Relationship between Management Capital and Business Strengths

Reflecting our business platform as a system integrator and our business model based on a "client perspective," we have invested significant management capital in our business activities. Within management capital, we regard "human and intellectual capital," "social capital (ecosystem)," and "manufacturing capital" as particularly important. This means the willingness and motivation to learn broadly and deeply and to persevere in identifying solutions, as well as the technical power to uncover, understand, and connect excellent products and services in Japan and overseas and the ability to form relationships with internal and external partners. By combining these elements of management capital, we have cultivated unique strengths that other companies cannot easily imitate. We are focusing on efforts to further refine our strengths and continuously expand the value of each management capital element.

	Management Capital to Highlight Unique CTC Attributes	Details
Human and Intellectual Capital	Advanced IT personnel with the latest technological know-how ▶ P23–25, 58–62	Technology Strategy / Human Resources Strategy
	A "keen eye" and "sourcing and integrating technologies" ▶ P25–26, 58–62	Technology Strategy / Human Resources Strategy Vendor Certifications / Awards Received
Social Capital (Ecosystems)	Reciprocal relationships with customers and partners to accelerate next generation businesses ▶ P27–28	Customer base
		SI partners
		Vendor relations
		ITOCHU Group companies
		Capital alliance partners
Manufacturing Capital	Platform for creating and realizing ideas ▶ P29–30	DEJIMA / CTC Innovation Partners / Innobee Challenge / Agile Offices
	Overseas R&D bases and validation centers to support multi-vendor capabilities ▶ P31	CTC America / TSC
	Multi-cloud data centers ▶ P31	Data centers
	Domestic and overseas service bases to provide peace of mind to customers ▶ P32	Global bases / Domestic service bases

The Ability to Create New Businesses with Clients

- Broad Client Base
- Innovation Capabilities
- Partnerships

The Ability to Build New Businesses by Harnessing IT

- Multi-Vendor Multi-Cloud
- Technological Capabilities
- Support Framework

	Broad Client Base	Innovation Capabilities	Partnerships	Multi-Vendor Multi-Cloud	Technological Capabilities	Support Framework
		O		O	O	O
				O	O	O
	O		O			
			O		O	O
	O	O	O	O	O	O
	O	O	O			
		O	O			
		O	O		O	
				O	O	O
				O	O	O
			O		O	O
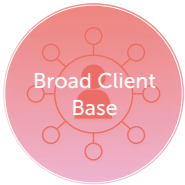
Capital Utilization

Human and Intellectual Capital

Reasons for Emphasis

Modifying sophisticated social systems using IT requires not only technology but also humans who can master that technology. Because systems are used by humans, it is essential that engineers have in-depth knowledge in specialized fields, as well as wide-ranging knowledge about the latest technologies and the ability to apply and combine them more effectively. CTC considers that "people" (human capital) and the "know-how" (intellectual capital) that people can acquire are the two types of capital that should receive the most attention for refinement.

▶ Advanced IT Personnel with the Latest Technological Know-How

Building on Our "Full Stack" Strengths to Open a New Era

Tadataka Okubo
Director & Senior Managing Executive Officer
Assistant to the President
 (Special appointment for Advanced IT Strategy)
CTO

Changing Spotlight of DX

Since around the fall of 2019, I have sensed a shift in the way people perceive digital transformation (DX). This is not simply due to the emergence of highly innovative new businesses that deploy existing digital technology to achieve "creative destruction." It is also the result of DX being used to provide higher added value by extending its reach in conventional areas. These include digitization of existing businesses to achieve organizational management and work-style reforms.

Changes in people's lifestyles associated with the spread of COVID-19 have accelerated this trend. Corporations are also starting to direct their investments to new areas. These include construction of stronger management foundations that are prepared for large-scale disasters and the spread of infectious diseases, as well as the transition to cashless payments and e-commerce so that people can coexist with pandemics and live safely. DX is gathering pace in a wider range of fields than ever before, and advanced technologies are expected to help create a new society. In this context, DX will be used to develop human-friendly solutions that anyone can use regardless of age, as well as

services that focus on user convenience and safety, in addition to the traditional purpose of IT in delivering productivity and efficiency improvements. In other words, DX will also play a role in realizing a prosperous society.

