Services & Platform Managed Services

Digit 1 Systems & Services

#Innovation Creation   #Co-creation and Open Innovation   #Generative AI   #Security   #IoT/Data Utilization   #Digital Solutions   #IT Products

1. Hitachi Cloud and DX Solutions for Working Closely with Customers on DX

There has been a global paradigm shift in people's values over recent years, with demand shifting from goods to information and other services and a move toward human-centric societies that prioritize the individual. Going beyond "volatility, uncertainty, complexity, and ambiguity" (VUCA), the world is entering a state in which social uncertainty is rising and becoming entrenched and where abrupt environmental changes are becoming the norm. To win out in market competition amid such intense change, it is essential that businesses make flexible use of data, including data that is highly confidential.

The data and systems that make up the core systems supporting corporate activities are hosted either on-premises or on cloud services, as appropriate, and there is an urgent need to adopt new technologies such as generative artificial intelligence (AI) and to get its commercial infrastructure established. Accordingly, Hitachi takes account of the following three considerations in the supply of services and solutions.

(1) Cloud integration

To make the most of the cloud, it is important to extract new value from the use of existing data to improve the efficiency and agility of customers' legacy systems. Hitachi understands customers' legacy systems and undertakes system integration and modernization in partnership with them to achieve their vision for the future, building an optimal cloud environment that combines public cloud, private cloud, and on-premises resources. This empowers customers to accelerate the use of data in their businesses.

(2) Hybrid cloud/digital infrastructure

In EverFlex from Hitachi, Hitachi has made available the operational expertise and system integration know-how it has acquired from the cloud deployment of core mission-critical systems in areas like finance and social infrastructure along with its past work on supplying reliable IT platforms. Offering customers a choice of services and utilizing appropriate "as-a-service" IT platforms allows for rapid and flexible responses to the challenges they face. Through collaborative creation with Amazon Web Services* (AWS*) that enables the deployment of Hitachi's storage technologies and operational know-how on AWS, Hitachi is also able to provide hybrid cloud environments that facilitate system deployment and modification as well as the migration of systems that hold highly confidential data.

(3) Managed services

To help customers who are struggling with a shortage of experts in fields such as the cloud and security, Hitachi provides managed services that support IT operation and digital transformation (DX). Specifically, this involves use of the Hitachi Application Reliability Centers (HARC) service and the JP1 Cloud Service to support customer IT operations. HARC delivers enhanced security and combines agility and reliability through the automation of cloud system operation, while the JP1 Cloud Service handles the centralized operational management of corporate IT systems as they become larger and more complex. Customer workloads can also be reduced through service delivery and formalization of the DX process in the Hitachi Intelligent Platform (HIPF), a managed service for putting data to use that is based on an extensive track record of success.

The following articles describe Hitachi services and solutions that put the cloud to use for customer growth in the services and platforms category and the managed services category.
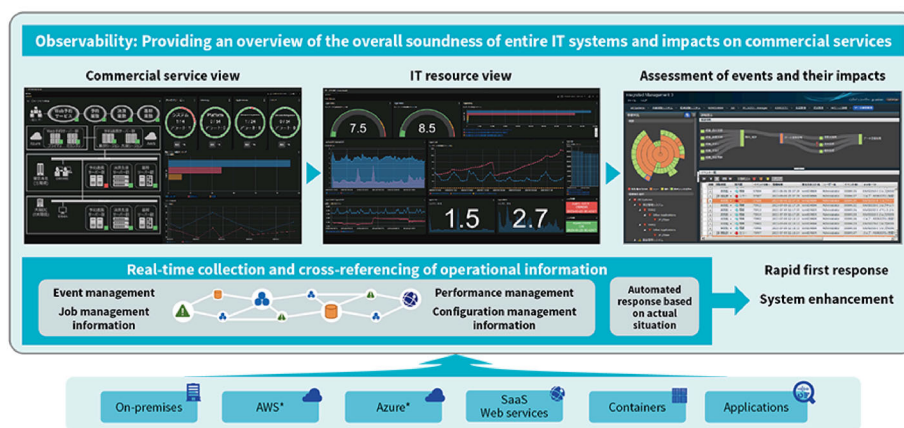
* See the list of "Trademarks."

