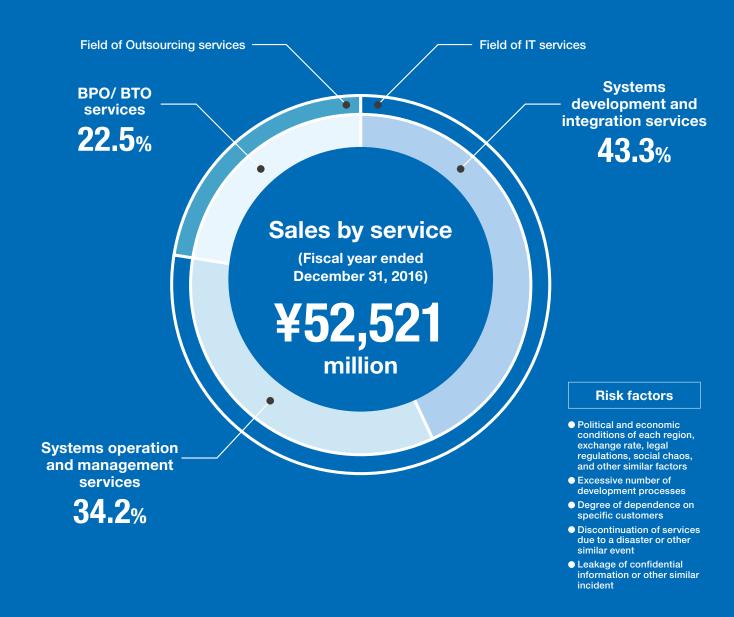
# **Business review**

At the CAC Group, we run a systems development and integration service and systems operation and management service in the field of IT services, and a BPO/BTO service business in the field of outsourcing services that combine IT and operation functions.

The full-year consolidated results for the fiscal year ended December 31, 2016 are as follows. Net sales rose 0.8% year on year to 52,521 million yen, while operating income fell 0.6% year on year, to 1,202 million yen. Ordinary income declined 13.3% year on year, to 937 million yen. We posted net income attributable to owners of parent of 2,039 million yen (compared to net loss of 142 million yen in the previous fiscal year).

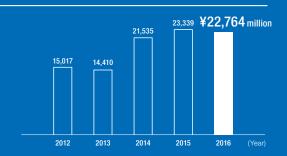




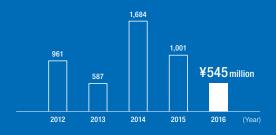
#### **Business overview**

We provide customers in Japan and other countries with a wide range of services. These include consultation on maintenance, and package integration.

#### Sales



# **Operating income**



### Our strengths and features

#### Strength in systems for financial institutions

We are more than capable when it comes to market transaction systems and overseas trading systems for mega banks and pension-related systems for trust and banking companies.

#### High overseas sales ratio

Overseas sales constitute approximately 36% of our total sales. Currently we provide services in India, Singapore, China, the United States, and the United Kingdom Moving forward, we expect to further increase of our overseas sales ratio.

## **Business performance**

For the fiscal year ended December 31, 2016, net sales decreased 2.5% year on year despite the contribution of the new consolidation of Sierra Solutions Pte. Ltd.(Sierra Solutions) a subsidiary in Singapore, and an increase in sales from some customers, which were offset by the completion of the projects for mega banks. Operating income decreased 45.5% year on year due to the completion of the projects for mega banks and a decline in the profitability of projects at Sierra Solutions. For the fiscal year ending December 31, 2017, we will strive to increase both sales and income through measures including the improvement of the profitability of Accel Frontline Limited (AFL), our subsidiary in India, and Sierra Solutions, and business expansion in the social security and healthcare domains.

#### Creating value

# Reinforcing software package businesses based on know-how

We will commercialize AZAREA, a tool for high-speed development that we have developed internally in the CAC Group on our own for improving development quality, efficiency, and profitability. The market of tools for high-speed development is expected to continue growing, and we plan to launch AZAREA on overseas markets, as well as the Japanese market.

#### Increase in global projects

We will work to boost the number of global projects by identifying the demand arising from the shift of IT investment to other countries in response to the globalization of customer companies.

# Development of new mainstream technologies and new business domains

We will continue to expand business domains where new mainstream technologies are used through measures including investment via the corporate venture fund and alliance with overseas group companies. We have acquired new technologies such as those of Jibo, Inc., which develops family robots, and those for Emotion Artificial Intelligence from Affectiva, Inc. We will continue to pursue new mainstream technologies proactively.