Arrival of the "Cloud-native" Era

Future IT systems will need to be both friendly to users and offer scalability and safety for companies that develop them. However, many technical issues remain. As a typical example, full-scale commercialization has begun of the 5G next-generation mobile communication system, earmarked as a driving force for accelerating DX. The problem is that construction of most of the required IT infrastructure at user companies, public entities, and the like remains unfinished.

To overcome this, we need to provide IT infrastructure in multi-cloud environments containing collections of cloud-native microservices. In light of the exponentially increasing volume of information to be processed, we must also practice "edge computing" to handle some of the analysis and processing functions on both the cloud and user sides. There is also an urgent need to develop and evolve "edge devices," which are terminals equipped with ICs that perform ultrahigh-speed parallel processing functions like AI.

We look forward to the progressive introduction of these cloud-native technologies, spearheaded mainly by companies looking to drive the next generation of business through DX. However, most Japanese companies and organizations are vertically integrated and must eliminate the technical shortfalls caused by their complicated black-box core systems (legacy systems). This is known as the "2025 digital cliff." They need to update their legacy systems and mobilize DX to introduce cloud-native systems.

"Full Stack" System Integrator

Under these circumstances, system integrators need to have a collection of technologies, knowledge, and expertise to meet the complex requirements of client companies and deliver convenience to users in multiple ways. They must provide reliable, high-quality services by building multi-cloud and edge computing environments while developing high-quality applications and maintaining and operating systems based on those applications. This requires the services of a "full stack" system integrator with integrated technical knowledge across all layers, from infrastructure construction to products and applications.

The CTC Group is one of the few system integrators with engineers who are well-versed in the many technologies of a multi-vendor environment. These include technologies related to networks, IT infrastructure, the cloud, application development, and project management.

We have existing expertise in handling the entire IT life cycle, from business strategy to end-user contact, with services ranging from planning and design to procurement, development, deployment, migration, maintenance, and operation. We are also strong in 5G, WiFi6, and other network technologies, as well as cutting-edge technologies for building cloud-native environments, including agile development, DevOps, and microservices.

In addition to this "true full stack" system, we have accumulated business expertise in many fields, including information and communication, manufacturing, logistics, finance, and public services. Backed by such expertise, we approach companies in a wide range of industries seeking to use DX to leverage their growth strategies.

Capital Utilization
Human and Intellectual Capital

Human Resource Development Focusing on the "Bigger Picture" Rather than "Points"

To help realize DX and create new value for our client companies, we must develop skilled engineers who can deploy our "full stack" arsenal to maximum advantage. In addition to in-depth expertise in specified technical fields, our engineers need wide-ranging knowledge and creativity so that they can deliver solutions that take into account the kinds of environments IT users will access. In other words, they must serve as "IT producers" who can look at the "points" of customers' requests and grasp the "bigger picture" to pinpoint issues and requirements and thus extract the best solutions.

The increasing sophistication and advancement of IT has led to a division of labor among engineers, who now tend to target career paths in specific technical fields where they can acquire more in-depth specialized expertise. On the other hand, the number of engineers who can grasp the overall picture of a system while also enjoying the pursuit of the important dedicated technologies is increasing, especially among the younger generation, known as "digital natives."

At CTC, we focus on creating environments where human resources who are keen to acquire new technical knowledge can maximize their abilities. One example is our in-house community, "Dojo," which we opened in fiscal 2019. At Dojo, engineers share technical information and learn from each other, irrespective of age, experience, and job title. Backed by our "full stack" strength, we will continue improving this environment to develop human resources who will support our future growth.

▶ A "Keen Eye" and "Sourcing and Integrating Technologies"

Since its foundation, the CTC Group has continued to build solid relationships with superior IT vendors in Japan and overseas. We have moved swiftly to identify excellent services, software, products, and the like from all over the world, then connect and combine these products to provide cutting-edge, high-quality IT environments. Today, we deploy more than 300 IT-related services and supporting products and have a top-class performance record in Japan.