［01］ Hitachi cloud and DX solutions for working closely with customers to achieve DX
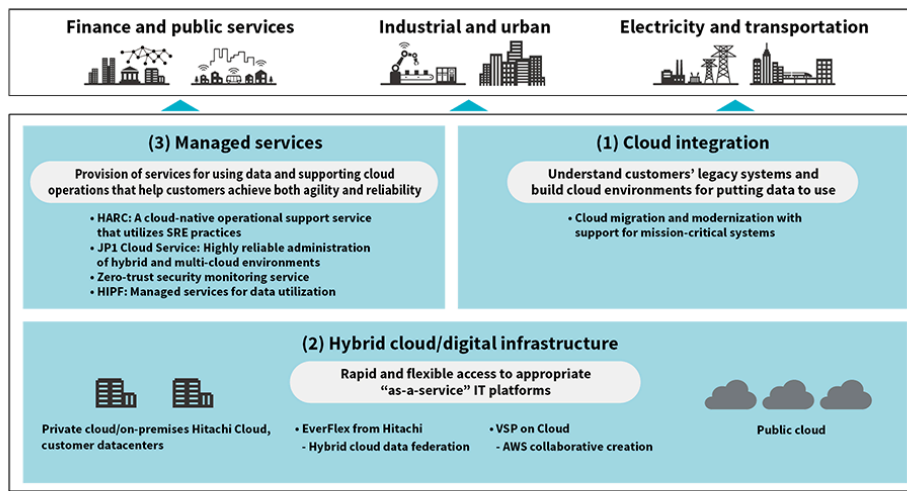
SRE: site reliability engineering
VSP: Hitachi Virtual Storage Platform

2. Outlook for Enhancement of Cloud-native Support for Observability of JP1 and JP1 Cloud Service and Generative AI Support

JP1 is a highly reliable system administration product for hybrid and multi-cloud environments. The JP1 Cloud Service administration platform is supplied as a software-as-a-service (SaaS). Hitachi has enhanced its observability along with that of JP1 Version 13 to visualize the overall soundness of entire IT systems. Interoperation with cloud services has also been made easier when automating commercial services that span on-premises and cloud environments. By doing so, Hitachi is also facilitating adaption to changing business environments and contributing to improvements in business resilience and agility. This is achieved through wider adoption of cloud-native technologies and the modernization of core business systems for the centralized administration of increasingly large and complex corporate IT systems that have mixed on-premises and cloud configurations.

Along with utilizing JP1 as a managed service for the cloud in the Japan rollout of Hitachi Application Reliability Centers (HARC), Hitachi also intends to contribute to corporate DX and social innovation in a wide range of fields by leveraging generative AI in applications such as enabling users to take on more of their own system administration.

［02］ Overview of observability enhancements using JP1 system administration

［02］ Overview of observability enhancements using JP1 system administration

* See the list of "Trademarks."

3. Security Monitoring Service for Hitachi Cloud and Zero-trust Environments

Alongside the ongoing cloud "lift and shift" (L&S) trend, the increasing frequency and variety of cyber-attacks make security measures more important than ever. Hitachi launched a managed security service (MSS) that is also suitable for public clouds and zero-trust environments. Rollout commenced in December 2022. The focus more recently has been on Microsoft, with support now being extended to cover monitoring of Azure* and Microsoft 365*. The MSS supplies high-quality security monitoring and analysis services that monitor sensor alerts and logs from Hitachi's integrated log management platforms.

On top of existing security monitoring, future plans involve reducing customers' operational workloads by providing a menu of support options for the entire security operation cycle, extending from routine operation to emergencies.

Hitachi draws on a track record of providing extensive system administration services that dates back more than 20 years, utilizing information on past incidents and on the latest attacks and threats to implement high-level security monitoring and analysis services. By doing so, it provides safe and secure multi-cloud operations to customers who lack sufficient security staff of their own with cloud expertise.

* See the list of "Trademarks."

[03] Monitoring and analysis by Hitachi MSS

FW: firewall
WAF: web application firewall
MDE: Microsoft Defender for Endpoint
MDO: Microsoft Defender for Office 365
IDP: Azure Active Directory Identity Protection
SOC: security operation center

4. Use of HARC for Agile and Reliable Cloud-native Operation

Use of the cloud is growing as it becomes more widely adopted. Among the issues faced by companies in this environment are: (1) a loss of reliability and stability, (2) increased workload for dealing with problems, and (3) higher running costs. While resolving these problems calls for a shift toward operating models that utilize DevSecOps*1 and SRE*2 to ensure operational reliability while also improving agility, many companies are unable to accomplish this at present for reasons that include a shortage of cloud skills and know-how.

The Hitachi Application Reliability Centers (HARC) service was launched in Japan in June 2023 to support the shift in operating models through improvements in maturity level. What this involves in practice is first to use professional services (assessment) to determine the current situation and set targets, and then to use managed services (system administration and cloud cost management) to execute operations with continuous improvement. Based on the SRE philosophy, HARC seeks to resolve challenges using an approach that combines: (1) integration of development teams and operations teams based on a shared responsibility model, (2) faster problem resolution by delegation to the "direct responsible individual" (DRI)*3, and (3) ongoing cost optimization through assessment, design, and management. The service has received positive feedback from the projects currently in progress.

In the future, Hitachi intends to overcome the challenges facing a larger number of customers while also increasing the service's added value, including a further expansion of managed services.