# Synergy with group companies

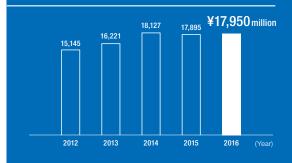
While the standard specifications of automotive systems are shifting to new technologies, the number of engineers who have acquired the new technologies is insufficient in Japan. In the CAC Group, we will expand our business by collaborating with engineers from AFL who have acquired the new technologies to differentiate ourselves in terms of technological capabilities and transfer the skills to engineers in Japan.



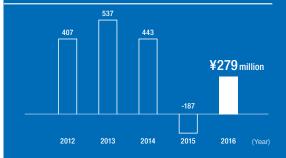
#### **Business overview**

In addition to operations outsourcing services, we provide data center services, help desk/ call center services, security-related services, and product assurance services, among others.

#### Sales



#### Operating income



### Our strengths and features

#### Services for a major pharmaceutical company

These services began with a company that specialized in outsourcing, which was our subsidiary in the early days of the CAC Group. A major pharmaceutical company also invested in this company. We have built up our expertise in management through the provision of comprehensive services to this pharmaceutical company.

#### **Expansion through M&A**

CAC MARUHA NICHIRO SYSTEMS CORPORATION, CAC ORBIS CORPORATION, CAC Knowledge Co., Ltd., and ARK Systems Co., Ltd., which are group companies, all joined the CAC Group as a result of M&A.

## **Business performance**

For the fiscal year ended December 31, 2016, sales increased only slightly, or by 0.3% year on year. However, operating income returned to the black because AFL was no longer affected by the allowance for doubtful accounts, etc. and reconstructed the earnings structure of its main business.

For the fiscal year ending December 31, 2017, we will further promote the automatization of operation, which is in demand in the market of systems operation and management services, in our efforts to improve efficiency and stability and secure stable income.

# Creating value

#### Acceleration of human resource development

The CAC Group will strive to develop and allocate operation and management engineers in anticipation of demand for cloud-based operation and management.

## ▶ For stable provision of services

The CAC Group has obtained certification under the international standard on information security (ISMS), namely JIS Q 27001:2014 (ISO/IEC 27001:2013). This certification provides customers with a sense of security when they use our stable services.

#### Evolution of the operation and management menus

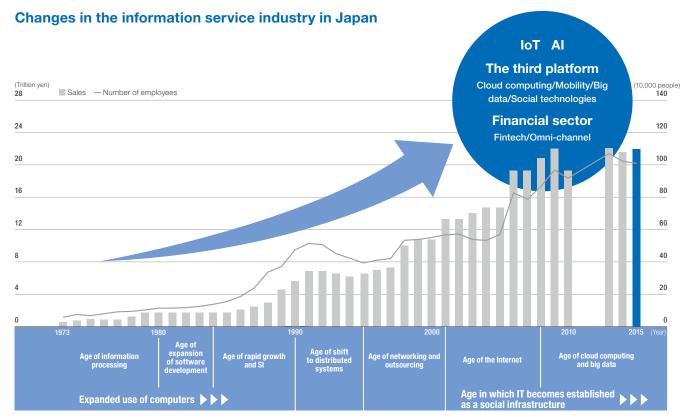
We continue to develop new services and menus of operation and management with the aim of reducing customers' burden and the costs of operation and management, among other factors. In 2016, CAC Corporation began to provide AZAREA-AUTONOMICS, an IT operations automation service. The company automatizes a wide range of operations in an optimal manner based on its 50 years of experience and helps to minimize manual operations. In addition, ARK Systems began to provide services for *Marugoto Omakase* Zabbix (Leave everything to Zabbix), open-source system monitoring software. The company thus provides high-quality services ranging from development to operation and management at a low price while ensuring prompt delivery.



# Industry structure in the field of IT services

# Trends in the IT service industry

Japan's IT service market grew from 2014 to 2015 at a rate exceeding 3%. The year-on-year growth rate in 2016 is estimated to be no higher than 1.4% because of the completion of large-scale projects at financial institutions, government offices, and local governments, which had been the growth driver. In FY2017 and onward, the growth rate will gradually decline due to a shift from the conventional IT services to alternative services, such as cloud and BPO services, in addition to the sluggish growth of the domestic economy. The average annual growth rate for 2016 to 2021 is expected to be 1.1%. It is anticipated that during this period, Japan's IT market will be driven by demand related to digital transformation, which is associated with new products and services that use new technologies including the third platform (mobility, social technologies, big data, and cloud computing), IoT, and AI.