Now that the cloud has become commonplace, we have formed partnerships with major vendors that develop numerous application services, including SAP and Box, in addition to Amazon Web Services (AWS) and other hyperscale cloud vendors. We meet on a regular basis with some of the world's foremost IT vendors, sharing clients' requests and comments from Group engineers to help them develop high-quality products and services.

aws partner network

Premier Consulting Partner

Azure

box

Vendors for which CTC is the largest seller in Japan:
13 companies

Vendors that accord top partner ranking to CTC:
26 companies

CISCO Gold Partner

DELL EMC PARTNER TITANIUM BLACK

Google Cloud

Hewlett Packard Enterprise

JUNIPER NETWORKS

NetApp

ORACLE Platinum Partner Cloud Standard

outsystems

SAP Silver Partner

sas

vmware

▶ Major Vendors and Awards

AWS	**AWS Partner Network (APN) Premier Consulting Partner**
Cisco	**Gold Partner** FY19 Cisco Japan Award • Japan Partner of the Year
DELL EMC	**Titanium Black Partner** DELL Technologies World 2019 • Special Contribution-Japan APJ • Go Big-Win Big Services APJ
HPE	**Platinum Partner**
juniper	**Elite Partner**

NetApp	**Star Partner** NetApp Japan Partner Award 2019 • Support Partner of the Year
Oracle	Oracle Support Partner Day 2019 • Kudos for Oracle Support Partners SW_DB Oracle MySQL Partner Advisory Forum 2019 • MySQL Partner of the Year 2019
VMware	VMware 2020 Partner of the Year Award • Partner Social Impact Award APJ VMware 2019 Partner of the Year Award • APJ Partner of the Year • APJ Hyperconverged Infrastructure Solution

▷ **SAS Institute Japan: Two Partner Awards**

In recognition of its significant investment in SAS technology in 2019, including nearly doubling the number of its SAS certified employees, CTC was named "Global Channel Partner of the Year" for the third consecutive year. We also received the "Best Channel Partner Award" and "Best Innovator Award" in Japan.

▷ **OutSystems APAC InStep 2019: Three Awards**

At OutSystems InStep APAC 2019, hosted by OutSystems (provider of low-code application development platforms), CTC received the following three awards for its performance in developing products for OutSystems and its participation in large-scale projects for the automotive sector.
• APAC Partner of the Year
• Outstanding Enterprise Deal APAC
• Northeast Asia / Japan Partner of the Year

▷ **Citrix Systems: Strategic Solution Award—Workspace & SD-WAN**

CTC received the "Strategic Solution Award—Workspace & SD-WAN" in the Strategic Solutions category. This award recognizes our "Citrix Cloud for Windows Virtual Desktop" solution, which links the "Citrix Cloud" service platform with virtual desktop environments.

▷ **Tableau: Partner of the Year, Asia Pacific (sixth consecutive year)**

At the 2019 APJ Partner Awards, hosted by Tableau Software (provider of data analysis platforms), CTC received a "Partner of the Year, Asia Pacific" award for the sixth consecutive year. This was in recognition of our track record of providing Tableau solutions to customers in Japan.

▷ **Akamai Technologies: Zero Trust Partner of the Year 2019**

CTC received a "Zero Trust Partner of the Year 2019" award for its achievements in building secure remote work environments that utilize Akamai's "Enterprise Application Access (EAA)," a cloud-based remote access solution for Zero Trust network security.

▷ **A10 Networks: Best Performing Partner Award**

CTC received the "Best Performing Partner Award" from A10 Networks for the sixth consecutive year. This was in recognition of our construction of large-scale systems using A10 products in the telecommunication field, as well as our development of solutions in the enterprise and financial fields.

