III

Taking the First Step into the Next 100 Years

- Aiming to Become a GGSC -

The Ajinomoto Group FY2009 - FY2019

	FY	■ 2008	■ 2009	■ 2010	■ 2011	■ 2012	■ 2013
Medium-Term Management Plan		FY2008-2010 Medium-Term Management Plan ➡ p.37 1) Realize an amino acid century 2) Respond to the new economic order and cost structures 3) Realize the Group Innovation			FY2011-2013 Medium-Term Management Plan ➡ p.37 1) The Group Vision: group of companies that contributes to human health globally 2) The Ajinomoto goal: to become a Genuine Global Company (GGC)		
Structural Reinforcement and Growth Initiatives	Structural Reinforcement			Animal nutrition: start of outsourcing manufacturing ➡ p.47 From a virtual company system to a business headquarters system ➡ p.58 Spinning off the pharmaceuticals company ➡ p.42 Restructuring into three research institutes and one center ➡ p.52	Spinning off the animal nutrition business ➡ p.59	Sale of Calpis Co., Ltd. to Asahi Group Holdings, Ltd. ➡ p.42	
	Growth Initiatives				Start of the *AminoIndex*® business ➡ p.53	Acquisition of Althea Technologies, Inc. in the U.S. *ABF*, an interlayer insulating material for semiconductor packages, wins a Porter Prize	Launch of an overseas business in partnership with Toyo Suisan Kaisha, Ltd. ➡ p.49
Foundation Development Initiatives			Acquisition of naming rights for Japan's National Training Center ➡ p.67 3 17 Start of the Ghana nutrition improvement project ➡ p.70 2 17 Introduction of a biomass boiler in Thailand ➡ p.65 7 12 13 15		Introduction of a biomass boiler in Brazil ➡ p.65 7 12 13 15 Start of a job grade system, global human resources development ➡ p.77 5 8		Expansion of *Kachimeshi*® targeting regular consumers ➡ p.69 3 17

	FY	■ 2014	■ 2015	■ 2016	■ 2017	■ 2018	■ 2019
Medium-Term Management Plan		FY2014-2016 Medium-Term Management Plan ➡ p.39 1) "FIT & GROW with Specialty" towards a Genuine Global Specialty Company (GGSC) 2) The Ajinomoto Group Creating Shared Value (ASV)			FY2017-2019 Medium-Term Management Plan ➡ p.40 1) Continue "FIT & GROW with Specialty" to become a global top 10 class food company 2) Reinforce our organization, human resources and work-styles + Establish business structure with high asset/capital efficiency 3) Four ASV Value Creation Stories		
Structural Reinforcement and Growth Initiatives	Structural Reinforcement	Establishment of Ajinomoto SEA Regional Headquarters Co., Ltd. ➡ p.78	Establishment of a two-business headquarters system comprising food products and AminoScience ➡ p.59	Group-wide introduction of a Global Governance Policy (GGP) ➡ p.79		Sale of Amoy Food Ltd. ➡ p.59 Reorganization of the China Division ➡ p.58	Establishment of Ajinomoto Food Manufacturing Co., Ltd. ➡ p.60 Reorganization of Institute for Innovation ➡ p.58
	Growth Initiatives	Acquisition of Windsor Quality Holdings, LP in the U.S. ➡ p.43 Start of commercialization of *StemFit*® iPS/ES cell culture media ➡ p.50	Taking full ownership of Ajinomoto General Foods, Inc. (trademarks acquired the following year) ➡ p.45	Establishment of EA Pharma Co., Ltd. with Eisai Co., Ltd. ➡ p.42 Acquisition of shares in Promasidor Holdings Limited in Africa ➡ p.46		Consolidation of three companies in Turkey ➡ p.46 Creation of the Solution & Ingredients Department ➡ p.61	
Foundation Development Initiatives		Declaration of our aim to become a GGSC through *ASV* ➡ p.39 All SDGs	Introduction of a biomass cogeneration system in Thailand ➡ p.65 7 12 13 15	Establishment of Our Philosophy as a philosophical framework encompassing *ASV* ➡ p.63 All SDGs Issuance of Integrated Report and full adoption of IFRS ➡ p.73 - 74 Corporate Governance Code	Making outside directors' ratio one third ➡ p.73 Corporate Governance Code	Holding of World Umami Forum ➡ p.80 3 17	Inauguration of F-LINE CORPORATION ➡ p.66 7 13 17

Corporate Governance Code: A code of conduct that encourages stock listed companies to practice corporate governance based on relationships with a variety of stakeholders and to realize sustainable growth. Japan's Corporate Governance Code was formulated in 2015, primarily by the Financial Services Agency and the Tokyo Stock Exchange.

