU) also conducted proof of concept (PoC) testing for using blockchain technology for digitalization of checks in Singapore. In this PoC testing, Hitachi and BTMU communally developed a system in which blockchain technology is used for issuing, transferring and collecting electronic checks, and identified issues from the perspectives of technology and security.

Based on this PoC testing, Hitachi will increase efforts towards putting blockchain technology into practical

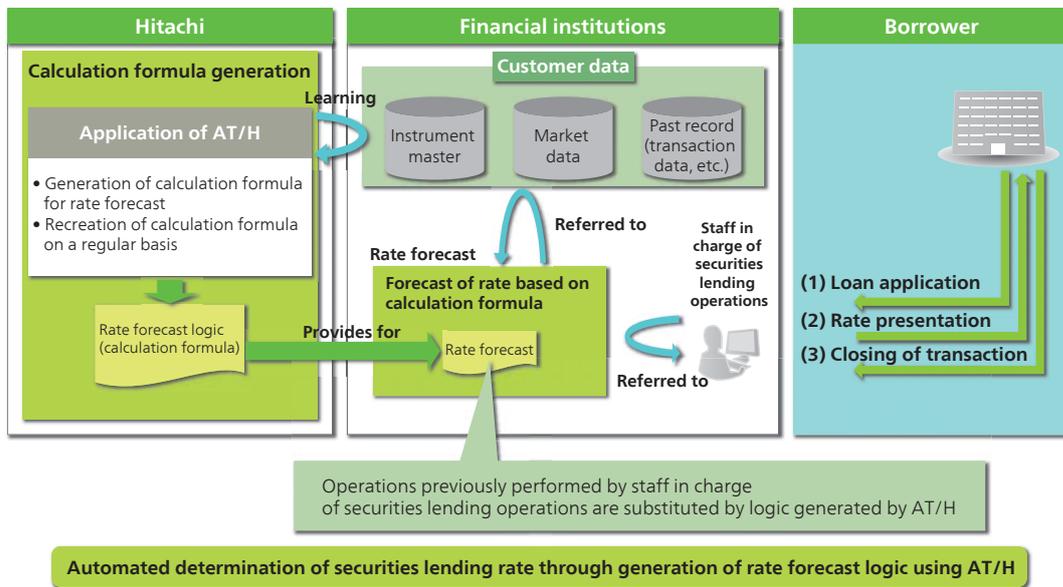
use, and will contribute towards the global expansion and evolution of financial services.

*See "Trademarks" on page 162.

2 Increased Efficiency and Sophistication of Securities Operations through the Application of AI

In the financial services sector, there is rising demand for more sophisticated and efficient operations through the application of artificial intelligence (AI) to stock and bond trading, bank account and loan screening, and other business operations hitherto carried out by experts in the relevant area.

To meet this demand, Hitachi has been conducting PoC testing with customer financial institutions using Hitachi AI Technology/H (abbreviated as AT/H below). The aim of the PoC testing is to obtain AI judgments which are as accurate or more accurate than the expert judgments across a range of operations that are based on the input of data, such as market data, issue master data, transaction data, and data on investment behavior. Some cases of this PoC testing have already been in production in areas such as rate forecasting used in securities lending transactions by some securities



2 Example of using Hitachi AI Technology/H to forecast rates in securities lending transactions

company.

Thus far, Hitachi has focused on AI geared towards numerical analysis, such as AT/H for customer financial institutions.

In the future, Hitachi will also combine this with Q&A-based debate-style AI and deep learning, and contribute to financial institutions' increased sophistication and efficiency in a wider range of business operations.