Capital Utilization

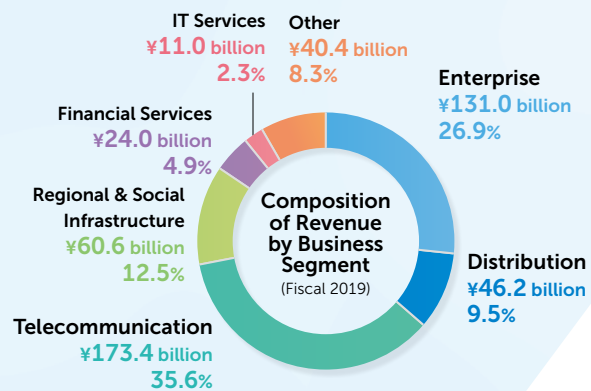# Social Capital (Ecosystems)

Reasons for Emphasis

New technologies and new business seeds are being born day and night around the world. In this fast-paced world, CTC seeks to quickly resolve customer issues and contribute to society by sharing all types of information and forming stronger co-creative relationships, while strengthening relationships with partners and moving forward together with them. We also build broad, deep, and long-term relationships with our customers to ensure that we understand their needs and come up with ideas for new systems. By maximizing our ability to "connect supply and demand" without an over-reliance on our own services, we will help to resolve the problems of our customers.

Wide and Deep Business Relationships

CTC conducts business with around 10,000 customers in diverse fields, including telecommunications, manufacturing, retail, trading, financial services, and public services. By using IT to solve customer issues, we improve corporate value and help to address issues facing society as a whole.

In addition to offering a wide range of products and services to customers as a system integrator, we are accumulating knowledge on industry issues and further deepening our relationships by engaging in numerous long-term collaborative projects through joint development and proof of concept (PoC) activities.

Composition of Revenue by Business Segment (Fiscal 2019)

IT Services ¥11.0 billion 2.3%

Other ¥40.4 billion 8.3%

Enterprise ¥131.0 billion 26.9%

Financial Services ¥24.0 billion 4.9%

Regional & Social Infrastructure ¥60.6 billion 12.5%

Telecommunication ¥173.4 billion 35.6%

Distribution ¥46.2 billion 9.5%

Reciprocal Relationships with Customers and Partners to Accelerate Next-Generation Businesses

Customer base

Capital alliance partners

CTC
Challenging Tomorrow's Changes

Vendor relationships

ITOCHU Group companies

SI partners
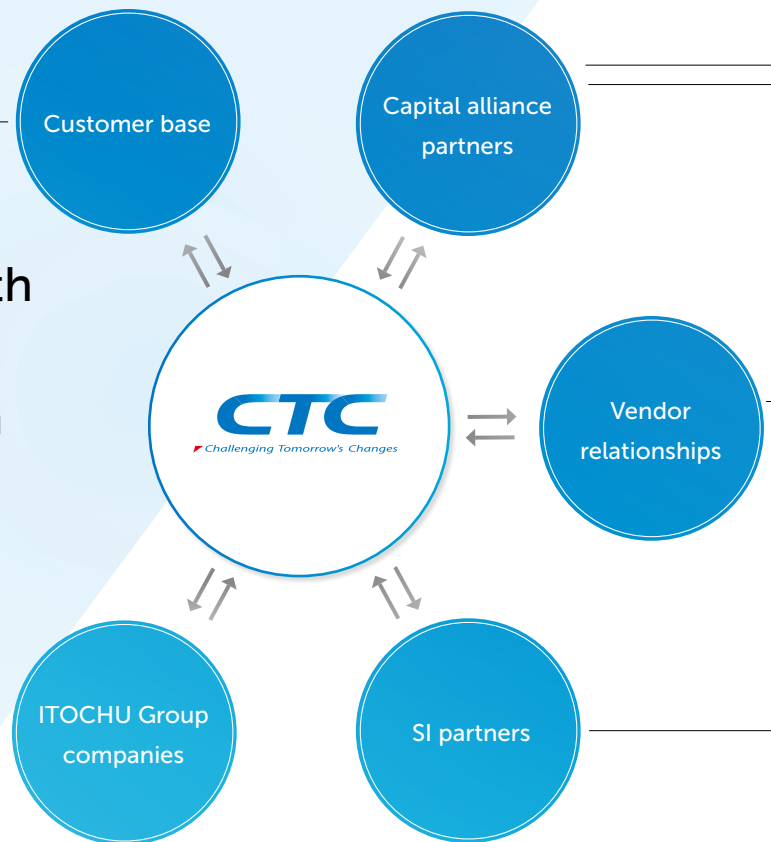
The ITOCHU Group Network

ITOCHU Corporation operates a wide range of businesses not only in Japan but also around the world, and we utilize its network to reinforce the structure of the CTC Group and create new businesses for our customers. Through an alliance with the ITOCHU Group's venture capital arm, moreover, we form collaborations with startup companies that provide cutting-edge technologies and services.

