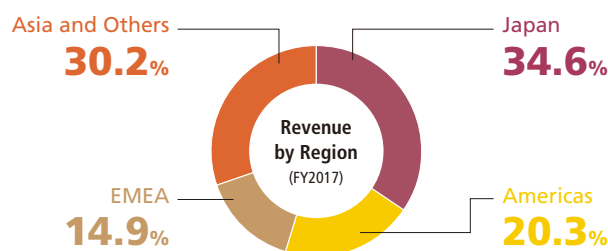
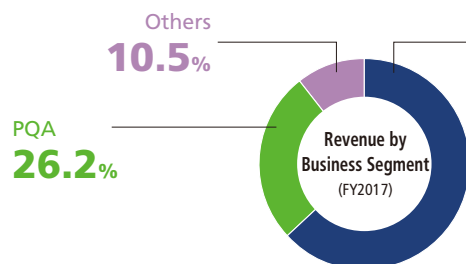


# Business Review

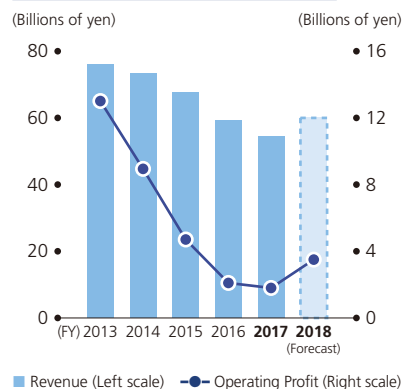


## Revenue/Operating Profit (Loss)

## Sectors and Solutions

## Main Customers

### Test and Measurement



#### Mobile Market

- R&D related to mobile communications standards, such as 5G, LTE
- R&D related to telecommunications chipsets (communications semiconductors incorporated in smartphones, etc.)
- R&D and manufacturing of such mobile communications terminals as smartphones and tablets

#### IoT/Automotive Network Infrastructure Market

- R&D and manufacturing related to optical/digital telecommunications
- R&D and manufacturing of telecom equipment
- Construction/maintenance of optical fiber telecom networks
- Construction/maintenance of wireless base stations
- Network quality assurance (failure monitoring)

#### Electronics Market

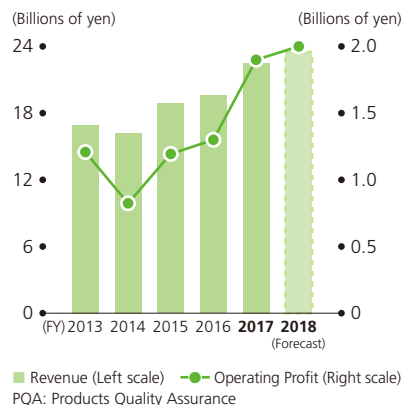
- General-purpose measurement for a wide array of fields
- R&D and manufacturing of telecommunications-related electronic components
- R&D and manufacturing of wireless telecommunications equipment
- R&D and manufacturing of wireless base stations
- R&D and manufacturing of products related to digital household appliances and car electronics, etc.

- Smartphone/tablet manufacturers
- EMS (electronics manufacturing service)
- Chipset manufacturers
- IT-related service providers
- Telecom operators
- Manufacturers of automotive and car-mounted equipment

- Telecom operators
- Telecom network construction companies
- Telecom equipment manufacturers

- Electronic device/component manufacturers
- Telecommunications equipment manufacturers
- Mobile handset manufacturers
- Electronic equipment manufacturers
- Manufacturers of automotive and car-mounted equipment

### PQA

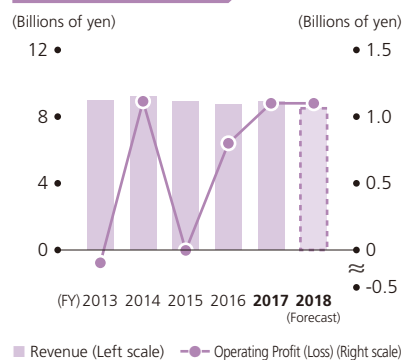


#### Food Product and Pharmaceutical Quality Assurance

- Inspection for contaminants and package shapes
- Inspection for metal contaminants
- Weigher, equipment for sorting by weight and content
- Checkweighers

- Food producers (agricultural products, meat processing, processed foods)
- Pharmaceuticals/Cosmetics makers (pills, capsules, liquids, patches)

### Others



#### Information and Communications

- Monitoring and control systems related to such public infrastructure as rivers, water supply facilities, etc.
- Bandwidth controllers for high-quality networks, such as those for financial systems, video distribution, etc.

- Public sector (central and local government units)
- Financial institutions
- Video distribution companies

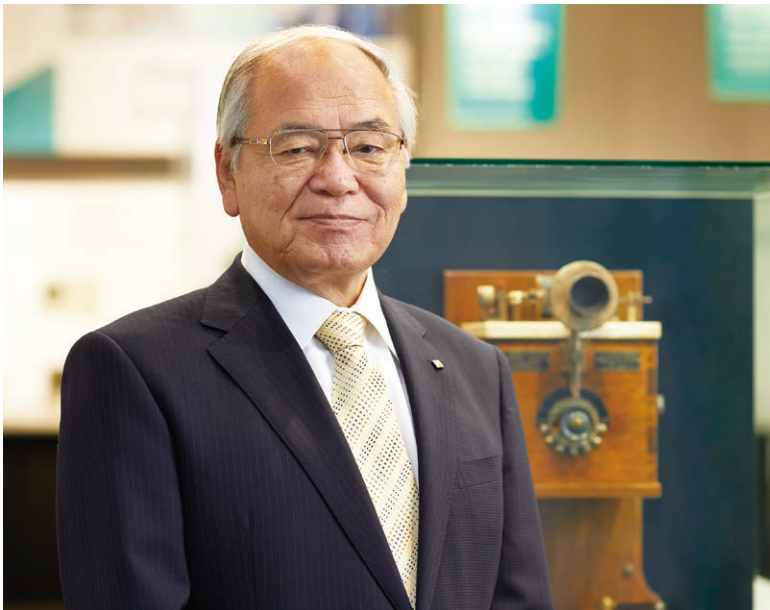
#### Devices

- Optical/ultra-high-speed devices for optical communications networks and telecommunications equipment

- Electrical equipment manufacturers
- Telecommunications equipment manufacturers

Note: "Other" includes both "Other" and "Adjustment Items" within segment information.

## From Group CEO



**Contributing to  
a Sustainable Society  
through  
“envision : ensure”**

### Hirokazu Hashimoto

Representative Director, Chairman of the Board,  
Group CEO

Anritsu was founded 123 years ago in 1895, the same year that saw the world's first radio transmission test. Throughout its long history, Anritsu has been a pioneer in information and communications. Innovations in communications infrastructure have dramatically transformed society, providing the gift of communication and connectedness while simultaneously advancing society on a global level. Anritsu's philosophy encompasses the idea “I think, therefore I realize.” and the Company has applied the technology used for the visualization of information and communications to the food and pharmaceuticals domains. The “envision : ensure” concept represents the embodiment of our history, which has been one of continuous change and taking on new challenges under the idea “I think, therefore I realize.” With the launch of GLP2020, the Company's medium-term business plan, we have renewed our efforts to contribute to a sustainable society and under the “envision : ensure” idea will strive to demonstrate our value as a vital component of global society.

## I. Review of GLP2017

**Demonstrating a resistance to drastic market fluctuations, preparing for the 5G/IoT society**

### **Test and Measurement: Overcoming a transitional period through management restructuring**

During the fiscal 2015–2017 period covered by the GLP2017 medium-term business plan, the mainstay Test and Measurement business fell short of its sales target, but sales in the PQA business exceeded the Company's target.

As the downward trend in the smartphone production market accelerated, investment in LTE and LTE-Advanced development continued to fall short of expectations. Base station investment was also sharply curtailed. With the

goal of building a resistance to the sharp drop in the market, Anritsu moved to enact management restructuring in the Test and Measurement business.

In addition to measures designed to reduce operating expenses and cut total costs in order to bolster gross profit margins on products, management also moved to enact reforms in business, organization, and employment. On the business side, management prioritized investment in development and positioned the mainstay mobile Testing and Measurement business as a cash cow. In particular, we have focused our efforts on preparing for the 5G market, where the formulation of standards has already been pushed forward. On the organizational front, the Company entrenched profitability management by shifting from the more traditional strategic business unit (SBU) management structure to a business

## Basic Policy for Medium- to Long-term Business Strategies

Making sure to seize growth drivers and realize "sustainable growth with profitability"

	Vision/Growth Drivers	Medium-term guidelines	
		Sales growth rate	Operating profit growth rate
Test and Measurement business	<b>Becoming a leading company supporting the 5G/IoT society</b> (1) 5G, LTE-Advanced (2) IoT/Automotive, Connectivity (3) IP Data traffic/Cloud services	$\geq 7\%$	$\geq 20\%$
PQA business	<b>Becoming a world-class quality assurance solutions partner</b> Expanding from contaminant inspection into quality assurance market	$\geq 7\%$	$\geq 12\%$
Consolidated	—	—	$\geq 18\%$
ROE	—	$\geq 15\%$	

## GLP2020 : Revenue and Operating Profit Plans

		GLP2020	
Indicator		FY2017	
			FY2018 FY2020
	Revenue	86 billion yen	92 billion yen 105 billion yen
	Operating profit	4.9 billion yen	6.6 billion yen 14.5 billion yen
	Operating profit ratio	6 %	7 % 14 %
	Net income	2.9 billion yen	5.0 billion yen 11 billion yen
	ROE	3.7 %	7 % 12 %
Test and Measurement business	Net sales	54.4 billion yen	60 billion yen 70 billion yen
	Operating profit	1.8 billion yen	3.5 billion yen 10 billion yen
	Operating profit ratio	3 %	6 % 14 %
PQA business	Net sales	22.5 billion yen	23.5 billion yen 26.0 billion yen
	Operating profit	2 billion yen	2 billion yen 3 billion yen
	Operating profit ratio	9 %	9 % 12 %

For reference: Exchange rates assumed under GLP2020 are: US\$1=¥105 and 1 euro=¥125

unit structure. Finally, we focused on streamlining the organization and reducing headcount in line with the scale of operations, while simultaneously shifting software development functions to locations in Asia. These efforts resulted in the Test and Measurement business achieving an improved profit structure, even amid the long-term decline in sales. The business was also able to successfully introduce solutions aimed at supporting initial 5G development needs.