*1 The pursuit of rapid and highly secure development by incorporating security into DevOps (the coordination of development and operations to shorten development times)

*2 Site reliability engineering. A system operation methodology proposed by Google and a means of achieving DevSecOps.
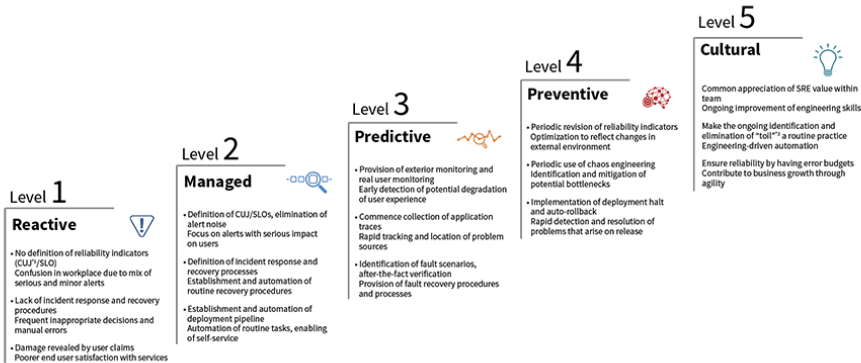
*3 The person responsible for incident response (inter-team coordination, identification of root causes, and service recovery actions)
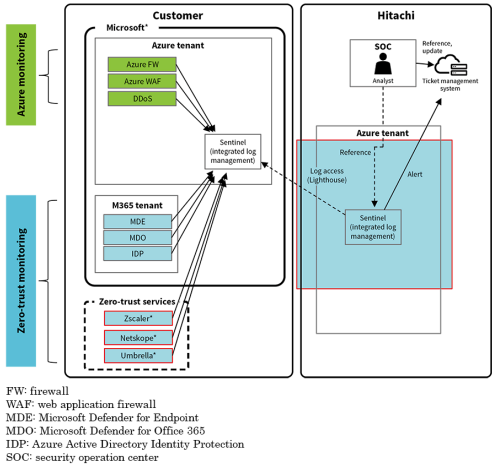
[04] Use of HARC to raise maturity level

Guidance and support from an experienced partner are essential to a successful journey to a higher maturity level through continuous improvement

Level 1
Reactive
- No definition of reliability indicators (CUJ*1/SLO)
Confusion in workplace due to mix of serious and minor alerts
- Lack of incident response and recovery procedures
Frequent inappropriate decisions and manual errors
- Damage revealed by user claims
Poorer end user satisfaction with services

Level 2
Managed
- Definition of CUJ/SLOs, elimination of alert noise
Focus on alerts with serious impact on users
- Definition of incident response and recovery processes
Establishment and automation of routine recovery procedures
- Establishment and automation of deployment pipeline
Automation of routine tasks, enabling of self-service

Level 3
Predictive
- Provision of exterior monitoring and real user monitoring
Early detection of potential degradation of user experience
- Commence collection of application traces
Rapid tracking and location of problem sources
- Identification of fault scenarios, after-the-fact verification
Provision of fault recovery procedures and processes

Level 4
Preventive
- Periodic revision of reliability indicators
Optimization to reflect changes in external environment
- Periodic use of chaos engineering
Identification and mitigation of potential bottlenecks
- Implementation of deployment halt and auto-rollback
Rapid detection and resolution of problems that arise on release

Level 5
Cultural
- Common appreciation of SRE value within team
Ongoing improvement of engineering skills
- Make the ongoing identification and elimination of "toil"*2 a routine practice
Engineering-driven automation
- Ensure reliability by having error budgets
Contribute to business growth through agility

CUJ/SLO: critical user journey/service level objective
*1 User experiences and expectations that are especially important during the customer journey
*2 System administration tasks that are manual and repetitive, that increase with system scale, and are suitable for automation

5. HIPF Providing One-stop Support for DX that Fulfills Customer Expectations

At a time when many companies are seeking to create business value by leveraging data, Hitachi has been developing DX solutions for a wide range of industries. To achieve DX in ways that are more efficient and broad-ranging, Hitachi has consolidated these solutions into the Hitachi Intelligent Platform (HIPF), a managed service for data utilization that is based on an extensive portfolio of successes built up from experience in numerous projects inside and outside Hitachi.

Hitachi has combined expertise in DX acquired over many projects with enhanced technologies and products. This one-stop approach to a range of different areas extends from DX concept development to data platform implementation and data management.

A feature of HIPF is that the service has been built on an extensive portfolio of past successes. This achieves DX efficiently through the reuse of architectures and programs from past industry-specific projects under the headings of manufacturing DX, environmental DX, research DX, procurement DX, and maintenance DX.