CTC Innovation Partners

To speed up the creation of new businesses through open innovation, in December 2017 we established CTC Innovation Partners as a corporate venture capital (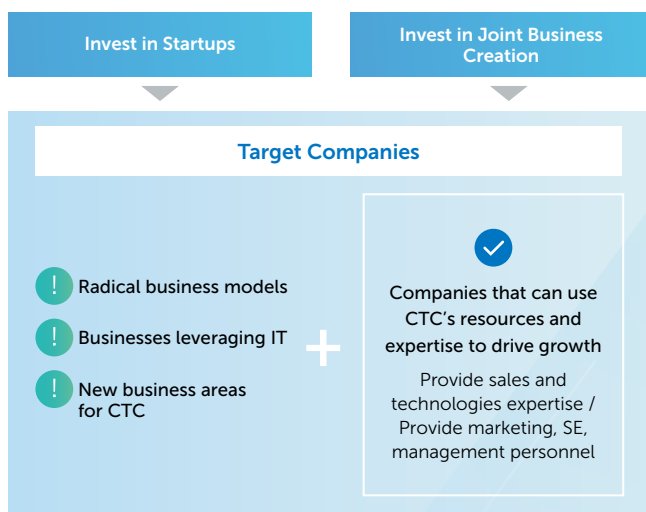CVC) firm. CTC Innovation Partners supports the growth of promising startup companies by providing capital and participating in their businesses. It also arranges joint ventures with customers to facilitate business expansion.

Invest in Startups	Invest in Joint Business Creation

Target Companies

! Radical business models

! Businesses leveraging IT

! New business areas for CTC

+

✓ Companies that can use CTC's resources and expertise to drive growth

Provide sales and technologies expertise / Provide marketing, SE, management personnel

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Investments to Date

▶ **Active SONAR**
Online distribution platform for reselling branded items

▶ **DeCurret**
Provision of digital currency transaction and settlement services

▶ **CoCooking**
Operation of TABETE, a food-sharing service

▶ **Cinnamon, Inc.**
Development of an AI-based engine for reading documents (AI, OCR)

▶ **Intumit Inc.**
Development of an AI chatbot engine

▶ **Volterra Inc.**
Provider of edge cloud services for processing data on the terminal side

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Strategic Capital Alliance Partners

▶ **SYSCOM (USA) INC.**
Provider of comprehensive SI services, from consulting to operation and nationwide maintenance and support, also focusing on the cloud and ERP business solutions

▶ **WingArc1st Inc.**
Pioneer in the industry with the No. 1 domestic market share in form/document management tools and data aggregation, analysis, and visualization tools

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Strong Cooperative Relationships

CTC has dealt with many vendors and collaborated with many client companies over the years. In the process, we have built strong cooperative relationships that have enabled us to participate in a range of projects and learn about the latest technology trends around the world.

Strengthening Product Development System and Quality

In the current situation, where there is a shortage of domestic IT human resources, it is essential to collaborate with domestic and overseas partners in order to meet the diversifying and sophisticated needs of customers. CTC maintains and strengthens its system development framework in collaboration with around 1,000 SI partners in Japan and overseas. One of the most important roles of IT systems, in addition to having high quality as a matter of course, is to protect information, which is the property of customers. When selecting partners, therefore, we place importance on the management foundation, technical capabilities, performance record, and information security maintenance and management systems. The excellent partners we choose are called CTC Alliance Partners, and we work to strengthen relationships with them by sharing information on cutting-edge technologies and quality-related initiatives and exchanging opinions on product development environments and quality standards.

▶ Relationship with Local Communities and Society

As a member of the community, the CTC Group actively engages in social contribution and support activities in a wide range of fields, including environmental protection, welfare, fostering the next generation, international assistance, community contribution, and cultural activities. By utilizing our human resources, information technology, and other assets, we also aim to realize an affluent society.