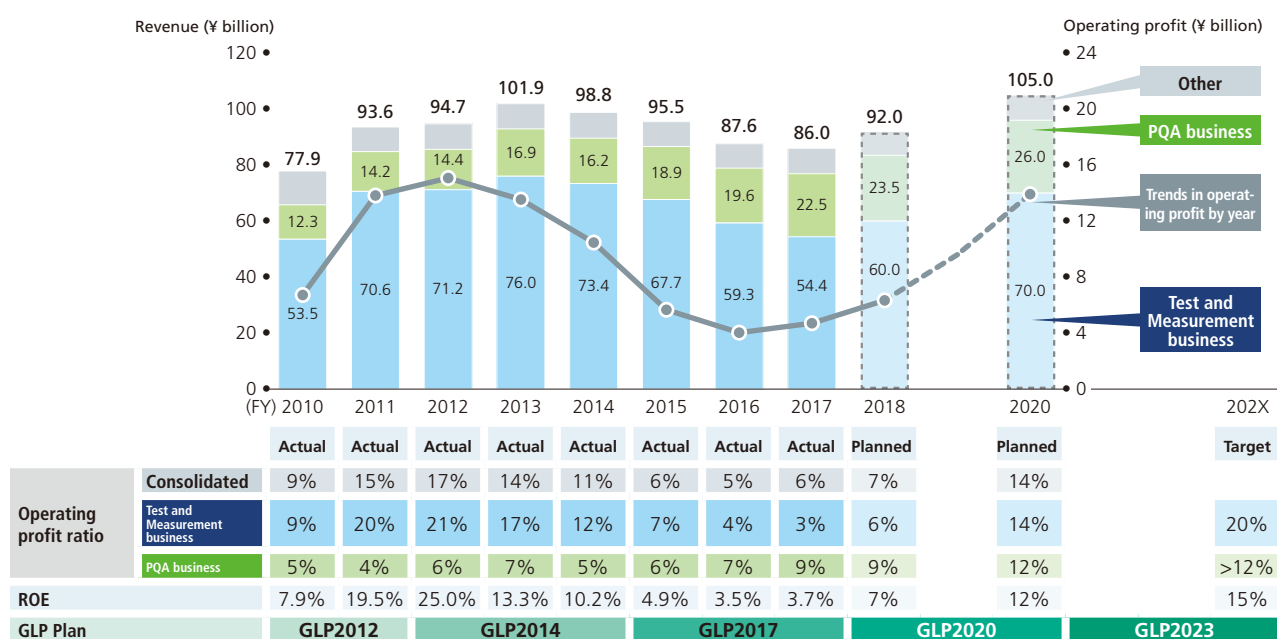
### PQA business: Achieved annual growth of 12% over three years

Moving quickly to capture the expansion in product quality assurance needs, the PQA business achieved average annual growth over the three years covered by the GLP2017 medium-term plan of 12%. Growth was driven by changes in needs on both the supply and demand sides. The supply side saw needs for contaminant detectors and checkweighers, as well as a shift to high-performance solutions supporting the strict quality control of packaged products. This was supported by CAPEX for new facilities and a shift toward the automation of production lines in order to enhance production efficiency and adapt to the ongoing labor shortage. On the demand side, the enhanced needs for food safety contributed to the spread of pre-cooked packaged food. In addition to differentiating itself by providing solutions meeting the needs of the market, the PQA business has remained committed to building a relationship of trust with the leading global food producers.

### Focused on building a strong and resilient business

Advancement of the PQA business represents not only a shift in Anritsu's operating portfolio, but also an offsetting of the downturn in the mobile testing and measurement business within the T&M segment. While not expected to show strong growth in the past, the food industry, the target market for the PQA business, is now seen as a growth market. Under the GLP2017 medium-term plan, the business was able to achieve strong growth thanks to the development of overseas markets and the offering of solutions meeting the growing demand for product quality assurance. This growth served to offset the struggling Test and Measurement business, where earnings fluctuated substantially amid drastic changes in technology, customer behavior, and the market as a whole. Amid such an environment, we focused on management restructuring in the T&M segment in order to adapt to changes in the mobile testing and measurement market, which was down about 40% for its peak level in 2012.

Key achievements during the period covered by the GLP2017 medium-term plan included: 1) transformed the PQA business into one likely to show strong growth and 2) ensured the Testing and Measurement business can withstand dramatic market fluctuations with sufficient investment in growth for the next generation.



However, completing the path toward “continuous profitable growth”, the true aim of management policies, is still in progress and, accordingly, one of the key issues for achievement in the new GLP2020 medium-term business plan.

## II. GLP2020 basic policies

### Establishing an operational foundation to secure continuous profitable growth and restored profitability

#### GLP2020 a milestone toward achieving medium-term and long-term targets

There are two basic aims in the new GLP2020 medium-term business plan. The first is restoring consolidated profitability to a level equivalent to that seen around fiscal 2012. The second is establishing an operational base to support continuous profitable growth, which is a continuation of the goal established in the GLP2017 plan. In order to ensure these objectives are implemented, Anritsu is committed to the following three actions, which are also outlined in the Company’s “2020 Vision” and the “basic policy of medium- and long-term business strategy.”

- (1) Establishment of growth drivers
- (2) Creation of a strong profitable structure
- (3) Creation of the next-generation mainstay businesses

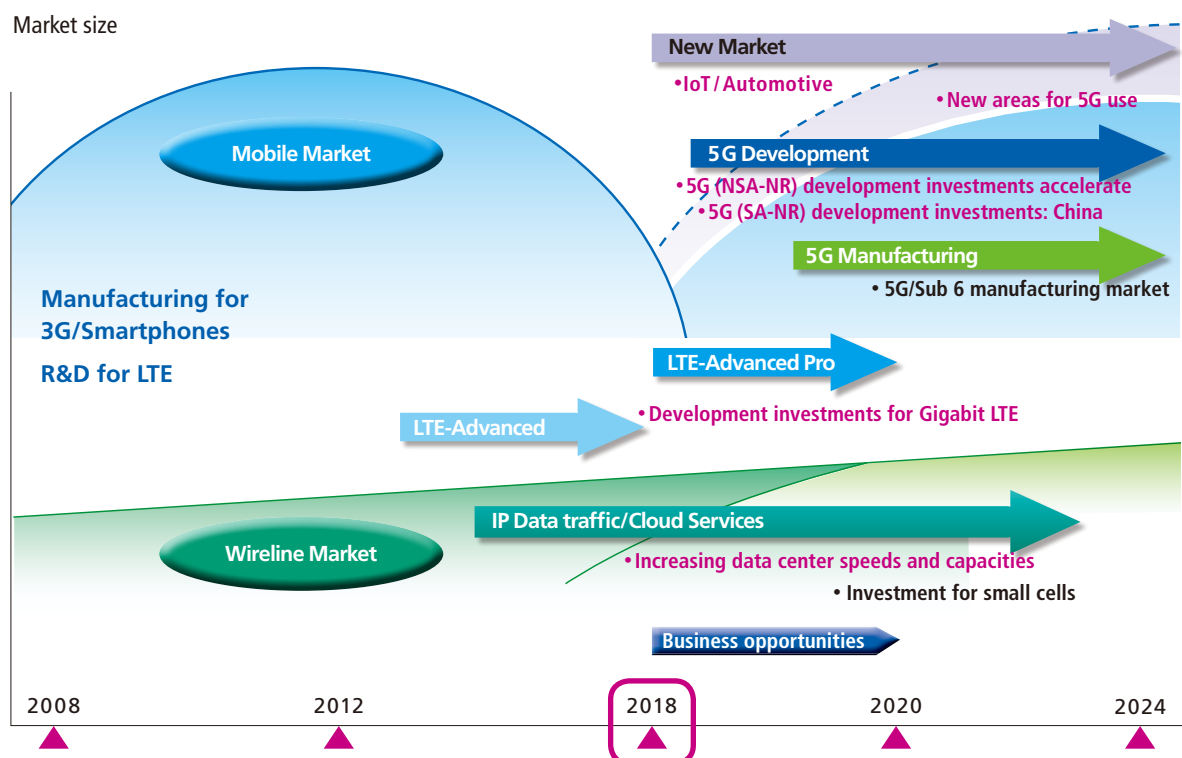
The “basic policy of medium- and long-term business

strategy” provides guidance for the establishment of management targets. Using the “basic policy of medium- and long-term business strategy” as a guideline for the medium-to-long term, the GLP2020 medium-term business plan has not yet met targets of at least 20% for operating profit margin in the T&M segment, at least 7% for sales growth rate in the PQA segment, and on an overall basis, at least 15% for ROE. The establishment of these targets factors in issues related to changes in the external environment as well as improvements to the Company’s internal organization.