[05] Managed service for data utilization to accelerate progress of DX

OT: operational technology
SE: system engineering
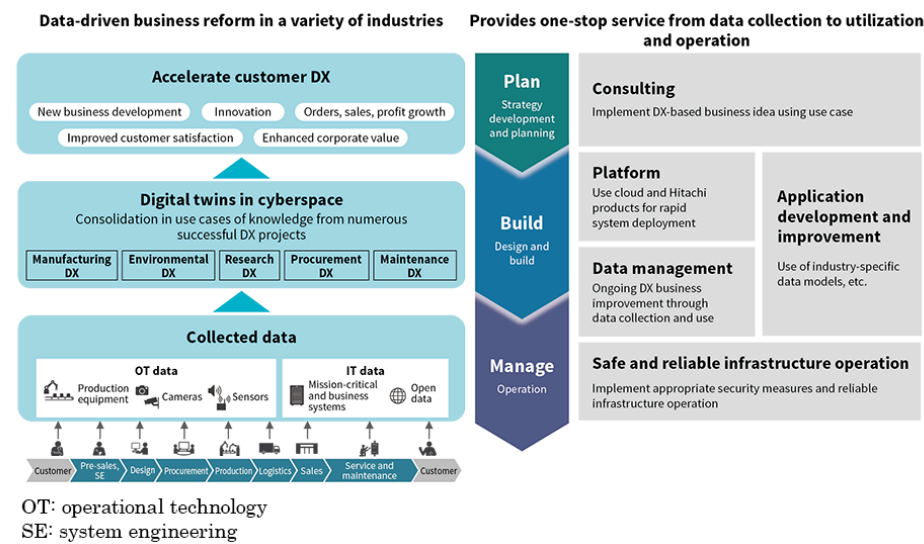
6. Automatic Calculation of Product-specific CO_2 Emissions from TWX-21 EDI Data

With European regulation leading the way in efforts to achieve carbon neutrality by 2050, companies will need to determine their product-specific CO_2 emissions if they want to export and sell their products in the European market in the future.

TWX-21 is a SaaS for business-to-business transactions that collects electronic data interchange (EDI) data from its Web-EDI service, which connects buyers and suppliers engaged in procurement and purchasing. Hitachi now intends to add a new service that uses this EDI data to automatically calculate the CO_2 emissions of supplier products (upstream Scope 3 emissions) and provide this information to buyers.

This will calculate product-specific CO_2 emissions by collecting supplier sales totals from EDI data together with the entry of CO_2 emissions data by suppliers or automatic links from external information.

It is anticipated that this service will be needed in the future for the itemization and reduction of product-specific CO_2 emissions.

Something else that should help with the assessment and reduction of CO_2 emissions across entire supply chains will be to make the product-specific CO_2 emissions calculated by TWX-21 available to other solutions (for downstream Scope 1, 2, and 3 emissions), whether from Hitachi or other vendors. Hitachi is currently assessing the viability of this by conducting trials both internally and externally.
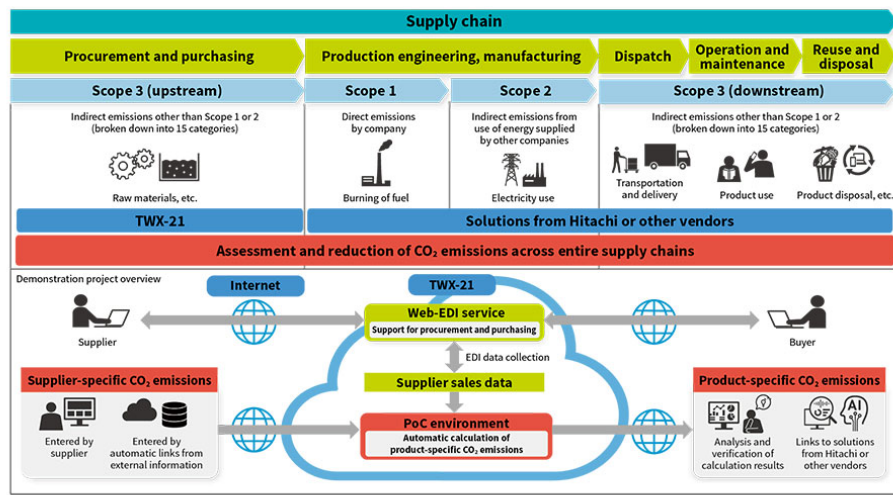
PoC: proof of concept

7. Hitachi and Equinix Stepping up Global Deployment of Hybrid Cloud Solution

Equinix Inc. and Hitachi have announced that they will strengthen their collaborative efforts to address societal challenges. Equinix is a member of the Lumada Alliance Program[*1] and is engaged in work on societal challenges that involves a cycle of developing, deploying, and utilizing digital solutions by both companies.

Through its Platform Equinix[*2] product for hybrid cloud and secure inter-company connectivity, Equinix has established a global interconnectivity ecosystem of corporate partners. These include service providers offering network, storage, content, and other services.