SDGs: An abbreviation of Sustainable Development Goals. Included in Transforming our world: the 2030 Agenda for Sustainable Development, an outcome document adopted by the United Nations in September 2015, as guidelines for taking concrete action up to 2030. They comprise 17 goals and 169 targets.

SDGs 1-17:

1 NO POVERTY 2 ZERO HUNGER 3 GOOD HEALTH AND WELL-BEING 4 QUALITY EDUCATION 5 GENDER EQUALITY 6 CLEAN WATER AND SANITATION
7 AFFORDABLE AND CLEAN ENERGY 8 DECENT WORK AND ECONOMIC GROWTH 9 INDUSTRIAL INNOVATION AND INFRASTRUCTURE 10 REDUCED INEQUALITIES
11 SUSTAINABLE CITIES AND COMMUNITIES 12 RESPONSIBLE CONSUMPTION AND PRODUCTION 13 CLIMATE ACTION 14 LIFE BELOW WATER 15 LIFE ON LAND
16 PEACE, JUSTICE AND STRONG INSTITUTIONS 17 PARTNERSHIPS FOR THE GOALS

1 Grand Designs - Four Medium-Term Management Plans

A struggle following the 2008 financial crisis (the Lehman Shock) – FY2008-2010 Medium-Term Management Plan

The Ajinomoto Group entered its second century in 2009 as the world was experiencing a global recession due to the 2008 financial crisis (the Lehman Shock).

At this time, we were advancing our FY2008-2010 Medium-Term Management Plan which had three main goals: A) Realize an amino acid century, B) respond to the new economic order and cost structures, and C) realize Ajinomoto Group Innovation.

"Realize an amino acid century" centered on the use of amino acid-related products and technology to aim for business growth while practicing management that contributes to society and the environment through initiatives such as saving land use and reducing CO_2 emissions through feed grade amino acids, and improving nutrition to improve undernutrition in developing countries and overnutrition in advanced countries.

"Respond to the new economic order and cost structures" meant the implementation of initiatives that were focused on responding to rising material costs, market contraction in Japan, and the advancement of globalization. These initiatives included shifting focus in Japan to profitable businesses, growing the overseas business to realize an overseas operating profit ratio of over 50% in FY2010, reorganizing and boosting the profits of less profitable businesses, expanding in growth areas[1], quickly stabling a profit base for our health business, and creating new businesses and materials.

"Realize Ajinomoto Group Innovation" meant strengthening the Group management by stipulating the Ajinomoto Way (now the Ajinomoto Group Way) as a set of values and shared attitude for employees, formulating a new mission and vision, and considering the optimal business operational structure for the Group, such as a holding company structure.

The appointment of President & CEO Ito and a V-shaped recovery

However, in FY2008 we recorded a loss in our full-year results (see p.9), so for FY2009, following the appointment of Masatoshi Ito as President & CEO in June 2009, we pursued management that positioned recovering profitability as an urgent issue.

In our results for FY2009, although there was an unavoidable decline in sales, we managed to increase year on year operating profit by more than 50%. For net income of the year, after experiencing a loss of over 10.0 billion yen in the previous fiscal year, we realized a V-shaped recovery with profit of more than 16.6 billion yen. This success was achieved by whittling down unprofitable businesses and focusing on profitable businesses, such as overseas seasonings.

Following this, we experienced a second consecutive year of declining sales in FY2010, partially due to the tragedy of the 2011 Great East Japan Earthquake. However, we managed to increase operating income and almost doubled net income for the year at 30.4 billion yen. This was due to a mix of positive factors, including cost reductions across the Group, growth of the overseas food products business, improved market conditions for feed-use amino acids (lysine), and contributions from the highly profitable electronics material *ABF* (an interlayer insulating material for semiconductor packages).

During this period, in FY2009 we formulated Rules for the Group Management Committees (July 2009) and in FY2010, we created a new corporate slogan, "Eat Well, Live Well." Furthermore, we transitioned from a virtual company system to a business headquarters system and established AJINOMOTO PHARMACEUTICALS CO., LTD. (both in April 2010). In July 2010, we began to implement reforms and lay the foundations for growth that focused on the period beyond recovery, including initiatives aimed at advancing globalization and improving the profitability of Ajinomoto Co., Inc. In November 2010 we launched the Innovation Task Force, which began to formulate the direction of our next medium-term management plan, including a shift from self-reliance innovation towards open & linked innovation, a reduction in manpower, and enhanced collaboration with overseas subsidiaries.