#### Preparing for the next big leap during the period covered by the GLP2020 plan

We expect growth drivers in the testing and measurement business from 2020 to include commercialization and mass production of 5G products. Key features of 5G are: 1) improving mobile broadband sophistication; 2) lower latency; and 3) numerous terminal connections. The period covered by the GLP2020 plan is expected to see investment for development focused on increasing mobile broadband capacity and speed, the first of these points. We also expect standards for the second and third points to be released around 2020. Given this timetable, we believe it may be from 2021 that applications and services making full use of 5G really take off. In other words, the next medium-term plan is likely to cover strategies aimed at taking advantage of growth opportunities

## T&M Market Trends and Business Opportunities



in 5G applications.

In order to maintain strong growth rates in the PQA business, Anritsu needs to retain its competitive edge not only in the Japanese market, but also in the overseas markets, including by expanding its presence in the European and U.S. markets. This requires us to expand our overseas sales channels and resources, while improving maintenance systems and expanding our local engineering systems. We are targeting the period covered by the GLP2020 plan for investment in management resources, with a focus on an expansion in human resources in these vital areas.

As noted earlier, we believe our primary mission is to ensure that the GLP2020 management goals are enacted, and, that in the process leading up to fiscal 2020, we can establish a management structure capable of achieving medium- to long-term guideline targets. The final year in the GLP2020 plan is designated as 202X, with this being the year we expect to achieve our medium- and long-term guideline targets. We believe attainment of these targets is possible within the period covered by the GLP2023, the next medium-term business plan extending from fiscal 2021 to fiscal 2023.

## Growth opportunities as 5G and IoT grow and evolve, T&M business enacting diversified strategies

As noted earlier, the GLP medium-term business plan represents a milestone in the march toward achieving our medium- and long-term targets. We note the importance of a diversified strategy in the T&M business as part of our efforts to achieve these targets.

The expansion of mobile technology applications to industrial fields is likely to drive advancement of the 5G/ IoT society. Commercial testing is already taking place for mission critical applications where the low latency and multiple connections characteristic of 5G come into play, including testing involving convoys of driverless trucks, the robotic operation of construction equipment at disaster sites and in hazardous areas, and monitoring operations using real-time transmissions in 4K/8K high-definition. These applications are very different than those Anritsu has been involved in to date, but the Company aims to make full use of the technologies it has mastered in communications and measurement to move from the network communications business to new industrial-related businesses, and make these new businesses key earnings pillars for the Company in the process.



### III. Sustainability management

Using all available knowledge to make a company an institution serving society

#### Sustainability management built on the idea that the Company serves society

When thinking about what makes Anritsu unique, the first thing that comes to mind is how long the Company has been in business. We have experienced a number of crises over our 123 years of operations, but we have overcome each one to arrive at our present position. I can't help but believe that acting as a public institution has been key to our ability to overcome hardships.

In order for a company to serve as a public institution, its business activities must: 1) reflect a clear social mission; 2) provide social value; and 3) reflect the idea that "a company is its people." If all three of these requirements are met, the Company will continue to be seen as necessary to society as a whole. One idea that embodies the first two points is "good for the buyer, good for the seller, good for the people", an old merchant phrase reflecting three positive outcomes from one interaction.

The third point reflects the idea that the real source of a company's value is the diversity of its human resources. Indeed, for a company such as Anritsu, where technology is the core competence, the development of human resources is a key management issue. In order to ensure a company with the best people, we will continue to work on creating a workplace where each employee can achieve personal growth and work with the strongest of motivation. We will also focus on measures aimed at ensuring the diversity of our workforce, which we view as key to our organization's vitality.

One of the most-urgent issues of today is harmony between economic development and the sustainable development of society. In other words, management needs to be aware of natural capital. The aim of sustainability management at Anritsu is the integration of natural capital, the good of the worker, and the idea of "three positive outcomes" in our business activities.

#### Working to achieve SDGs as a member of the global community

The Sustainable Development Goals (SDGs) were unanimously adopted at the UN General Assembly in September 2015. Under the theme of "Creating a Better Future", Anritsu in February 2018 participated in MWC (Mobile World Congress) 2018, where it strongly backed SDG#9, which states that the mobile industry develops and provides resilient platforms that support vital services and enable innovation across the entire economy.

While the industry is focused on 5G development, which represents the state of the art in mobile broadband, it should also be noted that half of the world's people still have no access to the Internet. Through management based on shared knowledge, Anritsu aims to participate in the creation of a robust network that leaves no one behind and is built through the cooperation and collaboration of stakeholders around the world.

In April 2018, Anritsu established sustainability policies which are the advancement of previous CSR goals. The Company at the same time established a Sustainability Promotion Department. We aim to further bolster corporate value by broadening sustainability management through cooperation with the Board of Directors and executive leaders.



Mobile World Congress 2018

## From Group CEO

### GLP 2020 Basic Policies

- Adhere strictly to “sustainable growth with profitability” approach
- Devote our fullest strengths to realizing 2020 VISION



## IV. Enhancement of corporate governance

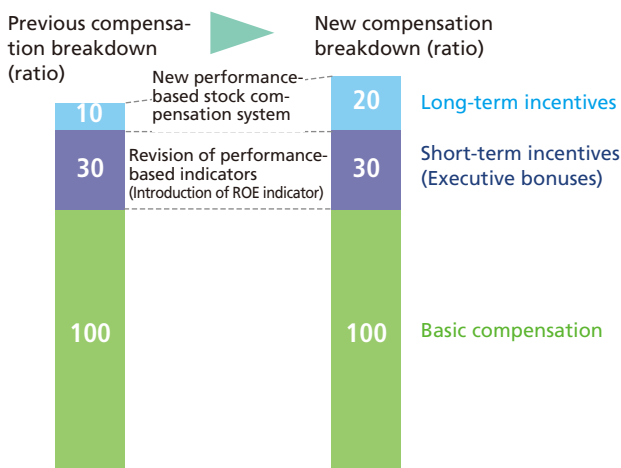
Completing GLP2020 and building an operating base ready for the next big leap

### Working to bolster corporate value by enhancing corporate governance

Following the basic policy for medium- and long-term business strategies, the Board of Directors will actively engage in the creation of an environment and framework supporting the appropriate level of risk taking on the business execution side. The leading initiatives for fiscal 2018 are as follows.

- Changes in executive officer contracts from an employment-based contract to a mandate-based contract
- Reflecting ROE achievement to short-term incentives

### Outline of revisions to the executive compensation system



- Introduction of new stock compensation as a long-term incentive

### Executive compensation system in which value is shared with shareholders

The short-term incentive (Executive bonuses) is paid as 30% of basic compensation multiplied by a bonus factor, which consists of: 1) a consolidated earnings indicator; 2) a financial performance indicator for the relevant business division; and 3) a personal goals indicator. In order to promote management with an eye toward ROE, the GLP2020 plan revised the consolidated earnings indicator to an ROE indicator, with ROE derived based on consolidated net income. The ROE indicator is set at 1x–2x, with 2x requiring ROE of at least 15%.

Anritsu revised the ratio for long-term incentives from 10% of basic compensation to 20% of basic compensation and introduced a new performance-based stock compensation system. The new system is based on a number of points awarded according to the level to which management’s operating income target was achieved during the period covered by the GLP2020 plan. Points gained are put toward held shares which can be converted upon retirement. The system is designed to instill motivation to improve the Company’s stock price.

The “Original and High Level” philosophy of Anritsu carries with it the requirement that management improve corporate value as well as the overall quality of management through enhanced corporate governance. We will continue to meet the expectations of our shareholders and other stakeholders by increasing corporate value while simultaneously ensuring “continuous growth with sustainable superior profits.”

# From CFO



**Pressing ahead with investments for growth and capital efficiency, aiming to enhance our corporate value**

## Akifumi Kubota

Director  
Senior Vice President  
CFO

The new Mid-term Business Plan GLP2020 is underpinned by initiatives designed to return our core business to growth and significantly improve our operating margin. The major financial issues to be addressed under the Plan are to improve ROE and enhance enterprise value while actively promoting growth investment to build a business portfolio that is not dependent on the cycle of mobile communications systems.

## Enhancing Corporate Value

The basic policy of the financial strategy is as follows:

### (1) Enhancement of Corporate Value

Work to thoroughly improve and enhance the management system to enhance enterprise value. That is to say, in addition to clarifying the enterprise value improvement index, thoroughly managing its goals, and working on continuous improvements.

### (2) Flexible Strategic Investment

In addition to establishing the financial conditions to enable the steady implementation of strategic investment to enhance enterprise value, undertaking flexible financial measures.

### (3) Building Robust Earnings Structure

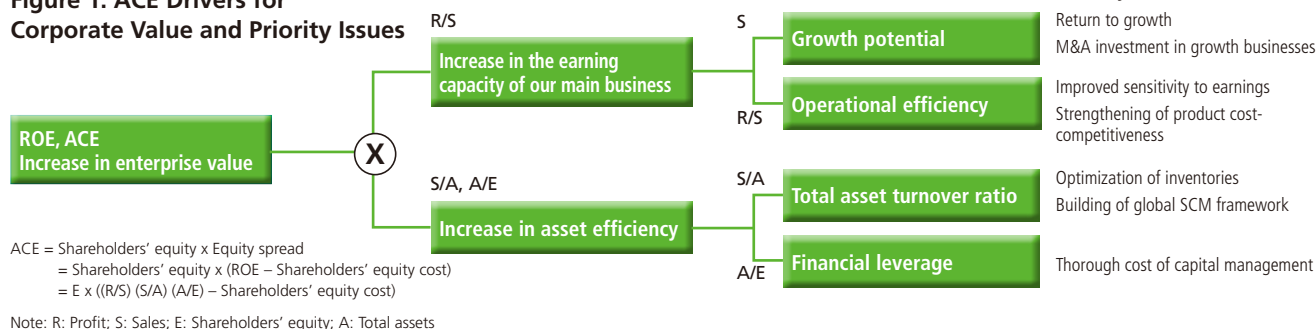
From an accounting perspective, establish a management system that promotes the Company policy of “continuous growth with sustainable superior profits.”