The collaboration announcement will see Hitachi making use of Platform Equinix and Equinix's interconnectivity ecosystem to move forward on the global deployment of its hybrid cloud solutions that are considerate of the environment with reliable high-performance connections to public clouds and near clouds. Through the ongoing strengthening of their collaboration, the two companies are looking ahead to future market environments that will call for an acceleration in the combined achievement of both sustainability transformation (SX) and DX.

Meanwhile, Hitachi will also host its Hitachi Virtual Storage Platform (VSP) at Equinix datacenters to supply hybrid cloud solutions that benefit from the agility of the cloud while also satisfying strict customer requirements for compliance and performance.

*1 Hitachi's partner program for accelerating open innovation to boost social value, environmental value, economic value, and quality of life (QoL).

*2 See the list of "Trademarks."

［07］ Supply of hybrid cloud solutions
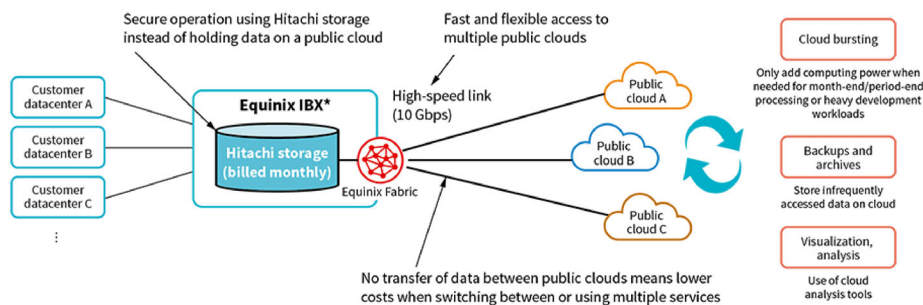
8. Strengthening of Hybrid Cloud Solution through Co-creation with AWS

Hybrid clouds can provide an appropriate mix of on-premises and cloud resources for the secure and flexible use of many different forms of data. This is raising expectations for their use as system platforms for management and business reforms that emphasize sustainability. In the case of EverFlex from Hitachi, Hitachi utilized the outcomes of co-creation with Amazon Web Services (AWS)[1], [2] to launch Hitachi Virtual Storage Platform on cloud (VSP on cloud) in June 2023. VSP on cloud provides a software implementation of the storage functions that Hitachi uses for on-premises installations. Running it on AWS provides commonality between on-premises and cloud storage. This makes system migration easier by significantly reducing the amount of work required for design and operational changes when migrating between on-premises and cloud installations. As it also provides storage copying functions that can be used to copy data from on-premises systems to the cloud, it allows for the use of cloud resources in development and analysis. It also means that the cloud can be used as a backup site for on-premises systems in the event of a disaster.

[1] See the list of "Trademarks."

[2] The joint creation of new value in which Hitachi's business activities involve working alongside a wide range of stakeholders. The outcomes of this latest co-creation did not include joint development involving revenue distribution or the transfer of intellectual property rights.

[08] Conceptual image of hybrid cloud solution usage
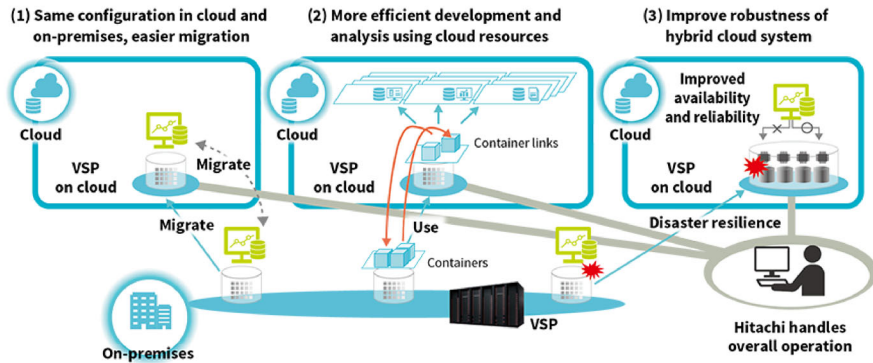
9. Acceleration in Deployment of EverFlex from Hitachi as an As-a-service IT Platform

If the IT systems that underpin corporate activity are to keep up with a rapidly changing business environment, it is important that they make optimal use of private and public clouds in accordance with their business objectives. The difficulty with this is that implementing a hybrid cloud with a mix of both private and public clouds calls for a variety of skills and expertise, requiring a lot of time and effort.

To overcome this problem, Hitachi has expanded its portfolio by augmenting EverFlex from Hitachi, its as-a-service IT platform, with services that leverage the experience, expertise, and know-how it has acquired from past work on using the cloud for core business systems.

As it seeks to resolve challenges in partnership with customers, Hitachi intends to leverage its as-a-service IT platforms and portfolio to further strengthen EverFlex from Hitachi by incorporating generative AI and other advanced technologies in the form of services that underpin customer business growth.