[Sources: Japan Information Technology Services Industry Association (JISA), Jouhou Service Hatten no Keii (Development of Information Services) at http://itjobgate.jisa.or.jp/trend/index.html] and Ministry of Economy, Trade and Industry: Survey of Selected Service Industries]

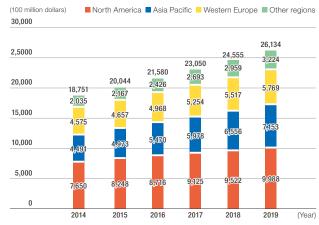
# Trends in the global market

Global ICT expenditure\* is expected to increase steadily at an average annual rate of 6.9%, from approximately 1.9 trillion dollars in 2014 to 2.6 trillion dollars in 2019. The largest market is North America, followed by Asia Pacific. The markets of developed countries, where major companies are based, are expected to continue to be the driver. In the CAC Group, we will identify and capitalize on demand in growth fields in Japan as an independent company that excels in specific fields such as financial services and pharmaceuticals, and by investing in innovative technologies. At the same time, we will develop overseas business opportunities by deepening cooperation with our subsidiaries in India and other Asian countries.

#### \*Defined as the sum of expenditures by businesses on ICT-related equipment, software, and services.

#### Global ICT expenditure - Changes and forecast

(Source: Ministry of Internal Affairs and Communications: WHITE PAPER 2015 -



special fee

# **Initiatives on innovative businesses taken** by the Innovation Company

To achieve long-term growth under the slogan "Rebirth Beyond," the CAC Group invests in new technologies such as artificial intelligence (AI) and social robots and seeks ways to develop businesses based on these technologies. In this special feature, we introduce initiatives of the Innovative Business Planning Dept. of CAC Holdings and the Innovation Company of CAC Corporation, which sow the seeds of future businesses.

#### Investing in the advanced technologies of IT start-ups in the United States in search of new businesses

The CAC Groups invests in start-ups with innovative technologies, looking for ways to turn these technologies into new businesses. The Innovative Business Planning Dept. of CAC Holdings considers and determines investments mainly in IT start-ups in the United States with technologies and products that are the potential seeds of future businesses. The Innovation Company of CAC Corporation envisions, plans, and actually launches businesses from the seeds owned by the start-ups. The investments are made via a corporate venture fund that we established in the United States. The fund has

assets of approximately 2.0 billion yen, and has invested nearly half of the assets in ten companies to date (including Affectiva, which has technologies in emotion recognition AI, Jibo and Blue Frog Robotics, which develop social robots, Meta, which specializes in augmented reality (AR), and Sano, which has technologies in IoT devices).

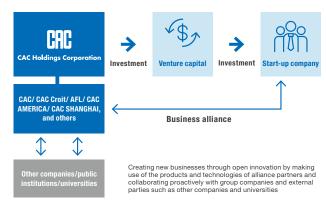
### **Missions of the Innovation Company**

Half of the staff at the Innovation Company are from overseas, including such countries as Spain, Nepal, Malaysia, and Mexico, and most of them joined CAC Corporation as fresh graduates in the last few years. Staff members other than these young employees consist of people from diverse backgrounds, among them a researcher who has been studying Al for many years, a leader of development team, and a salesperson.

In the process of developing businesses based on the technologies of start-ups, the Innovation Company serves as a kind of technology intermediary by working together with other group companies including CAC Croit Corporation , AFL, and CAC SHANGHAI CORPORATION(CAC SHANGHAI). It is also the Innovative Company's mission to create new business opportunities by taking advantage of the technologies of the CAC Group and working together with venture firms and companies in Japan other than investment destinations. One example is our collaboration with Retrieva, Inc., a Japanese software company that has technologies in natural language processing and machine learning. We engaged in sales, maintenance support, development, and other tasks for Retrieva products under a distributor agreement with the company. In May 2017, we began collaborating with the company

in developing solutions for financial institutions. We aim to develop solutions related to natural language in financial services by making use of CAC Corporation's knowledge of systems for financial institutions and AI technologies of Retrieva.