From the abovementioned aspects of policy, I would like to explain the enterprise value enhancement management system.

The Company sets two KPIs as its enterprise value enhancement indices and manages the objectives. As a numerical target, we set an ROE that has comparability with other companies and, as a quantitative target, establish ACE (Anritsu Capital-cost Evaluation), our unique index, as an indicator by which to measure financial added value. ACE is expressed as operating profit, after tax, minus capital cost. Unless we ensure that the level of operating income after tax is greater than the shareholders’ equity cost, the financial added value will not be positive; in other words, it can be regarded as not creating enterprise value. The elements (drivers) that will bring about the improvement and enhancement of ROE and ACE are shown in Fig. 1 on the next page. I would like to review the Mid-term Business Plan GLP2017 (fiscal 2015 to fiscal 2017) from the viewpoint of the improvements to each of these elements.



**Figure 1: ACE Drivers for Corporate Value and Priority Issues**



## Review of GLP2017

The mobile test and measurement market environment of our mainstay Test and Measurement business was as follows. In addition to a leveling off in the smartphone manufacturing market and the saturation of the LTE development investment market, during the course of GLP2017, the mobile measurement market shrank sharply on account of the 4G and 5G transition period, and its situation has declined over the long term. As a result, we experienced a substantial decline in revenue in the Test and Measurement business, and its operating margin deteriorated sharply. To respond to this situation, we implemented a management restructuring plan that focused on the Test and Measurement business. The basic measure adopted for improvement of the earnings structure was to “cut our coat according to our cloth,” cost management to secure profits even at the target minimum revenue scale. We have made efforts with “organizational slimming” and “thoroughly reducing costs by improving business processes” to realize the target break-even point ratio. As a result, in addition to securing the targeted profits, we promoted investment by the prioritizing of development, that is, aggressive investment towards 5G, in parallel. Looking back at our financial condition during the period of GLP2017, although we were able to sustain a certain level of operating cash flow-generating ability, capital efficiency deteriorated significantly, and this resulted in ROE of less than 5% and ongoing negative ACE. Management structure reform yielded results for both enhanced durability at the time of profit deterioration and for measures to improve profit structure. Despite this, a number of challenges in terms of capital efficiency remain. Based on a review of GLP2017, the priority issues arranged from the viewpoint of corporate value improvement are as shown in Fig. 1.

## GLP2020 Financial Strategy

### Toward ROE Improvement

Under GLP2020, we will focus on returning to double-digit ROE and address positive ACE as a top priority theme. The top priority measures to improve ROE are to improve the profitability and operating margin of each business. I will now set out the measures designed to improve the profitability of each business.

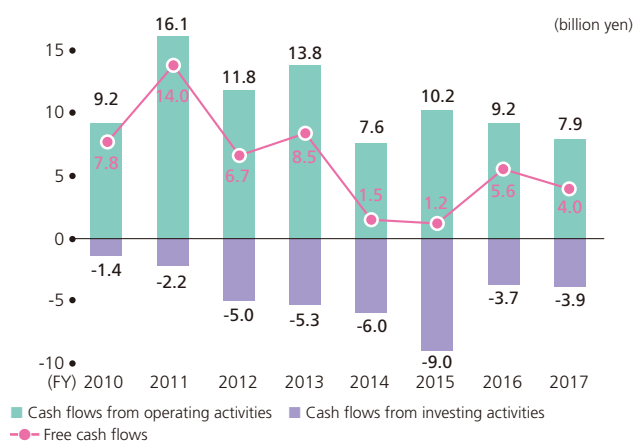
#### ■ Test and Measurement Business

The operating margin of the Test and Measurement business for fiscal 2017 was 3.4%. We will bring about a recovery to 14% in fiscal 2020. To that end, we will steadily capture growth drivers for the GLP2020 growth strategy and restore revenue to the ¥70 billion level. In particular, what will support the growth scenario for the coming three years is to reliably capture the start of 5G business. We will seek to dramatically improve the operating margin by restoring the growth rate of Anritsu's strong point mobile test and measurement business and recovering development investment in 5G at a high return. As a measure for managing development investment efficiency, we are thoroughly managing development ROI (Return on Investment = gross profit/development costs). The immediate goal for development ROI is 4 or higher.

#### ■ PQA Business

The operating margin of the PQA business for fiscal 2017 was 8.7%. On a quarterly financial settlement basis, we have improved its earnings structure to the point at which PQA is generating 10% of earnings. The most-important task in improving the operating margin of the PQA business is to improve its price competitiveness, meaning to improve its gross profit. The initiatives adopted under GLP2020 are as follows:

**Graph 1: Cash Flow Trends**



- (1) Differentiation of X-ray inspection system business
- (2) Provision of new solutions by means of quality data analysis
- (3) Business expansion in European markets
- (4) Full-scale entry into pharmaceutical product market
- (5) Adding of value to operations throughout entire value chain

By steadily implementing these initiatives, we will transform the profit structure to constantly generate an operating margin of 12% or more.

### Aiming for ROE of 15%

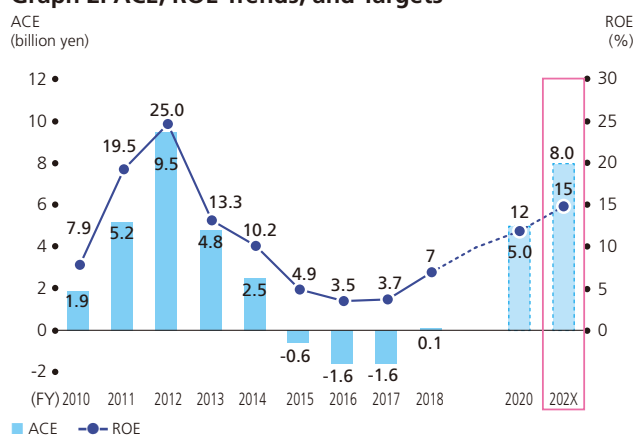
Focusing on the core component of achieving the operating margin targets for each business, we will first aim for ROE of 12% in fiscal 2020. Thereafter centering on thorough capital efficiency management and facing the challenges of increasing the operating profit margin of the Testing and Measurement business to 20%, we will aim to achieve the ROE of 15% upheld in the medium- to long-term guidelines under GLP2023, the mid-term business plan that will follow GLP2020.

### Promotion of Capital Efficiency Management

With regard to the Company's capital costs, shareholders' equity costs are measured at 7%, and the weighted average cost of capital (WACC), used for our unique ACE indicator, is measured as 5%. From the capital cost viewpoint, the "measures to improve corporate value in medium- to long-term financial strategies" are investment for growth (including M&A), which will generate returns in excess of 7% of shareholders' equity cost, and capital efficiency improvements.

The total capital cost and total corporate value of the Anritsu Group are the sum totals of its Testing and Measurement business, PQA business and Others

**Graph 2: ACE, ROE Trends, and Targets**



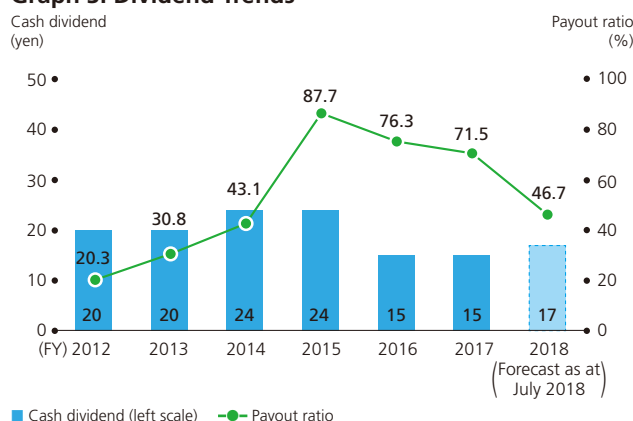
business. It is also the sum totals by business unit broken down by each business. To thoroughly pursue "management with awareness of capital costs," we are planning to manage capital efficiency on a business unit level basis. As a specific KPI, we will set ROBA (return on business assets: the return of operating income against the operating assets of each division) as a target and monitor improvements.

### Shareholder Returns

Based on raising the dividend on equity (DOE) in line with rises in consolidated net income earnings for the fiscal period, Anritsu's basic policy is to flexibly provide shareholder returns in keeping with consolidated results, with a target consolidated payout ratio of at least 30%, taking into account the overall return.

Regarding surplus, the plan provides for the demand for capital from business expansion into industrial areas utilizing 5G/IoT and from strategic investment (including M&A) for business development in, for example, the cloud services market. We will continue to respond to the expectations of our shareholders by further improving corporate value, including investment in such new businesses.

**Graph 3: Dividend Trends**



# From President of Measurement Business Group



## Become a Leading Company Supporting 5G/IoT Society

To play a role as a company  
supporting the commercialization  
of 5G

### Hirokazu Hamada

Representative Director, President,  
Measurement Business Group President

Upon entering the 21st century, the Test and Measurement business was struck by three major recession periods. Following the bursting of the IT bubble and the financial crisis, we are currently entering the transition period from the Long-Term Evolution (LTE) era to the 5G era of high-speed wireless communications, the profit margin is significantly lower than the long-term target, and we are in the middle of an era that is beset with difficulties.