[09] EverFlex from Hitachi: an as-a-service IT platform
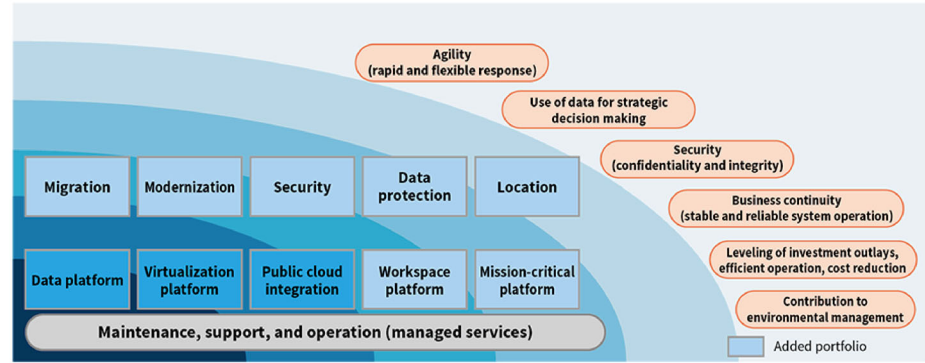
10. Expansion of Healthy Urban Development Featuring Engagement by People without Health Concerns

Hitachi Systems, Ltd. supplies smartphone apps that provide one-stop support extending from primary to tertiary illness prevention. These apps include a conditioning managed service that supports walking, moderate exercise, sleep, and mood self-care; the MIRAMED[*1] health support service for metabolic syndrome; and the SmartOneHealth[*1, *2] and SaluDi[*1, *3] programs, which help with medical consultations and advice.

MIRAMED industrial health was added to this portfolio of services in September 2023 to provide health support services for small and medium-sized enterprises in the field of industrial health. Other ways in which Hitachi is strengthening its health-related offerings include establishing services that assist with the development of digital therapeutics (DTx) and software-as-a-medical-device (SaMD)[*4].

Further work in this field will take place around Japan and expanding to various regions from FY2024 onwards with the trialing of models for healthy urban development. This will include boosting links with health-related stakeholders (including the ANA Pocket[*1] smartphone app from ANA X Inc.), the pursuit of initiatives promoting nature and health that even people without health concerns can enjoy, and the commencement in October 2023 of a trial project in Iizuka City, Fukuoka Prefecture for healthy urban development with cross-industry collaboration based around a personal health record (PHR) service.

(Hitachi Systems, Ltd.)

*1 See the list of "Trademarks."

*2 A smartphone app from Integrity Healthcare Co., Ltd.

*3 A smartphone app from Sawai Pharmaceutical Co., Ltd.

*4 Digital therapeutics prescribed by medical institutions

［10］ Trial project in Iizuka City, Fukuoka Prefecture

PHR: personal health record
HL7 FHIR: Health Level Seven Fast Healthcare Interoperability Resources
2G3M : Two Guidelines from Three Ministries

11. Real-time Remote Pipe Monitoring Using IoT Flow Monitoring System

This flow monitoring system was developed and provided by Hitachi Systems, Ltd. between FY2020 and FY2021 under contract to a local government. It provides remote and real-time sensing of flow rate and direction in water distribution pipes. By providing a quantitative view of pipe flows during routine conditions, the system is expected to enable appropriate water quality management and effective operation of water distribution.

The system can be installed without disconnecting the water supply and does not require the modification and replacement of manhole covers to install the monitoring equipment. By using low-power wide-area (LPWA) cellular communications with a multicarrier network, the system can collect data with the manhole covers in place and allows for choice of the best carrier based on radio reception at each installation site. The system has a long operating life of more than three years using commercially available batteries.

As the system can work with water pressure and quality monitoring systems that are already provided by Hitachi Systems, another feature is its capacity for centralized monitoring in which flow rate, water pressure, and water quality data are all available from the same cloud platform.

By making this system available, Hitachi is supporting the operations of water utilities throughout Japan that are seeking to provide more reliable supplies of water.
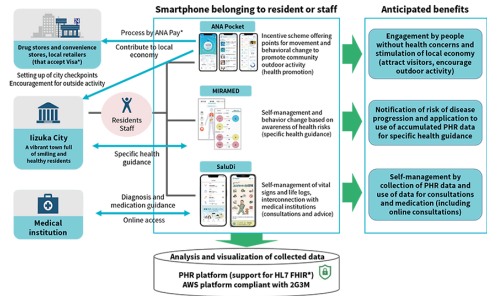
(Hitachi Systems, Ltd.)

［11］ Flow monitoring device installed in flow meter chamber (inner diameter 600 mm)

12. Cashless Support Service for Regional Revitalization to Overcome Local Challenges

Amid concerns about a shrinking workforce due to aging demographics and a low birthrate, local governments are striving to adopt measures for regional revitalization that will stimulate economic activity within their communities. One such method that has attracted interest is the issuing of points, currencies, or coupons that only circulate within a specific region. While this serves as a regional revitalization measure that brings local residents together and keeps spending within the community, many such schemes are still based on paper tickets.