Aiming to become a Genuine Global Company – FY2011-2013 Medium-Term Management Plan

The FY2011-2013 Medium-Term Management Plan, formulated under President & CEO Ito with his own management policies, included the Group Vision of becoming a "Group of companies that contributes to human health globally" and the Ajinomoto goal to become a "Genuine Global Company (GGC)." To achieve these, it included the key principles of A) growth driver

1. At that point, our focus growth areas were overseas seasonings, electronics materials, and feed-use amino acids.

development, B) business structure reinforcement, and C) foundation building, and aimed to make us into a global top 10 class food company by realizing an average annual operating income growth rate of 10%.

The Group was recognized as one of the top food products companies in Japan and we carried a reputation for developing global businesses earlier than any other domestic companies. However, there was still a gap between us and major global food companies in terms of both business results and organizational operations, so the use of the term "Genuine" reflected our desire to bridge this gap.

"Growth driver development" positioned global development and R&D as drivers for growth.

Global development involved the cultivation of overseas markets, particularly in emerging countries, with the targets of raising our overseas sales ratio from the 31% forecast in FY2010 to 35% in FY2013, and our overseas profit ratio from the 59% forecast in FY2010 to 62% in FY2013. In addition to expanding the market share of mainstay products and raising profitability, we aimed to introduce products such as powdered menu-specific seasonings and functional seasonings that were tailored to local conditions as a specific means of developing the next generation of core products. We also implemented a strategy that used overseas business locations as hubs to quickly establish businesses in surrounding countries in order to speed up business development.

R&D leadership involved the priority investment of resources into areas connected to seasonings and advanced biotechnologies to create new value and businesses that improve profitability and realize growth. Our goals were to realize products that appeal value in terms of both deliciousness and health, including becoming No. 1 in seasonings in each country while providing reduced-salt, reduced sugar, and low-fat products, and to contribute to global sustainable development, conservation of food resources, and healthy living[2] through technological capabilities in the three areas of "environment and resource contributions," "animal and plant nutrition," and "advanced medicine and nutrition." In terms of business locations, we established a structure of five global centers (Asia, Europe, the U.S., Russia, and China) and took a new policy that departed from previous approaches by shifting away from self-reliance and actively utilizing open & linked innovation, alliances, and M&A. In order to realize this, we set a goal of making investment in Group-wide strategic themes account for 40% of total R&D investment in FY2013.

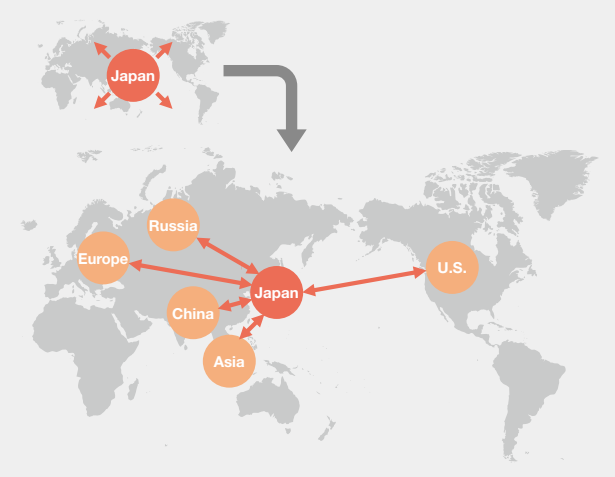
Furthermore, "business structure reinforcement" meant implementing structural reforms and organizational enhancement with a view to improving resistance to market and exchange rate fluctuations and responding to heightened competition in emerging countries.

Regarding a transition from quantity to quality (added value), which had been an issue since the previous medium-term management plan, our basic strategy was to strengthen our cost competitiveness and shift our focus to added-value businesses. We set specific, quantitative targets for raising our ratio of added-value businesses from the 70% forecast in FY2010 to over 80% in FY2013, and our operating profit ratio from the 5.7% forecast in FY2010 to 7% in FY2013. We also aimed to realize cash flow-conscious management by controlling overall limits for capital investment and increasing asset efficiency, with the goal of dramatically increasing free cash flow from an average of 10 billion yen per year in FY2005-2010 to 40 billion yen in FY2013. "Optimize business portfolio and functional value chain" was established as an initiative for enhancing asset efficiency and shareholder value and we set a quantitative target of 8% return on equity (ROE) for FY2013 (compared to 4.5% forecast for FY2010). As funding for growth was primarily being raised through interest-bearing debt, we allowed for a debt-to-equity ratio of up to around 50% (compared to the previous 20%).