#### **Initiatives for innovations**



#### Investment in Affectiva, a start-up company that has technologies in emotion recognition Al

Affectiva, Inc., which is one of the start-ups in which we have invested, was spun off from the Media Lab of the Massachusetts Institute of Technology (MIT). It is a leader in the market of emotion recognition AI. Its founder and CEO Rana el Kaliouby has carried out research in the field of emotion recognition AI at MIT for 16 years, having started with a desire to create a computer that understands her emotions. Affdex, which was developed by Affectiva, is software that enables emotions to be analyzed as data by monitoring the subtle movements of human facial muscles on a real-time basis with a web camera or similar device. It can be referred to as an "emotional sensor" and has already been used in the United States.

One advantage of Affectiva, Inc. is the amount of data on emotions, which is the greatest differentiating factor in the world of machine learning. The company provides an emotion AI platform that uses

a deep learning technology based on the world's largest amount of data consisting of 70 billion data points that were collected from five million people in 75 countries. In the United States, this platform is widely used for viewing analysis – that is, gauging the reactions of viewers of TV commercials, dramas, and other contents to improve them – and for the promotion of events. As a medical application of this technology, a smart-glass-type device has been developed for autistic children who have difficulty communicating with others. The device is used to teach these children to read the emotions of others, such as happy and angry, based on their facial expressions.

#### The application of AI will dramatically expand the possibilities of our business partners and business domains.

Based on the investment in Affectiva, Inc., CAC Corporation concluded a distributor agreement with the company for the first time in Japan in July 2016 and began selling the services of the company and Affdex. In addition, Toppan Printing Co., Ltd., which was aware of this initiative of CAC Corporation, offered to collaborate with the company. As a result, we have commenced joint development with Toppan Printing by using emotion Al. Toppan Printing is developing services based on Experience Design, which offers experiences and sensations for various events, instore promotions, and others. The company is therefore believed to have a high affinity with emotion recognition AI. On the other hand, CAC Corporation has mainly engaged in BtoB businesses in the financial and pharmaceutical fields. This collaboration will increase the possibility that CAC Corporation will expand the scope of its businesses to BtoBtoC.

We are studying the application of the technology to digital signage ads at commercial facilities as a specific future application. In addition to facial expressions, Affdex is capable of recognizing the gender, race, and age of multiple persons on a real-time basis. It therefore enables the emotions of people who view a digital signage ad to be recognized and analyzed in order to create more effective ads. In the field of medicine, the Pharmaceutical Business Company of CAC Corporation is playing the leading role in studying whether

**Emotion recognition software provided by Affectiva** 



Affdex can be applied for stress checks and the detection of earlystage depression. We also envision diverse other applications, including a robot that reads human emotions and consoles or advises people and an in-vehicle camera that reads the driver's emotions, degree of concentration, and other conditions and relaxes the driver by playing music when it detects a decline of concentration.



# Koji Iketani

General Manager of Innovative Business Planning Dept., CAC Holdings Corporation Director and Executive Officer, Vice-President of Innovation Company, CAC Corporation

I joined CAC Corporation after working for several companies, including IT companies. I find CAC attractive because I can create new businesses together with other staff members by using Al and other new technologies, and I can be involved in jobs for the global market.

# **Takahiro Suzuki**

Executive Officer, Vice-President of AZAREA Company, Senior Vice President of Innovation Company, and General Manager of AI & Robotics Business Dept., CAC Corporation

At the same time as creating new businesses, I would like to evolve AI and other new technologies by applying them to the company's businesses including AZAREA. The existing businesses of CAC Corporation, such as those in the fields of finance and pharmaceuticals that handle huge amounts of data, should have significant room for innovations that could be caused by automatizing processes with AI, thereby turning implicit knowledge into explicit knowledge.

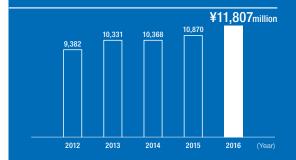




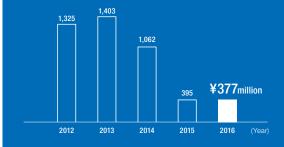
#### **Business overview**

We provide outsourcing services that combine IT and operation functions. At the CAC Group, we currently provide CRO (pharmaceutical BTO) services and human resource BPO services.