Under the new Mid-term Business Plan GLP2020, we are certain to catch the new 5G wave and place business performance, which has been on a downward trend, back on a growth route. In addition to the communication measurement market, which is susceptible of volatility, under the next mid-term business plan that will follow GLP2020, we will aim to develop new business initiative pillars, for example in fields that utilize 5G or areas that do not rely on the communication measurement market.

Possessing competencies in “Measuring,” Anritsu is one of the few companies that have played a role in supporting a society that is a safe, secure, and prosperous place to live. Taking pride in this role, we will contribute to the development and prosperity of society.

### Review of GLP2017

Having adopted “we will acquire global business opportunities with highly value-added solutions and firmly position ourselves as the global market leader” as our vision under the Mid-term Business Plan GLP2017 (fiscal 2015 to fiscal 2017), we established and worked to achieve target fiscal 2017 revenue of ¥90.0 billion and an operating margin of 15%.

From fiscal 2015, the first year of the Plan, however, the dramatic change in the mobile test and measurement market (the shrinking of the mobile manufacturing market and consequent saving of investments by major players) and the sluggish demand for base station construction in the North American market had a major

impact on our business performance. As the downward trend continued even into fiscal 2016, the Test and Measurement business was forced to make a downward revision of its performance and made changes to the GLP2017 plans.

Amid a rapidly shrinking test and measurement market, the Company worked on its managerial restructuring program REBORN-M and thoroughly instilled three main measures: refocusing investment, refocusing capital, and refocusing time. We also worked to secure profits, including the carrying out of measures designed to slim down our organization in North America. In contrast, we did not neglect the investment needed to surely catch the 5G/IoT wave that represents our next growth driver.


## A Safe, Secure, and Prosperous Society Realized by 5G/IoT




**Ultrahigh speed**

Speed **100 times faster**


Download a two-hour movie in three seconds



**Ultralow latency**

Delay time **1 ms**

Precision control of a robot in a remote location in real time



**Multiple simultaneous connections**

Number of simultaneous connections **100 times greater**

Nearby devices and sensors connected to the Internet

As a result of these initiatives, in fiscal 2017 our revenue amounted to 54,433 million yen and our operating margin was 3.4%.

## A Safe, Secure, and Prosperous Society Realized by 5G/IoT

For services up to and including 4G, the main focus was on advancing the speed of voice and data communications, mainly for smartphones.

In the case of 5G, communications will penetrate new areas, such as IoT, automobiles, industrial areas, and smart homes. For example, autonomous cars are about to revolutionize the automobile industry. Experiments utilizing 5G communications, such as running a convoy of trucks on a highway, have begun. In the construction field, attempts are under way to utilize 5G's real-time properties and large-capacity characteristics to remotely control heavy machinery in real time while watching 4K video.

As communications spread into a wide range of areas in this manner, demands for communication reliability will also increase. For example, there must be no acci-

dents caused by communications being interrupted during automated operations. Also, if the quality of communication cannot be guaranteed by remote control, actual operations will be difficult. Anritsu will use its competencies in communication measurement that the Company has cultivated over many years to support 5G's usage in various industrial areas.

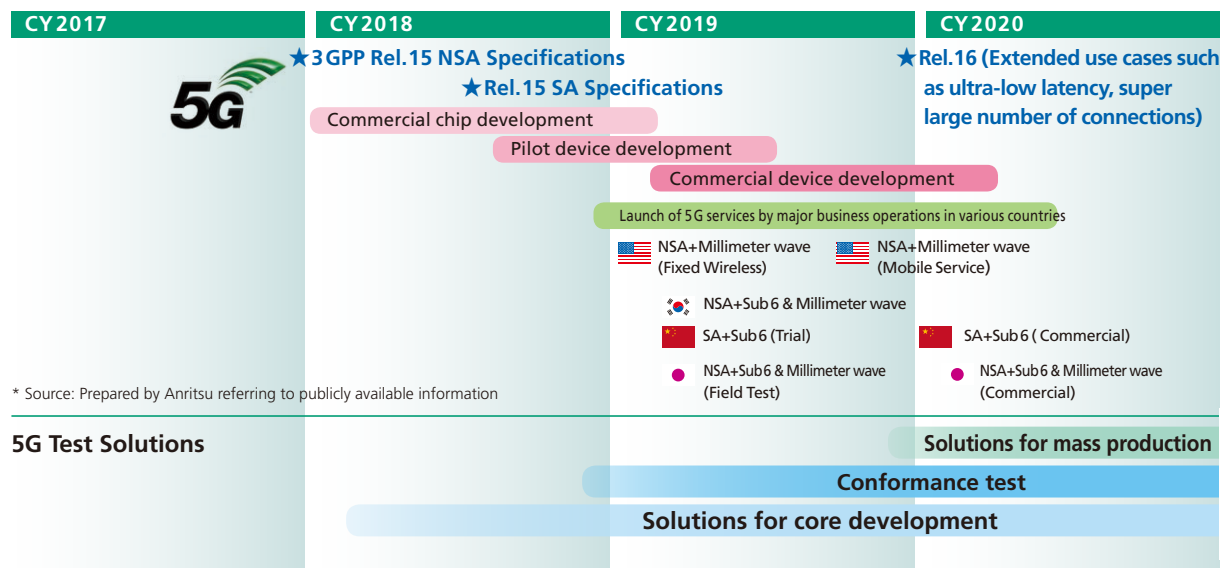
## To Support 5G Commercialization

### ■ Mobile Measurement Market Environment

In 2012, the waves of the two demands of instruments for use in LTE development and 3G smartphone manufacturing instruments overlapped, and the scale of the mobile measurement market peaked. Subsequently, due to slowing growth in shipments of smartphones, mergers and acquisitions due to intensified competition among chipset vendors and smartphone vendors, the size of the mobile test and measurement market had shrunk to 40% of its peak at the end of fiscal 2017. Although representing the mobile test and measurement market of the future, the 5G initial development shift is ahead of schedule in the cellular test and measurement market,



### 5G Service Road Map



and it is expected that they will expand from 2018 onward. We are expecting the market will peak around 2022 to 2023, but we anticipate that it will remain only around 70% compared with 2012.

Meanwhile, together with the expansion of mobile broadband, 5G is expected to expand new demand due to the spread of IoT/automotive and 5G utilization. Factoring in this new demand, we believe that there is a possibility the mobile test and measurement market from 2022 onward may exceed its 2012 peak.

#### ■ Latest Road Map for 5G Service

Under the 3GPP, standardization of 5G NSA-NR was completed in December 2017. Following that, 5G SA-NR standardization was finalized in June 2018, and all specifications for 5G's primary functions have now been established.

Non-Standalone, New Radio (NSA-NR), a format intended to bring about 5G service, is based on the premise that it will be used not solely with 5G, but in tandem with 4G. On the other hand, Standalone, New Radio (SA-NR) is a format where 5G service can be realized independently. Worldwide, NSA-NR is becoming the primary format, although in China, 5G is expected to be rolled out based on SA-NR.

In addition, the two frequency ranges that are under consideration for use in 5G are millimeter waves and 6GHz and under (Sub6GHz). The frequency ranges used by operators around the world vary.

In the United States, service is scheduled to begin from the latter half of 2018. Commercialized services are expected to be available in Korea from 2019, and in China and Japan from 2020.

Leading up to the commercialization of 5G, chipsets for 5G will be available in the first half of 2018, and using those sets, from the latter half of the year, tablets, smartphones, and other pilot devices will be developed.

#### ■ 5G Chipset, the Communications Device Development Tester MT8000A

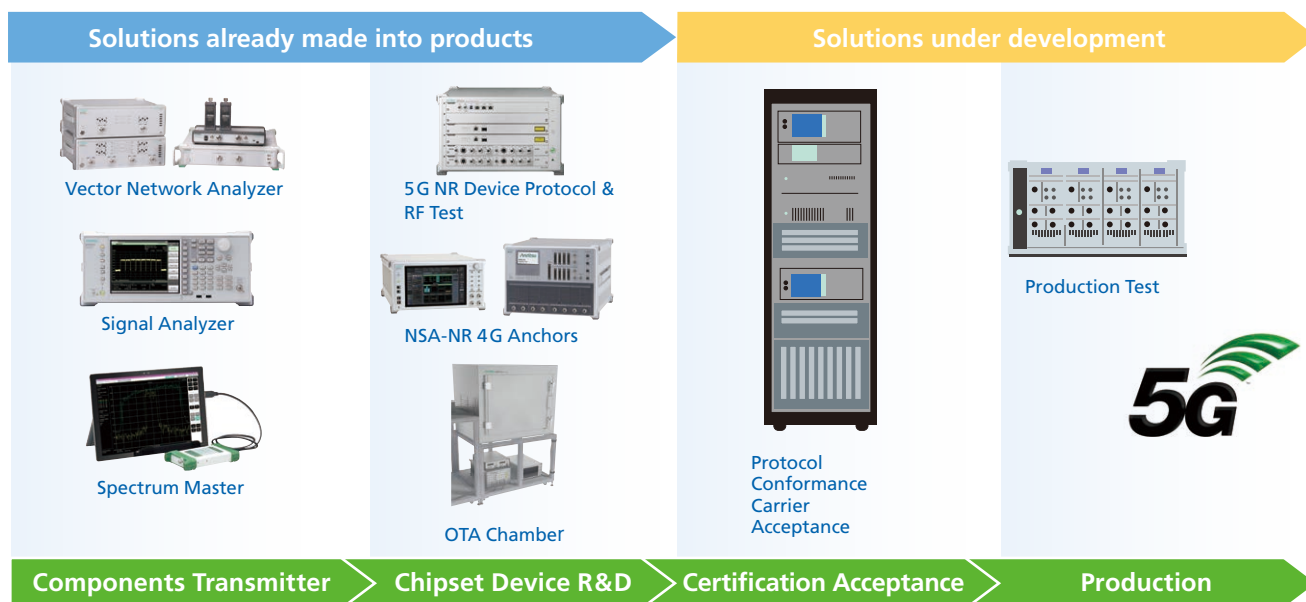
In April 2018, Anritsu introduced to the market its MT8000A radio communication test station, a tester used for the development of 5G chipsets, terminals, and other devices. The MT8000A functions as a pseudo base station, and, by wirelessly connecting it to a chipset or a smartphone or other communications device equipped with such a chipset, it can be used to evaluate functionality and performance. It possesses the flexible scalability to match the evolution of specifications, making it possible



MT8000A radio communication test station



## 5G Solutions Road Map



to use with 3GPP's latest 5G NR specifications, and it can handle a variety of testing conditions. It can also be used with Sub6GHz and millimeter wave frequencies necessary for 5G NR.