Hitachi Systems, Ltd. released its cashless support service for regional revitalization in January 2023 to provide an IT platform that facilitates the issuing and operation of these local currencies. The service provides easy-to-use web browser access via devices such as PCs and smartphones, not only for the issuer, but also for participating retailers and residents. By making usage data available, it can also be used to identify local issues and evaluate policies.

The service can also be used for ticketless and cashless interaction with private businesses such as shopping malls or event venues. Hitachi intends to grow the service into a platform for resolving local challenges and strengthening customer interactions by expanding use cases, such as use in tandem with biometric authentication to offer wallet-less shopping.

(Hitachi Systems, Ltd.)

[12] Cashless support service for regional revitalization
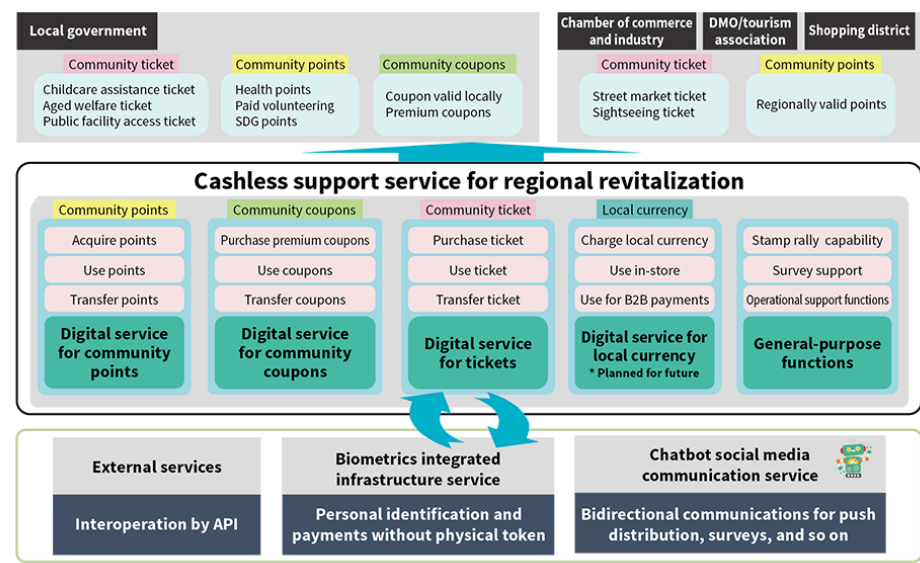
SDGs: Sustainable Development Goals
DMO: destination management organization
B2B : business to business
API: application programming interface

# 13. AI Data Analysis Outsourcing Service Using DataRobot

Hitachi Systems, Ltd. has developed an outsourcing service in which its data scientists use the company's DataRobot* AI platform to build AI prediction models based on customer-supplied data and deliver the results obtained from the input of training data. The service provides operation and monitoring of AI prediction models, including checking the prediction accuracy after delivering the results.

By giving customers the opportunity to assess prediction results without a heavy burden of licensing costs, the service allows them to try out the use of AI on a small scale such as for individual departments or topics. The new service is targeted at companies that have wanted to put AI to use but have been unable to do so due to the cost or because they lack the data scientists needed to build and maintain systems in-house, and companies that are considering acquiring their own license but want to evaluate and verify the prediction models before purchasing.

(Hitachi Systems, Ltd.)

* See the list of "Trademarks."

[13] Data analysis outsourcing service using AI
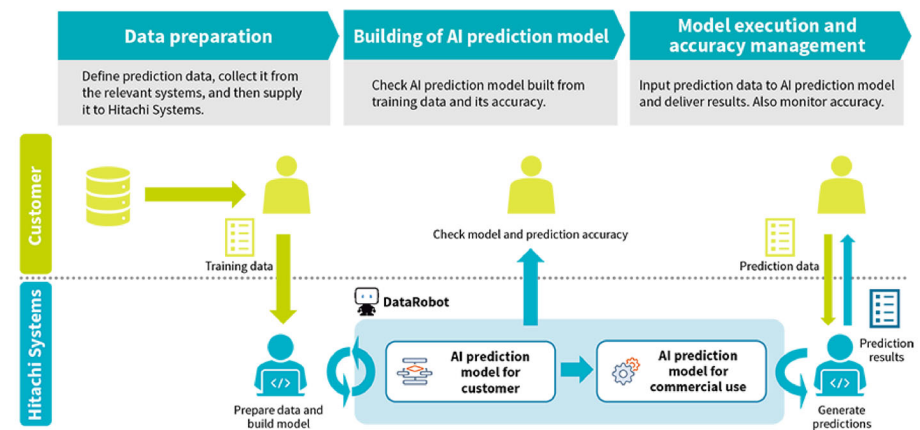
14. Joint Research with Tokyo Medical and Dental University on Use of Electronic Medical Records in Healthcare

Hitachi Systems, Ltd. has partnered with Tokyo Medical and Dental University and Tokyo Medical and Dental University Hospital on joint research into the cross-referencing and use of electronic medical records for cancer patients.