#### Sales



# Operating income



### Our strengths and features

# CRO with strength in pharmacovigilance services

Our CRO (pharmaceutical BTO) services cover all the factors needed to support pharmaceutical development. Above all, we are a leading provider of pharmacovigilance and pharmaceutical application services in Japan.

# Ready to undertake all types of personnel management affairs

Our human resource BPO services handle general tasks such as salary calculation. They also cover the operation of personnel systems, labor management, benefit program management, and other personnel management affairs.

# **Business performance**

For the fiscal year ended December 31, 2016, sales from both CRO (pharmaceutical BTO) services and human resource BPO services increased, and overall sales grew 8.6% year on year. Operating income declined 4.7% year on year due to the impact of unprofitable projects in CRO. For the fiscal year ending December 31, 2017, we expect to see a recovery of profit, which will result partly from the appropriate allocation of staff and the elimination of unprofitable projects, and also the synergy from the merger of the two consolidated subsidiaries that we carried out in the fiscal year ended December 31, 2016.

#### Creating value

# ▶ Pursuing new BPO services

We have provided BPO services mainly in the human resource field. Going forward, we will pursue new BPO services intended for other fields. We will develop high-quality, efficient outsourcing services that we will provide by making effective use of information technologies. We will develop these services for the back office operations of customers that are needed to support their main businesses, which are cumbersome, costly, and can be handled only by specific personnel.

#### A research institute focused on the future

CAC Croit Corporation is constantly aware of service provision with a focus on the future while covering all service menus that are required of CRO (pharmaceutical BTO services).

The Research Institute of CAC Croit Corporation issues its own White Paper by working together with group companies. It conducts research on various cases, such as movements in the pharmaceutical industry and changes in international laws, regulations, and standards. It anticipates specific tasks, technologies and services that will be required of CRO, and at the same time it makes use of the knowledge to improve its existing businesses and services and their quality.

# Accelerating measures to respond to globalization through M&A and alliances

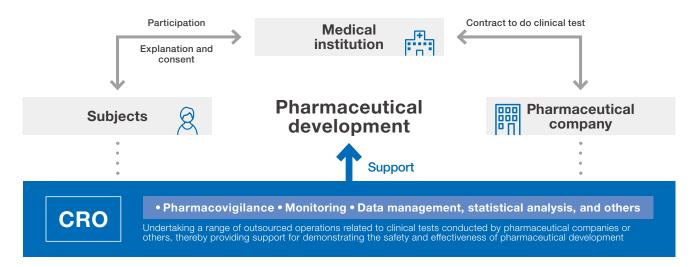
In the CRO (pharmaceutical BTO services), international joint clinical trials constitute more than 40%\* of all clinical trials, and are expected to continue increasing. This makes it essential to ensure that the level of quality is consistent with the global standard. We will accelerate measures to respond to globalization through M&A and alliances.

<sup>\*</sup> Source: Pharmaceuticals and Medical Devices Agency: "Chiken Keikaku Todokede-Su no Suii" (Trend in Number of Clinical Trial Plan Submissions) in *Iyakuhin-to no Shinsa Oyobi Chiken ni Kansuru Saikin no Doko ni Tsuite* (Recent Trends Concerning Drug Examinations and Clinical Trials) (Material for the FY2016 GCP Workshop)

# Our CRO services

CRO stands for Contract Research Organization. CRO refers to undertaking outsourced operations of conducting clinical trials (clinical development) upon drug development by a pharmaceutical company and operations after manufacturing and sales. The term also refers to companies that perform these operations. At the CAC Group, we provide all kinds of CRO solutions, including pharmacovigilance, monitoring, and data management and statistical analysis. The CAC Group categorizes these operations as BPO/ BTO services.

### Role and position of CRO



#### Flow of new drug development and descriptions of CRO's operations



special fe

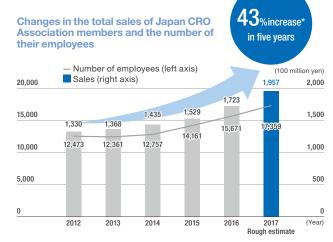
# **Possibilities of CRO services**

It takes numerous processes and a huge amount of time and effort to ensure that a pharmaceutical product fulfills government standards and is approved, which imposes a major burden on a pharmaceutical company. CRO supports pharmaceutical companies by undertaking various operations, which are involved mainly in clinical tests and post-marketing surveillance, so as to improve the efficiency of the development and help create new drugs quickly. CRO is therefore essential in pharmaceutical development.