While 5G terminals use the millimeter wave range, frequency bandwidth is broad, and, because there are many antenna elements, there is no conventional external RF connector for measurements. Moreover, the use of beamforming requires an assessment of directivity. As such, new OTA (Over The Air) and broad bandwidth compatibility is required in 5G measuring equipment. Combining the MT8000A with the OTA chamber (anechoic box) enables both millimeter wave band RF measurements and beamforming tests using call connections specified by 3GPP.

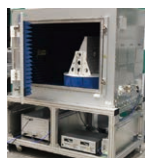
### High-frequency (millimeter wave) measurement technology

#### For low-frequency



Accurate measurements are possible with a cable connection.

#### For high-frequency (millimeter wave)



Accurate measurements are possible with Over The Air (OTA) using chamber.

### Anritsu-Provided 5G Solutions, from Development to Manufacture

Anritsu is planning to deploy test solutions that will support customers at every 5G business phase, from development to manufacture. In May 2017, we launched onto the market the MS2850A signal analyzer equipped with the 5G NR dedicated analysis function necessary for the development and manufacture of 5G base stations and terminals. The MT8000A introduced above is a tester and measuring instrument used at the development stage of, for example, chipsets and communications terminals.

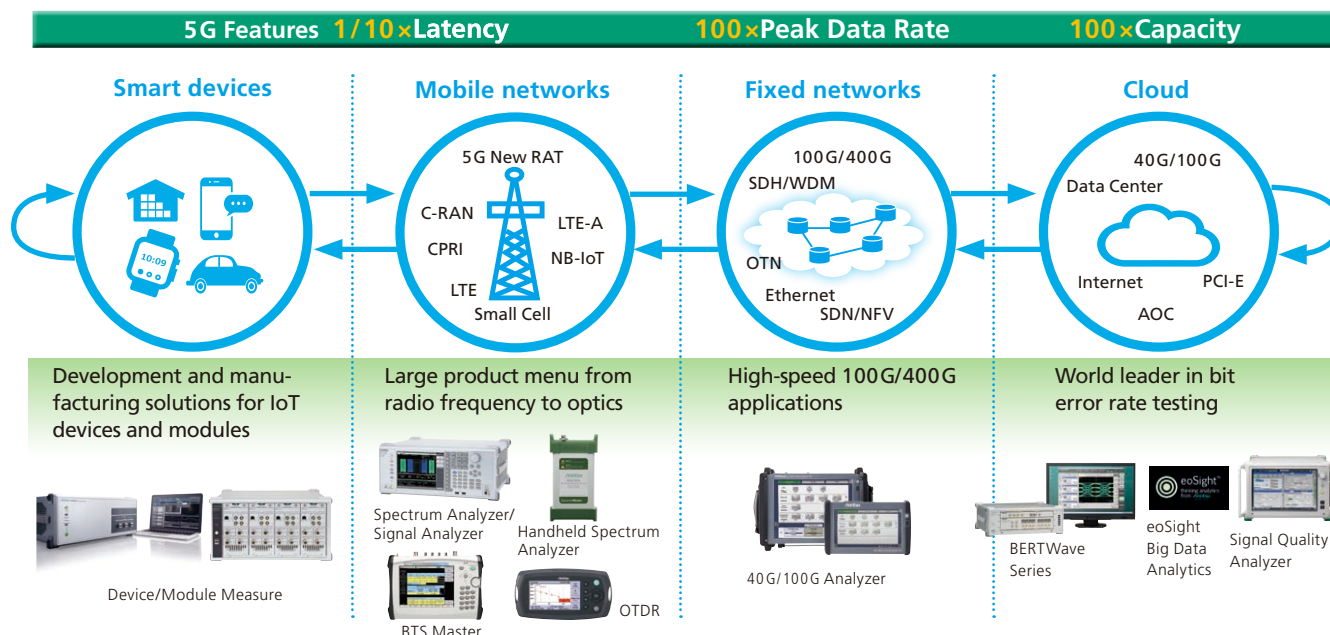
Subsequently, as terminal development for 5G services progresses, demand for conformance test systems will emerge. As 5G services become full-scale, demand for mass-production solutions for 5G terminals will also emerge. Assessment by OTA is required even in the mass production inspection process of 5G millimeter wave communications terminals.

Compared with conventional LTE terminals, which can be measured by cable connection, it is a time- and labor-consuming inspection process, and thus the provision of solutions to efficiently perform OTA testing is being demanded.

We are planning to sequentially launch onto the market measurement solutions that will be indispensable for making these 5G services more widespread.

## From President of Measurement Business Group

### Anritsu solutions for supporting 5G network



### ■ Service Infrastructure Solutions for Supporting 5G/IoT

More than just the evolution of wireless networks is needed to realize 5G. In association with the evolution of 5G, the loads placed on wired networks, cloud services, and data centers will also increase.

While we will also introduce new technologies for wired networks, the expansion of network capability is advancing at a rapid pace. To respond to the use of AI and increase of Big Data, there are demands for data centers to be scaled up, further speed up, and have improved reliability.

With regard to the infrastructure supporting these 5G developments, we also provide Original, High-Level technologies and a wide range of product lineups to customers.

### GLP2020

#### Become a leading company, supporting 5G/IoT

### ■ GLP2020

Under GLP2020, three growth drivers were decided: (1) 5G, LTE-Advanced; (2) IoT/automotive, connectivity, and (3) IP data traffic/cloud services.

The standardization of all 5G major functions specifications has been completed with 3GPP Release 15, and up to 2020 services centered on "high speed and large capacity" are being deployed, and we believe that popu-

larization utilizing the mission-critical features of 5G will be from 2021 onward. Accordingly, we consider three years of GLP2020 as the initial stage of 5G development and are looking ahead to the period after 2021, when full-scale operations of 5G will be underway, to increase the profits of the existing LTE business and which we are positioning as the phase for investment in 5G. LTE, however, is on a downward trend, and there remains the risk that the LTE market will shrink more than expected. Therefore, we have to watch the trend in the LTE market carefully, and to control 5G development investment properly.

In fiscal 2018, the first year, we are certain to capture initial 5G demand and aim to achieve revenue of 60 billion yen and an operating margin of 6%.

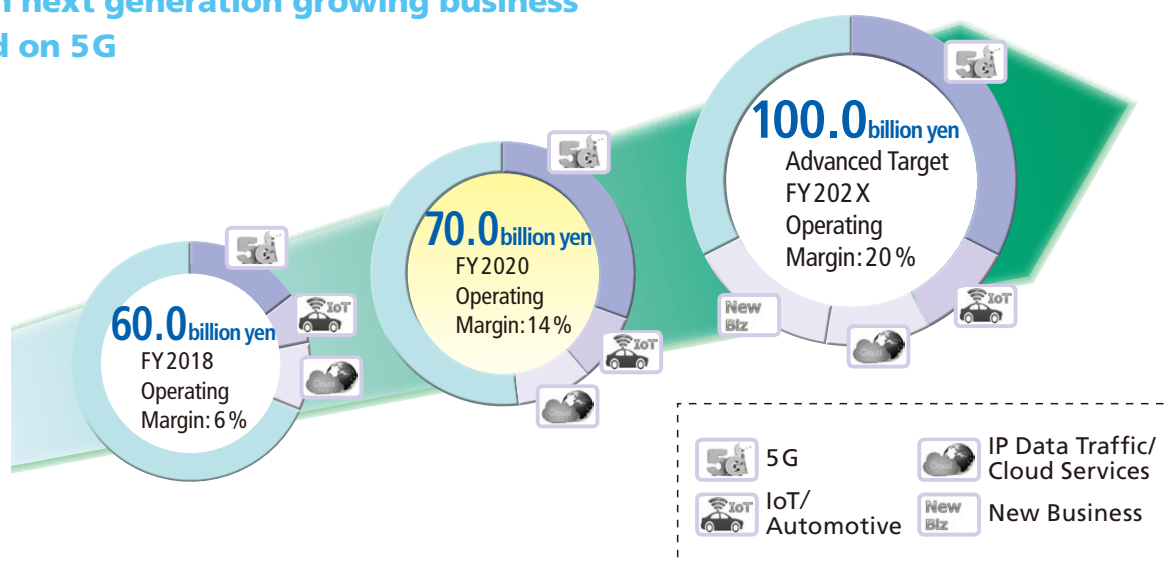
Responding to the evolution of standards such as 3GPP even after hardware delivery, our mobile business is a stock-type business that earns by providing software recurrently. From 2018 to 2019, we will steadily acquire market share by customers purchasing 5G measuring instrument hardware at the initial demand stage of 5G. After that, we will surely earn revenue in the software business and aim for revenue of 70 billion yen and an operating margin of 14% in fiscal 2020.