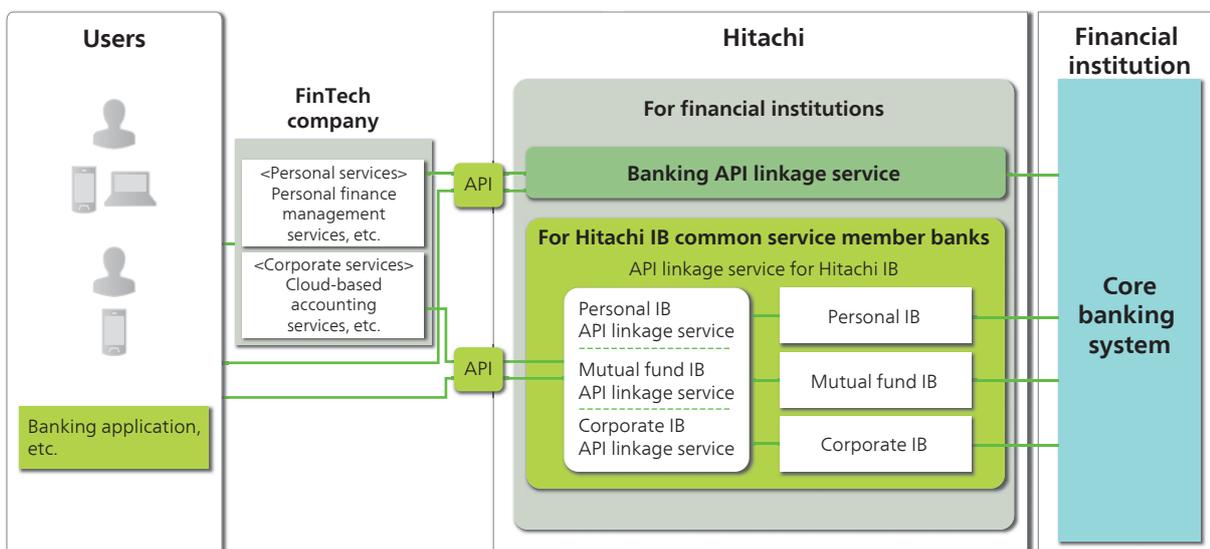
3 Secure Data Linkage between Financial Institutions and FinTech Companies through Financial API Linkage Services

Financial application programming interface (API) linkage services are services that securely link the cloud-based personal finance management and accounting

services provided by FinTech companies with the systems of financial institutions.

More specifically, Hitachi has developed a menu of two financial API linkage services: the Hitachi API linkage service for Hitachi internet banking (IB) subscribers and the Banking API Linkage Service for savings accounts which is also available to non-users of IB.

The technique mostly commonly used to link FinTech services with account information is Web Scraping*, which involves extracting necessary data from the IB web pages of financial institutions. However, this technique poses a number of issues from the perspective of security and service operations, for example, users must register authentication information such as ID



3 Overview of financial API linkage services

and password to access Fintech services, and any change in IB screen specifications necessitates system maintenance on the FinTech company side. Hitachi's financial API linkage services resolve these issues, making it possible for financial institutions to provide users with a data linkage function that is safer and superior in terms of service continuity.

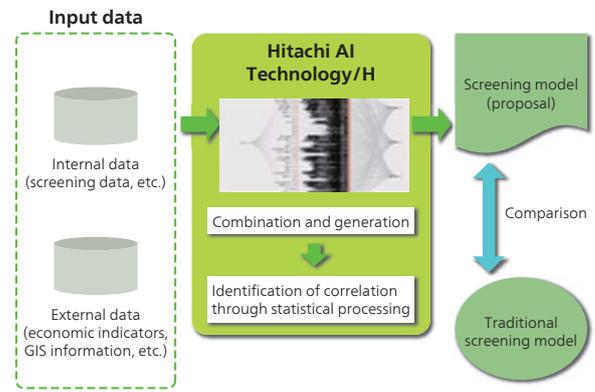
Hitachi will continue to focus on open innovation in cooperation with financial institutions and FinTech companies.

* Technique that involves analyzing the web page HTML and gathering necessary data through data extraction and processing.

4 PoC Testing of Advanced Loan Screening Technique

Hitachi conducted PoC testing of an advanced screening technique for mortgages, credit cards, etc. using AT/H and statistical data from the geographic information system (GIS) and other sources. In the PoC testing, AT/H was used to analyze changes over time in regional economic indicators and various other types of data which was difficult to use in screening before, in addition to the data traditionally used in loan screening such as the age and income of the customer. The aim was to examine the possibility of using artificial intelligence in screening operations which require speed and accuracy.

To perform data analysis that is effective for loan



4 Overview of PoC testing of loan screening using AT/H

screening, it is necessary to use large volumes of complex data collected over an extended period of time and, with the general statistical techniques used in the past, analysis was difficult. However, AT/H is artificial intelligence that comprehensively analyzes many types of business-related data and efficiently deduces factors that have a strong correlation with sales, costs, attainment of targets, and an organization's other key performance indicators (KPIs) as well as hypothetical measures for improving KPIs. AT/H can also be expected to be effective for loan screening because it is geared toward the analysis of large volumes of complex data.