#### Trends in the CRO market

The trends in the CRO market are expected to continue growing positively. The main reasons for this growth are that pharmaceutical companies are outsourcing more of their operations to reduce the cost of clinical trials and improve their efficiency, and that international joint clinical trials have been increasing.

Globally, there has been a growing trend for pharmaceutical companies and biopharmaceutical companies to outsource R&D operations. The global CRO market is expected to grow positively.



Source: Japan CRO Association, 2016 Annual Report \*Change in five years from 2013 figure to rough estimate for 2017

#### Future expansion of drug discovery and CRO markets



Given the expansion of new markets and new domains in the drug discovery industry, CROs are required to expand and enhance their roles.

With the establishment of international rules, international joint clinical trials have been increasing. They account for 42% of all notifications of clinical trials made in Japan. This has made it essential for CROs to work with a global perspective.

In addition, pharmaceutical companies have shifted their corporate

strategy to the domain of advanced medicine, including the development of orphan drugs\* that is encouraged by the national government and promotion of regeneration medicine such as the practical application of iPS cell technologies. Hereafter, CRO services will be expected to transcend existing frameworks in line with the strategies of pharmaceutical companies, not to mention achieving the objectives of reducing the cost and improving the efficiency of clinical trials.

\*Pharmaceutical products for diseases and conditions for which research has not advanced sufficiently due to reasons including the small number of patients

# **CRO** industry in Japan and position of the CAC Group

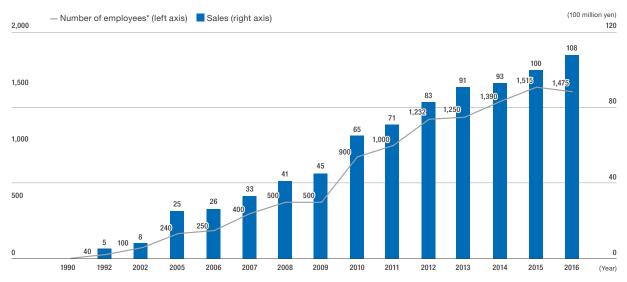
While the majority of the companies in the industry are those that originally began as companies specializing in CRO, CAC Croit Corporation stands as a distinctive service vendor that has evolved from an IT company. CAC Croit Corporation provides outsourcing services for the pharmaceutical development process, as well as services for systems development and integration and systems operation and management for customers. It is positioned as a second-tier company in the industry behind industry-leading corporate groups such as CMIC Co., Ltd. and EPS Holdings, Inc.

In recent years, it has become necessary to respond flexibly to customer requests, including those for the expansion and diversification of services as well as for higher quality and speed and lower cost. At the same time, an increasing number of foreign CRO companies are entering the Japanese market as a result of an increase in international joint clinical trials. Accordingly, the company aims to expand its businesses by exploring an opportunity to form an alliance with a global enterprise, for example.

# Features and growth of CRO business at the CAC Group

The CRO business is operated by CAC Croit Corporation. This company has been growing by catering to customer needs by taking full advantage of its position as a subsidiary of an IT company. It began providing a service of inputting clinical trial data in the 1970s, when the term "CRO" did not yet exist. The range of its services has now been expanded to cover diverse drug manufacturing processes, from drug discovery and nonclinical tests to post-marketing processes. It posted sales of 10.8 billion yen in 2016.

#### **Changes in sales of CAC Croit Corporation**



\*Including employees of partners, dispatched employees, and part-time employees



### **Unique points of CAC Croit Corporation**

**CRO** that evolved from an IT company

In-house development of IT tools exclusively for the CRO business

The first company in Japan to begin operating the CRO **business** 

Changes and creation Knowledge-intensive

Routine processing Labor-intensive

Strengths in pharmacovigilance and **Regulatory Operations** 

# For further growth and value creation

We have achieved growth by undertaking diverse operations involved in pharmaceutical development, something that had previously been carried out internally by pharmaceutical companies, and by conducting the operations efficiently, accurately, and promptly by applying information technologies. It is said that new technologies such as big data and AI will change society significantly. We believe that the new technologies will also be a trump card for CRO in facilitating the creation of new business models and its growth. For example, the use of AI enables the collection and analysis of big data to be automated and a new business of providing consulting services to be created based on the analysis. We aim to shift to businesses with greater added value and profitability than ever before by using new information technologies to shift from labor-intensive business to knowledgeintensive business.