### ■ Toward Next Period GLP2023

Under GLP2020, we were unable to formulate a plan aiming for an operating margin  $\geq 20\%$ , which is a guide-

## GLP2020 Revenue and Operating Profit Plan

### Establish next generation growing business centered on 5G



line for medium- to long-term business goals. That will provide a challenge for the next period, GLP2023. Beginning in 2021, in addition to the 5G cellular test market, new needs are expected in industrial fields that utilize 5G, such as IoT/automotive. Under GLP2023, the plan will be to further accelerate the three growth drivers focused on under GLP2020, to launch new businesses and to bring about sales growth. For that reason, we will work intensively on the emergence of business activities, including M&A measures, during the GLP2020 time-frame.

The peak of the 5G cellular test market is predicted to be around 2022 to 2023. Therefore, the urgent business is to set up in advance a growth driver that does not depend on the cellular measurement market. Regarding our strengths in measurement technologies as the core, the markets and business areas regarded as targets are the areas and peripheral fields, including the automotive market where dramatic social change is anticipated, where applications that exploit the features such as 5G's high reliability and low latency will become widespread. We aim to realize the above growth scenario, with net sales of 100 billion yen and an operating margin of 20%. We do not expect to be able to launch a new business easily, but will lay the foundations for the next development and work towards stable corporate management by taking resolute decisions.

### Social Value Provided by Test and Management Business

To build a strong communications networks with no digital divides and to realize a safe, secure, and comfortable 5G/IoT society have become major social issues.

By means of its measurement technologies, our Test and Measurement business will contribute to the development of strong network infrastructure that safely and securely connect everything by providing solutions that assist in the development and manufacture of 5G/IoT systems, the construction of communication networks as well as the development and manufacture of mobile devices and electronic devices. For example, although IoT communications technology is applied to intelligent transport systems (ITS), it also leads to a reduction in congestion and traffic accidents, thereby contributing to a comfortable city life and the provision of a means of transportation.

In this way, the Test and Measurement business possesses the potential to provide a lot of social value. Developing safe and secure infrastructure, in the years to come, we will contribute to the creation of industries and the promotion of innovation that will lead to the construction of a sustainable society.

## From President of PQA Business Group



**Become a world-class partner in quality assurance solutions**  
as we pursue a “First Call Company” role in the global market

### Masumi Niimi

Director  
Senior Vice President,  
PQA Business Group President

In Japan’s food products market, our PQA business has earned an industry-leading position, and is securing a stable foundation for earnings. In food markets outside of Japan as well, PQA has leveraged the high praise received for its X-ray inspection systems to power double-digit growth, that goes far beyond the market average.

Under the new three-year business plan, GLP2020, we will take the initiative to consolidate our business foundation, in order to drive business growth to the next stage in the global markets. Making continuous efforts not only for our quality assurance solutions received by our customers, but we will also aggressively invest in building our global supply chain platform for sales, production, and maintenance services, to become a world-class company which is trusted by global customers as an expert in problem solving.

### Review of GLP2017

#### Surpassing the target by X-ray inspection systems and business globalization

Under the Mid-term Business Plan GLP2017 (fiscal 2015 to fiscal 2017), we formulated PQA business sales goals for fiscal 2017 of 20.0 billion yen in revenue, and an operating margin of 8%. We also tackled issues of globalization for the creation and commercialization of Original and High Level solutions.

In the three years of GLP2017, given the rising worldwide momentum of automation and sophistication in quality inspection systems, weighing machines and X-ray inspection systems, which are flagship products in the Japanese market, have seized upon demand and experienced growth as equipment associated with ready-made food products, such as processed meat products, frozen foods, and retort food products. In addition to the North American market where we have worked to develop cus-

tomers who would make X-ray inspection equipment their key solution, in China and Southeast Asia, Europe, and other regions, sales have, for the most part, been favorable.

As a result, PQA business sales amounted to 22,549 million yen, and the operating margin stood at 8.7%, an achievement that surpassed the goals set forth in GLP2017.

### Business domain and solutions

#### ■ Business domain and social value

The PQA business develops, manufactures, and markets quality inspection systems, and provides maintenance services, primarily on production lines for processed foods and pharmaceutical products. Business for the foods industry accounts for approximately 80% of sales. Many of the processed foods sold at supermarkets, convenience stores, or other locations are produced at food



plants, where each minute dozens of items are processed over a conveyor belt at extremely high speeds. It is in such production lines that PQA business products leverage automation, in processes that had formerly been operated by human hands, to contribute to improving productivity and quality.

## ■ Strengths and main solutions

Anritsu has positioned “measurement” as a business domain, and with its core sensing, as well as image and signal processing technologies, we work with our customers in the food and pharmaceutical markets to take on issues of quality assurance as it relates to safety and security. Current core products are automatic electronic weighing machines that sort food items into uniform weight categories, checkweighers that inspect content weight, and metal detectors and X-ray inspection systems that check for contaminants that may be mixed in with the product being examined. This segment also offers the system solutions active in analyzing the quality data generated by these systems products, identify the cause of

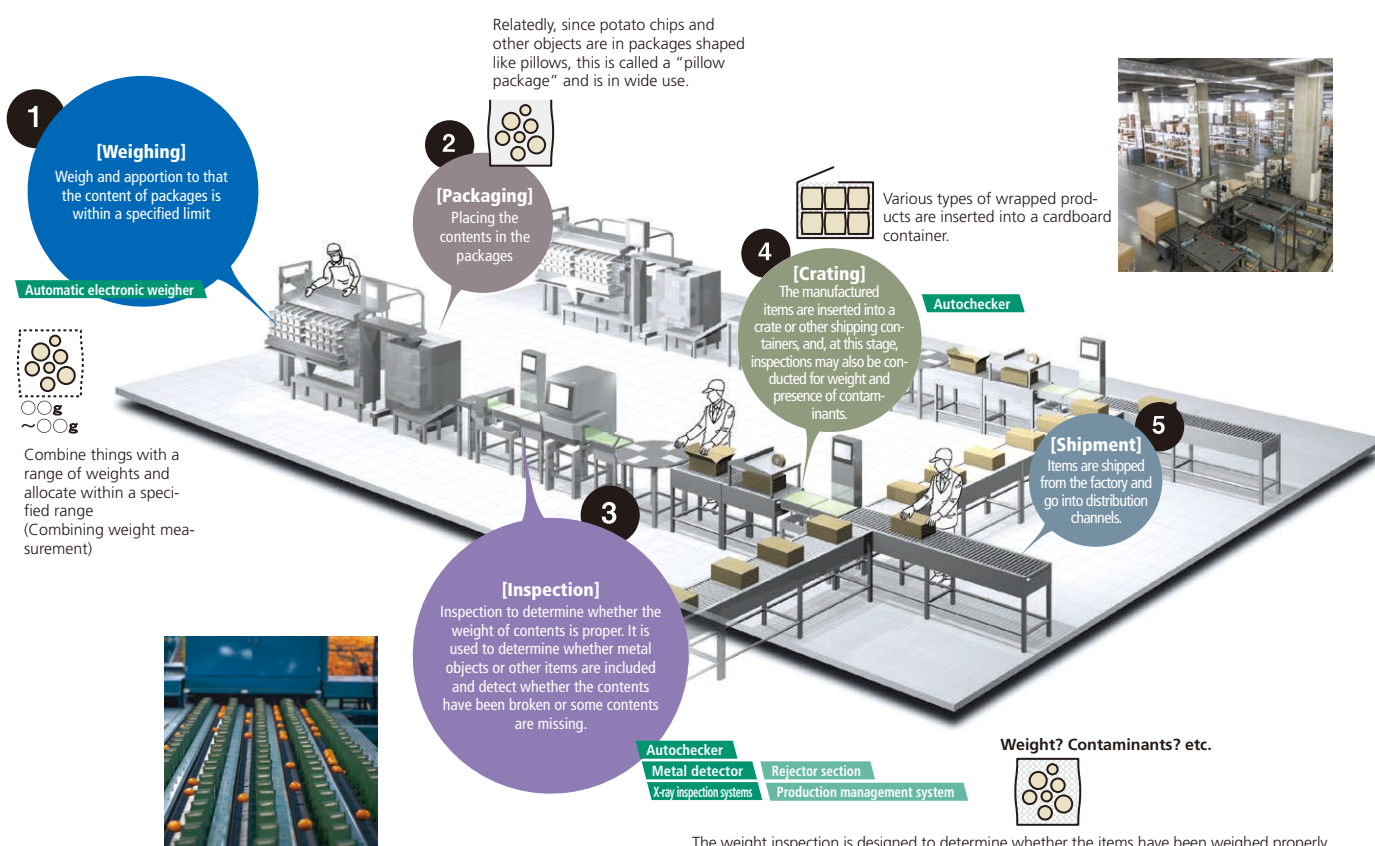
defects and enhance productivity, develop systems for traceability, and other features.

## ■ Supporting with quality assurance tailored to individual customers

The production line environment varies greatly depending on the goods being produced and the consumer culture of a particular region. There is also variation with regard to customer preferences for quality inspections. In addition, for inspection equipment that operates day and night on certain portions of a production line, customers demand a high degree of reliability so as to assure that production does not come to a halt on account of wear and tear or breakdowns.