This has involved converting the patients' electronic medical records into the format specified by the HL7 FHIR* standard for the exchange and sharing of medical information, which is done on a medication and healthcare platform that uses Amazon Web Services (AWS)*, and verifying its utility for analysis, storage, and other uses. The work demonstrated the ability to perform integrated analysis of medical information to obtain information useful in medical consultations. Cross-referencing with medical records held by other healthcare institutions as well as hospitals, provides potential future opportunities including use in treatment planning.

Tokyo Medical and Dental University and Hitachi Systems are building on the outcomes of this joint research to pursue other ways of putting data to work. By consolidating the dormant medical data held by medical institutions and putting it to use, it is hoped that this joint research will lead to the development of new diagnoses and treatments.

(Hitachi Systems, Ltd.)

* See the list of "Trademarks."

［14］ Overview of joint research
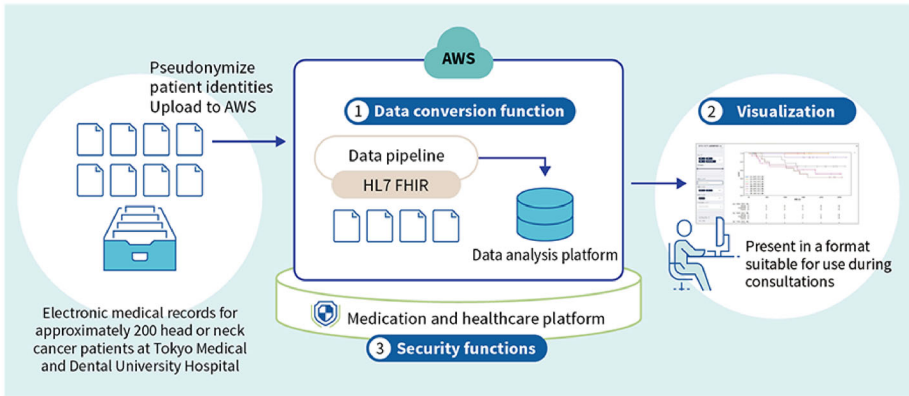
15. Curation of Gateway for Business Cloud as Multi-cloud Solution

The ongoing trend toward cloud "lift & shift" increases the importance of managed services that support customers and enhance system flexibility, agility, and operational value. To make it easier than ever before for customers who are looking to establish and operate multi-cloud systems to choose the right services for them, Gateway for Business Cloud provides a multi-cloud solution that has been put together from a suite of managed services in the fields of "Security," "Cloud, Network & Data Center, IT Operations," and "Contact Center & Business Process Outsourcing (BPO)." The solution has the following features derived from the know-how that Hitachi Systems has built up in multi-cloud environments.

(1) Rapid adoption and operation of cloud using a curated service

(2) Quality improvement using a service pack that conforms to industry guidelines

(3) Business improvement and greater benefits from using cloud based data analysis

Hitachi intends to continue strengthening Gateway for Business Cloud by working in partnership with cloud and service vendors to provide customers with high-added-value services that suit the characteristics of particular industries or sectors.

(Hitachi Systems, Ltd.)

［15］ Gateway for Business Cloud managed service

Customer feedback

It is difficult to find the right service options among the different clouds available

Concern about security and operation of increasingly complex cloud environments

Lack of technical staff for making the most of cloud use

Hitachi Systems

| Medication and healthcare platform | Solutions for local government ADWORLD | Solutions for society and public sector CYDEEN | Production management for manufacturing and distribution FutureStage | ... |

Gateway for Business Cloud

Feature 1: Rapid adoption and operation of cloud using curated service

Feature 2: Quality improvement using industry-integrated service pack that conforms to industry guidelines

Feature 3: Offering business improvement and greater benefits from cloud use based on data analysis

Curated suite of managed services to support the customer

Security	Cloud, Network & Data Center, IT operations	Contact Center & BPO
SHIELD		
Security installation and configuration	Cloud & Network installation and configuration	Contact Center
Security monitoring and analysis	Multi-cloud monitoring	Operational support
Security maintenance and operation	Data Center and IT operation	Data analysis and improvement support

Benefits for customers

Cloud migration with allowance for security and operation, shorter installation times

Quality improvement of business systems

Continuous improvement in benefits of using cloud

Hitachi Review

Hitachi Review is a technical medium that reports on Hitachi's use of innovation to address the challenges facing society.

The *Hitachi Review* website contains technical papers written by Hitachi engineers and researchers, special articles such as discussions or interviews, and back numbers.

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