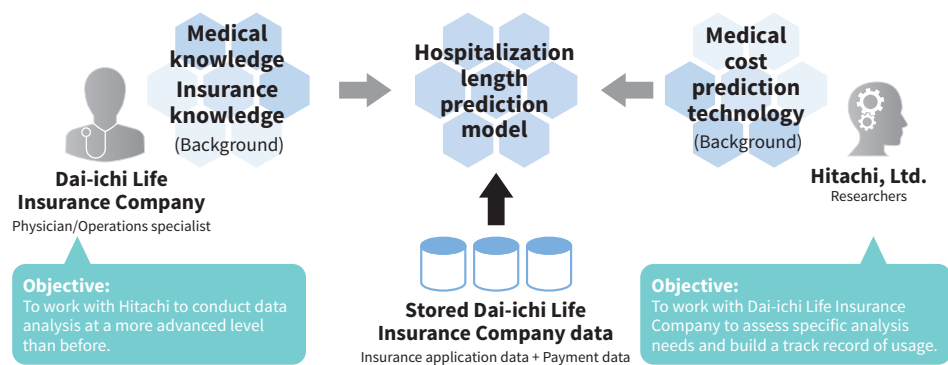


Financial Systems



1 Overview of the joint research scheme

1 Initiatives in Medical Big Data — Joint Research with Dai-ichi Life Insurance Company —

Today, the life insurance industry is focused on developing more advanced risk assessment methods and new products using medical big data such as checkup results and medical compensation statements (insurance claims). Because of its strengths and proven track record in medical cost prediction and other medical data analysis technology, Hitachi has taken on the challenge of creating a risk analysis business for insurance companies.

Currently, Hitachi is conducting joint research with The Dai-ichi Life Insurance Company, Limited on establishing medical big data analysis technology and building a database of use cases. A model was developed for predicting the future length of hospitalization by illness based on a patient's health status when obtaining insurance by analyzing Dai-ichi Life Insurance Company's database of notifications and checkup information received when applying for insurance in comparison with the actual payment information.

The results were used to revise the underwriting criteria to allow eligibility for applicants who have high blood pressure-related ailments, who previously were turned down for insurance because their hospitalization risks were thought

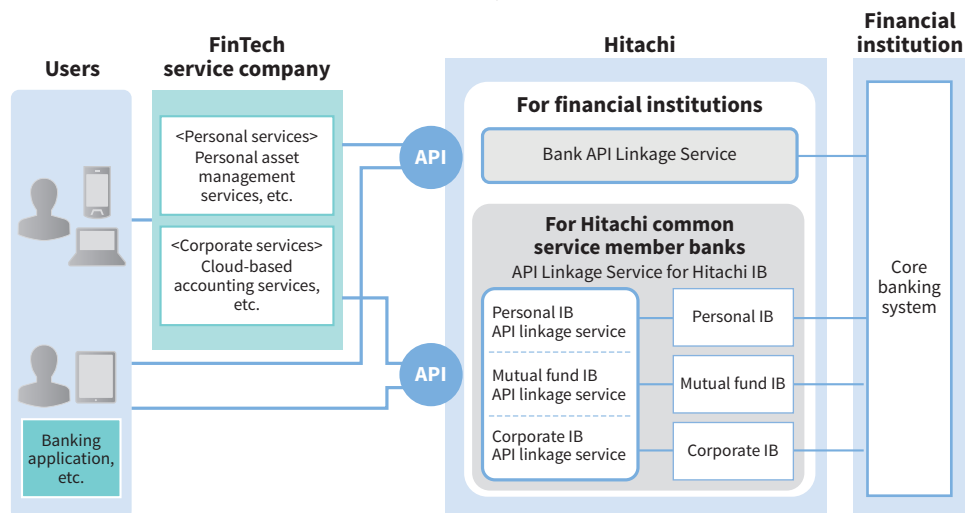
to be too high, and enabled the company to successfully acquire new customers.

Looking ahead, Hitachi will strive to develop technology for predicting future changes in medical conditions from changes in the health status over multiple years for developing even more advanced risk analysis technology solutions for the insurance industry.