Anritsu works to realize an integrated system that offers a flexible and rapid response at diverse sites where there may be no single, or similar type of environment. We offer the quality assurance solutions that are best suited to customer demands and the environments where they will be used.

## Example of a Production Line

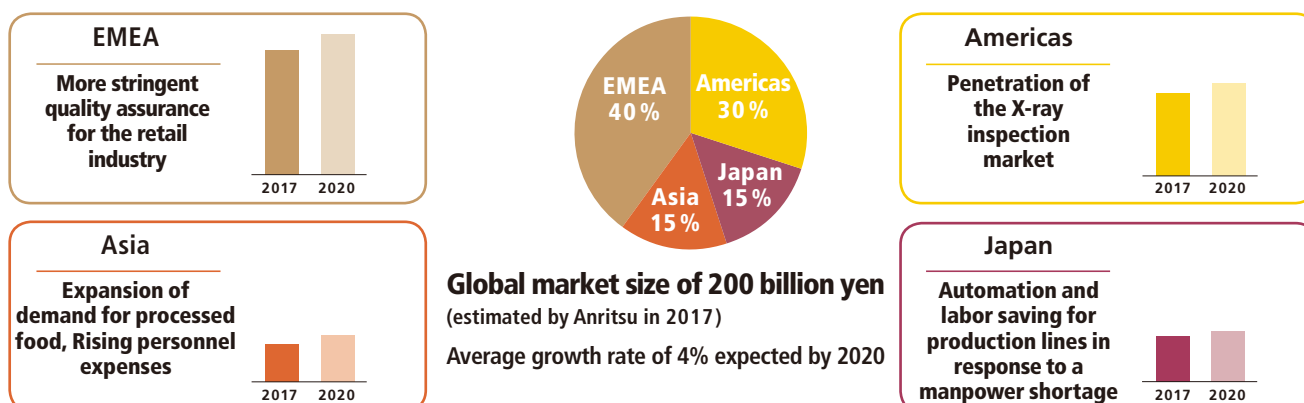


The weight inspection is designed to determine whether the items have been weighed properly and are correctly packaged. At the contaminant inspection stage, verification of whether there are metal or plastic contents is conducted. In addition, the production management software “QUICCA” may collaborate in the inspection and weighing stages to monitor production.



## From President of PQA Business Group

### Current Status of the PQA Market and Outlook



### Market environment

Business sites in the foods industry, which are the customers of the PQA business, account for over a hundred thousand companies on a global basis. Quality assurance needs in the food industry are growing more sophisticated in advanced countries, and, together with this, are continuing to spread to emerging nations.

Japan is experiencing a shortage of workers associated with a declining birthrate and an aging of society, which is leading to rising needs for automation and labor saving on production lines. Moreover, Anritsu's solution partners, such as convenience stores and large-scale supermarkets, are working to build up supply chains with the aim of "total quality assurance, from production to sales."

In the North American market, inspections using X-rays are increasingly being adopted, with demand growing primarily to detect bones that remain in meat products and to inspect confectioneries or ready-cooked meals.

The market for quality inspection systems in Europe has become mature, and it is moving forward on the standardization of its quality control standards. Many of the international standards emerge from Europe, and this has become a leading market with regard to food safety and security.

In China and ASEAN countries, in line with the expanded distribution of packaged food products, there are rising needs to ensure food safety. We anticipate demand for quality inspections to continue growing in the future, particularly from global companies based in Europe and the United States and leading regional food companies.

The sales ratio outside Japan of the PQA business is approximately 45%. We intend to as soon as possible raise our presence in world markets and increase this ratio to over 50%.

### Growth strategy

#### ■ Basic policy for GLP2020

Anritsu's new Mid-term Business Plan, GLP2020, is comprised of the pillars of "global business expansion," "creation of customer value with quality assurance solutions," and "co-creation and development with advanced customers." Anritsu is working to position the three years of the plan up until 2020 as an important period of preparation to become a truly global company, which is "a world-class quality assurance solution partner" that customers around the world will be the first to call.

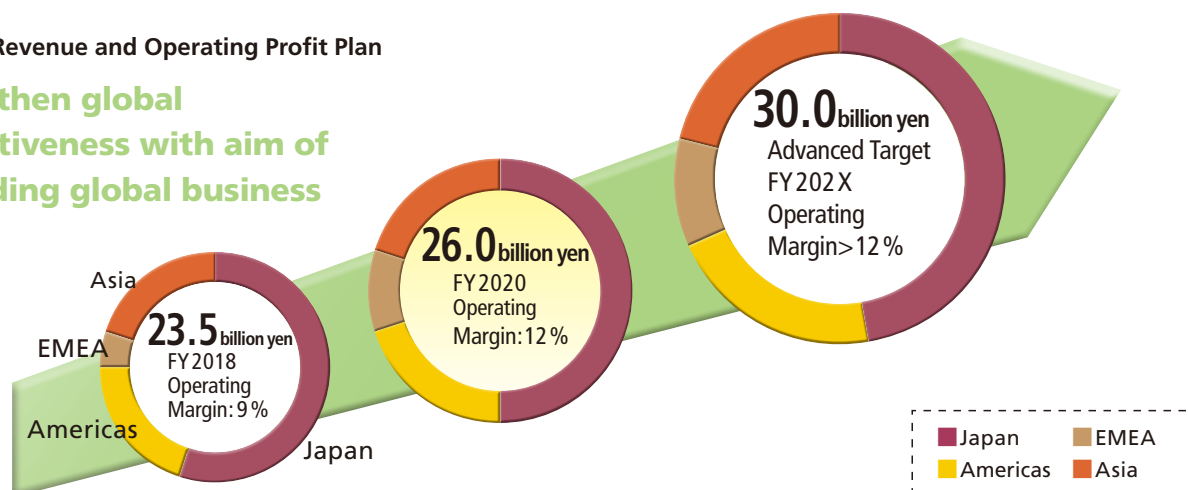
PQA is setting its revenue targets for fiscal 2020 at 26.0 billion yen, in line with the market average growth rate. Together with preparation for a leap forward after 2020, during our next mid-term management plan, "GLP2023," we are setting our sites on revenue of 30.0 billion yen. To achieve this, we are moving forward on building our business structure, investing to raise productivity, and optimizing business processes. We are also going to make a full-scale entry into the European market and pharmaceuticals market so as to accelerate growth in the years following 2020.

#### ■ Solution innovation

For quality assurance in food products, with current technology it is difficult to inspect all items passing through the production process for contaminants of biological origin, including hair or bugs, or chemical contamination from residual pesticides or poisons. In addition, another issue is to resolve problems of defective products that become a cause for recall and disposal, as they may have expired consume-by dates or mislabeled ingredients. We will seriously tackle these as issues we ourselves should address, innovating with our sensing technology and quality data analysis technology, overcoming such issues together with our customers.

## GLP2020 Revenue and Operating Profit Plan

**Strengthen global competitiveness with aim of expanding global business**



Pharmaceuticals, along with food, is an important industry to realize “a society in which all can live in health and safety.” Even more than the food industry, the pharmaceutical industry proactively imposes severe levels of quality assurance. Expanding business in the pharmaceutical market is not only a matter of offering the highly efficient quality inspection methods fostered in the food industry, but also is an extremely important initiative even above raising the level of our quality assurance solutions. We are working to develop and enhance solutions that meet the needs of the pharmaceutical market, and to advance the building of a support structure in which we can achieve business expansion in this market.

### ■ Looking toward an operating margin of over 12%

On the earnings front, one issue we face is to achieve sustained and profitable growth that leads to success amid market competition characterized by the escalating severity associated with business globalization. We will innovate with the value we offer, transforming to solutions that provide total support for the quality assurance activities of our customers. In tandem with that, we will expand solutions that are highly value added in the European and U.S. markets, and in the pharmaceutical market, and will improve our product mix.

We will also strive to improve our financial position on a global basis, undertaking such measures as global optimization of production processes and supply chains, raising development efficiency by renovating our product platform, and reducing our inventory assets through agile production processes. Our aim is to realize an operating margin of 12%.

### Social value delivered by the PQA business

As the world’s population grows, one social issue of enormous importance is the eradication of starvation, and partic-

ularly with regard to the supply and demand of food, not wasting limited food resources is an ongoing advantage.

In the PQA business, we deploy to food processing lines, the high quality and extremely efficient systems of quality assurance that contribute to lowering food loss by food product companies, and the stable supply of safe and secure food items. By doing so, food product makers can find secondary uses for the leftover scraps of prepared food, such as for animal feed, and enable effective use of food ingredients and raise the energy efficiency associated with food preparation. In addition, the quality assurance for food items we offer to food product makers is a matter of utmost importance, and there is a huge risk of an adverse impact on brand survivability, in the event that there is a food product-related accident of recall. Taking secure measures for quality assurance are one way to mitigate risk, and, at the same time, will lead to lower food loss associated with collection, reduce energy required for transportation, and other benefits.

On the other hand, food product companies in developing countries perform a critical mission in society. Hand-in-hand with providing a stable supply of food items, as providers of one element of social infrastructure, namely, clothing, food, and housing, these companies offer opportunities for healthy employment and contribute to economic development. The high quality and exceptionally efficient food product production systems that were cultivated in advanced countries not only help to develop the economies of emerging markets, but also hold enormous possibilities for sustainability on a global scale.

Our PQA business, through advanced quality assurance for food items and pharmaceuticals, continually strives for a society where everyone can live in safety and security, and to contribute to a sustainable society with low food loss.