CTC Corporate Website
"Relationship with Local Communities and Society"
🖥 https://www.ctc-g.co.jp/en/corporate/csr/social/community.html

Capital Utilization

Manufacturing Capital

Reasons for Emphasis

In order to provide high-quality services, tailored to industry-specific characteristics, to customers in a wide range of sectors, we need to have environments allowing us to build systems in a flexible manner. As the cloud becomes more pervasive, CTC provides systems that are "defensive" with respect to reliable maintenance and operation as a matter of course. We also provide upstream processes enabling customers to pursue "offensive" business endeavors. We have been discovering and developing cutting-edge technologies for many years, and customers recognize our true value. Based on this recognition, we are working to strengthen frameworks that enable us to forge ahead in unison with our customers.

Business Strategies

Planning and Design

Development and Construction

▶ Platform for Creating and Realizing Ideas

DEJIMA:
Innovation Space for Business Co-Creation

Collaborations with domestic and overseas venture companies and research institutes have led to an acceleration of open innovation. With this in mind, in 2017 we opened DEJIMA as a dedicated space where people can achieve co-creation by embracing the challenge of creating new businesses and innovations beyond corporate boundaries.

Although it is an invitation-only space, DEJIMA had received more than 2,500 visitors in total as of March 2020. Through hackathons, ideathons, and various workshops organized by CTC and partner companies, including venture companies, participants create ideas and realize collaboration that transcends industry lines. It is also interconnected with Open Innovation Lab, an open innovation

space of ITOCHU Techno-Solutions America, Inc., allowing participants to create innovation alongside U.S. companies with advanced technological capabilities.

CTC Innovation Partners

As CTC's corporate venture capital arm, CTC Innovation Partners invests in startup companies and co-creates business with customers. In addition to providing funds, we offer know-how and technological capabilities, working as a business partner to open new fields and create innovation.

Innobee Challenge: In-House New Business Creation Program

In 2015, we started Innobee Challenge as an initiative to uncover and commercialize ideas of employees. Its aim is to launch new businesses that bring profits to the CTC Group and foster a challenge-oriented corporate culture. By providing training to improve our planning ability and a support system with outside experts, we promote the creation of new businesses.

Agile Offices: Faster and More Flexible Business Launches

As DX goes into full swing, application development will require greater speed and flexibility than ever before. Meanwhile, there is an increasing need for "agile development," which allows businesses to quickly start up and pursue development while making continual adjustments in a flexible manner. The CTC Group has actively engaged in agile development since 2015, when it started handling products of OutSystems.

To achieve agile development, it is essential that customers and engineers build win-win relationships through direct dialogue. Seeking to establish environments in which customers and engineers can communicate closely to undertake development, we opened three "Agile Offices"—in Tokyo, Toyota, and Nagoya—in 2018. These are dedicated spaces where all relevant parties can assemble under one roof.

In addition to the OutSystems platform, we provide a range of communication services, such as chat and screen sharing, in these spaces. Each space also has a conference room and training room, where seminars and educational training for customers can be held at any time.

In September 2019, we formed a business alliance with FPT Japan Holdings Co., Ltd., a subsidiary of FPT Corporation, Vietnam's largest ICT company. Since then, together we have built a platform that uses OutSystems to enable agile development in remote areas. We will continue working to leverage agile development to promote growth in rapid and flexible application development.

Capital Utilization
Manufacturing Capital

Overseas R&D Bases and Validation Centers to Support Multi-Vendor Capabilities

Planning and Design

Procurement

ITOCHU Techno-Solutions America, Inc.

We established the U.S. subsidiary in 1990 to stay alert for the leading-edge technologies that tend to surface in the United States. In the nearly 30 years since, the company has expanded its operations to include bases on both the east and west coasts, facilitating one of the biggest lineups among Japanese system integrators.