2 Adoption of Financial API Linkage Services and Data Linkage with FinTech Service Companies

Financial application programming interface (API) linkage services securely link the systems of financial institutions with outside FinTech services and enable financial institutions to provide end users with financial services that are safer and superior in terms of service continuity.

Hitachi already provides services that connect with two applications for major regional banks in Japan. One service links with a bank's smart-phone application using the bank API linkage service^{*1}. This service enables easy viewing of account balance and transaction statements of regular savings accounts even for non-users of Internet banking (IB). The other service links with the online household bookkeeping service Zaim^{*} from Zaim Inc. using the personal



2 Overview of financial API linkage services

IB API linkage service^{*2}. This service performs data exchanges of the user's account balance and deposit/withdrawal transactions in one batch, allowing IB users to effectively use the related information for household bookkeeping.

Based on the adoption status of other financial institutions, linkages are also being implemented with outside FinTech services, including Money Forward*, which is an automatic household bookkeeping and asset management service provided by Money Forward, Inc.

Hitachi will expand its linkages with FinTech service companies and API operations to contribute to the spread and standardization of APIs in the financial field and will continue to support open innovation using service linkages that go beyond the boundaries of business sectors and industries.

*1 A lineup of financial API linkage services that allows identity authentication, viewing of account balances, and other operations using a bank card PIN and is also available to non-users of IB.

*2 A lineup of financial API linkage services that allows identity authentication, viewing of account balances, viewing of fixed deposit statements, and other operations using an IB ID and password. These are services intended for financial institutions that are members of the Hitachi common IB service.

* See "Trademarks" on page 148.

3 Using Public Biometrics Infrastructure to Provide New Services and Improve Operations

The public biometrics infrastructure (PBI)* is a new biometric technology that enables identity verification and electronic signatures using a public key generated through one-way

conversion of biometric (finger vein) information. Currently, The Yamaguchi Bank, Ltd., The Momiji Bank, Ltd., and The Kitakyushu Bank, Ltd., which all belong to the Yamaguchi Financial Group, Inc., have started providing new services that use PBI to provide customers with greater convenience and stronger security.

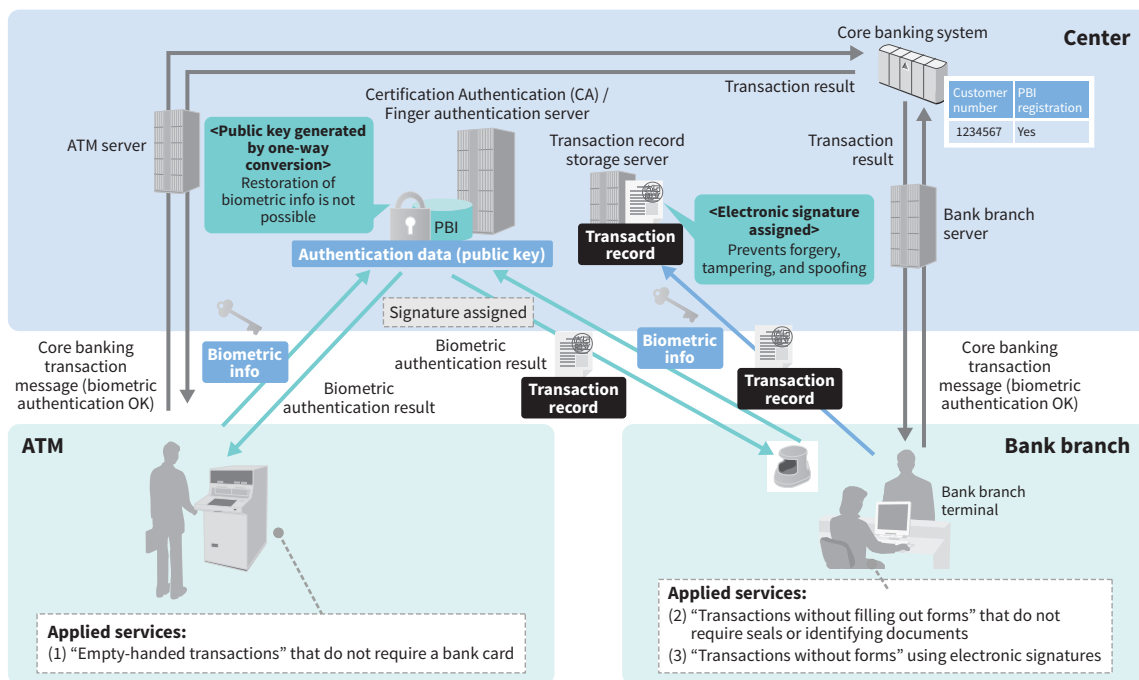
The main features are as follows.

- (1) Identity authentication using finger veins enables users to make deposits, withdrawals, and other transactions at an automated teller machine (ATM) as "empty-handed transactions" without a bank card.
- (2) Identity authentication using finger veins enables users to conduct "transactions without filling out forms" with a bank teller, and without requiring any seals or identity confirmation documents.
- (3) Form digitization with a bank teller and generated electronic signatures are used instead of actual written signatures to enable "transactions without forms."

As a result, customers can use bank services without carrying around a bank card, seal, or identity confirmation documents, and banks can reduce the issuing and checking of forms and document storage operations at bank branches.

Hitachi is striving to develop more advanced authentication technologies and related services for safe and convenient financial transactions.

* Authentication platform combining public key infrastructure (PKI) and biometrics. This is performed based on technology that generates electronic signatures (biometric electronic signatures) using finger vein information.



3 Overview of ATMs and bank window transactions using PBI

4 Hitachi Blockchain PoC Environment Provision Service for Hyperledger Fabric

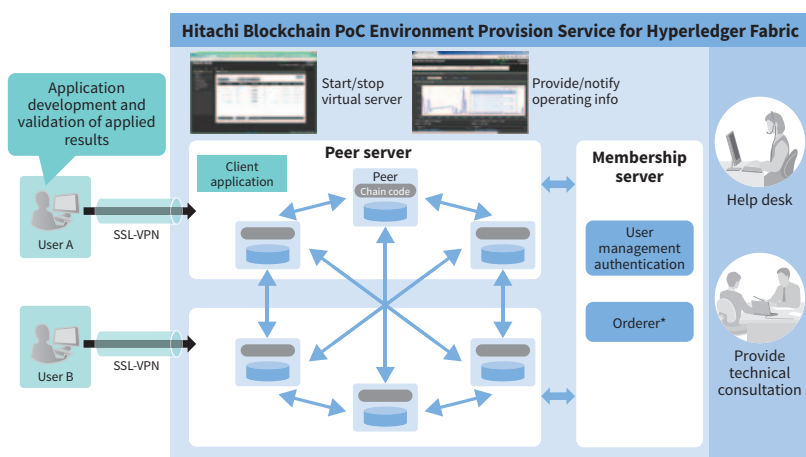
Blockchain technology uses a mechanism where a ledger is shared among systems distributed across multiple sites on a network and content is managed by verifying, agreeing, and sharing between them. Because transactions can be executed without any reliance on third-party institutions, and the validation and transparency of the transaction can be ensured, this technology is expected to lead to the creation of new business opportunities.

Today, as potential applications for blockchain

technology are being studied in a wide range of industries and fields, Hitachi has started providing a blockchain proof of concept (PoC) environment provision service for Hyperledger^{*1} Fabric. This enables the use of Hyperledger Fabric^{*2} environments, and also enables users to receive technical support regarding blockchain. This also allows the development of application programs that use blockchain technology and enables quick and easy validation of potential applications of this technology to accelerate the process toward practical application.

*1 See "Trademarks" on page 148.

*2 A Hyperledger project hosted by the Linux Foundation¹ in the implementation of the blockchain framework.



SSL: secure sockets layer VPN: virtual private network

* This is a component of the Hyperledger Fabric that is used to organize the order of transactions.

4 Overview of Hitachi Blockchain PoC Environment Provision Service for Hyperledger Fabric