Staff come from various industrial domains across CTC's business groups, looking for emerging technological information to connect to actual business. They gather information at trade shows, meet regularly with superior IT vendors, and conduct searches based on the needs of clients and CTC Group engineers. This resource provides CTC with access to breaking technology trends without needing to be physically present in the United States. Through this company, we are also strengthening our relationships with local companies.
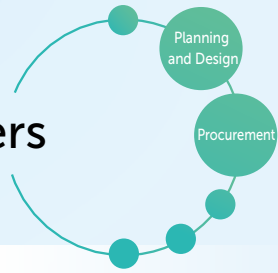
Technical Solution Center (TSC)

TSC is one of Japan's largest multi-vendor comprehensive validation centers, equipped with a broad and balanced range of the latest equipment. The center also has purpose-built environments (LABs), such as the IoT Digital LAB and the Hybrid Cloud Validation LAB, which enable the testing of client IT systems under various conditions.

Multi-Cloud Data Centers

CTC has one of Japan's largest data center networks, consisting of seven data centers in five locations, with a total area of around 84,000 m². Equipped with safe, reliable equipment that is ISMS-certified and FISC-compliant, our network has had a track record of uninterrupted, non-stop operation for more 30 years since our first data center was opened.

Maintenance and Operation / Data Center

| Data Centers	
	Yokohama Computer Center East Wing / West Wing (YCC)
	Yokohama Computer Center North Wing (NYC)
	Kobe Computer Center (KCC)
	Otemachi Internet Data Center (OiDC)
	Shibuya Data Center (SDC)
	Meijirozaka Data Center (MDC)

Domestic and Overseas Service Bases to Provide Peace of Mind to Customers

ALL

Global Bases

United States

Thailand

Indonesia

Malaysia

Singapore
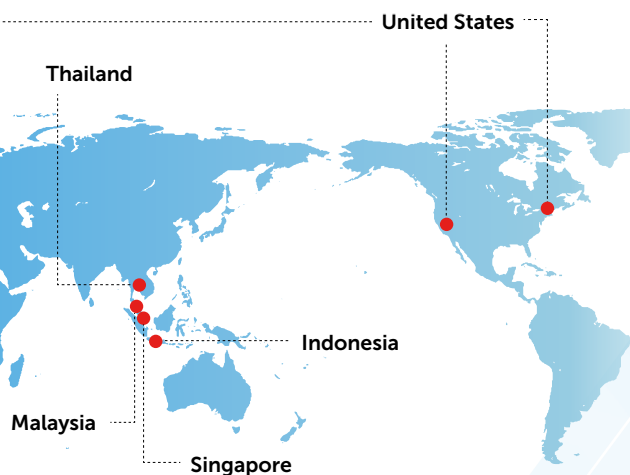
Expanding our bases in the ASEAN region will be pivotal to our global business. This region is expected to continue experiencing high levels of economic growth. Also, personal consumption is robust, and the public sector, finance, distribution, and other growth industries are investing proactively in IT. However, as the IT industry is on its way to maturity, we believe we can capture business opportunities through horizontal expansion in our tried-and-true approach of utilizing leading-edge technologies from overseas to generate business in Japan. Furthermore, as globalization by Japanese companies accelerates we anticipate demand from local clients to construct and support IT infrastructure. Another reason for concentrating on this region is that we also expect demand for the creation of new businesses by making use of leading-edge technologies.

CTC began its full-fledged development of global business in 2013. Since then, we have opened offices in Singapore, Malaysia, Thailand, and Indonesia. Our primary approach going forward will be to enter into capital and business alliances with powerful local companies and expand our bases in these areas as we work to grow our global business.

Domestic Service Bases

▶ Sapporo Development Center

As a near-shore development facility, our Sapporo Development Center provides high-quality development services in a reliable security environment, drawing on the exceptional development capabilities of people in local cities. In addition to reducing development costs, it compensates for the shortage of engineers in Tokyo while helping address local issues, such as the need for regional revitalization.

▶ Maintenance and Support Network

We have a nationwide maintenance and support network that provides multiple services, including equipment maintenance, operation services, monitoring services, and information security services—24 hours a day, 365 days a year.

▶ CTC Security Operations Center (CTC-SOC)

Our facility provides the CTC Managed Security Service (CTCMSS), which offers 24-hour, 365-day remote monitoring of clients' security devices and integrated emergency response, equipment settings changes, operation, and other tasks.

▶ Remote Operation Center (ROC)

We provide remote system operation and monitoring services for client IT systems, 24/7 all year round (ROC monitoring services), which can also be linked to automated notification and system operation services.