Also, to conduct the "foundation building" needed to achieve the key targets mentioned above, we aimed to develop global human resources and strengthen governance with a view to further advances in global development. One example of this was when we increased the ratio of locally recruited officers at overseas subsidiaries from the 34% forecast in FY2010 to 50% in FY2013. We established the "Open New Sky" concept which involved daily efforts to flexibly utilize external capabilities and expand into adjacent domains with a wider approach.

Under these plans, we implemented the large-scale initiatives outlined in Table III-1. The second cabinet of Prime Minister Shinzo Abe (appointed in December 2012) launched its Abenomics policies (including bold monetary easing) leading to a gradual recovery in the Japanese economy, despite the sluggish growth of consumption, and conditions in the U.S.,

Figure III-1: Establishing research and development centers in Asia, the U.S., and Europe (five locations in total)



2. Specifically, MSG production, aimed to use raw materials that are not competing with food resources, feed for agricultural, livestock, marine production, utilizing amino acid functions, biopharmaceuticals and regenerative medicine.

European, and Chinese economy were generally improving. As a result, while the sales of certain businesses reduced revenue, we were able to reinforce business structure through overseas business growth and the creation of hit products (such as *Nabe Cube*®, *Cook Do*® *Kyo-no Ohzara*®, *Cook Do*® *Koumi Paste*®, and *AjiPro*®*-L*) that were realized by providing new value in adjacent domains. This consistently increased operating income margins, reaching 6.5% in FY2013 compared to 6.05% in FY2011 (see Table III-2).

Cook Do®
Koumi Paste®

Cook Do®
Koumi Paste® *(Spicy)*

AjiPro®*-L*

Table III-1: Major newly established companies, acquisitions, and sales (FY2011-2013)

Date	Initiative
September 2011	Established an animal nutrition subsidiary (Ajinomoto Animal Nutrition Group, Inc.)
April 2012	Established a joint venture systems subsidiary with Nomura Research Institute, Ltd. (NRI System Techno, Ltd.)
October 2012	Sold all shares in Calpis Co., Ltd.
April 2013	Acquired Althea Technologies, Inc. in the U.S.
December 2013	Acquired a 50% share in Kükre A.Ş. in Turkey

Further advancing "FIT & GROW with Specialty" and the appointment of Takaaki Nishii as President & CEO - FY2014-2016 Medium-Term Management Plan

The FY2011-2013 Medium-Term Management Plan involved execution of the business development and reform needed to become a global company, including rapid cultivation of markets in developing countries, a shift away from self-reliance and actively utilizing external resources, and enhanced governance. Under the FY2014-2016 Medium-Term Management Plan, the Group worked to strengthen this foundation.

This plan used the slogan "FIT & GROW with Specialty towards a Genuine Global Specialty Company (GGSC)" to clarify the concept of adding specialty to the promotion of both the FIT business structure reinforcement and GROW growth driver cultivation that had been advocated in the FY2011-2013 Medium-Term Management Plan. Also, when formulating this plan, how we incorporated Creating Shared Value (CSV)[3] was an important consideration, and the Ajinomoto Group Creating Shared Value (ASV, see p.63) was announced at the same time as the plan (for the reason why we replaced CSV with ASV, see p.18). We aimed to create specialty through ASV to realize sustainable growth and become a Global Genuine Specialty Company (GGSC, see p.62).

The key principle of the plan was "become a food company group with specialties driven by leading-edge bioscience and fine chemical technologies" in an approach that strengthened the focus on R&D in relation to both GROW and FIT.

We positioned global growth and R&D leadership as the main growth drivers. The strategies for each business were as follows.

- Food products business: Pursue a customer-driven approach (see p.84-85) in marketing focused on "No.1 in deliciousness" and promote "For One, For All" by demonstrating our strengths. "For One" in Japan, which is experiencing individualization, through product development tailored to the market for individuals and single servings, while realizing "For All" overseas with a focus on delivering popular foods. Focus on the Five Stars (key countries) overseas.
- AminoScience business: Establish new businesses in the specialty materials and healthcare fields as growth drivers on the unique cutting-edge biotechnology platform.

In the overseas business in particular, we launched a new initiative by positioning the key countries of Thailand, Vietnam, Indonesia, the Philippines, and Brazil as the Five Stars. Through this emphasis, we aimed to raise overseas profit ratio from the 52% forecast in FY2013 to 60% in FY2016 and realize an increase in sales growth ratio for the Five Stars in FY2016 of 70% compared to FY2012.

To reinforce business structure, first we set an overall direction of shifting from commodities to specialty by specializing bulk products and business, such as MSG, sweeteners and animal nutrition (or shifting these businesses to consumer use). The aim was to minimize the effects of market fluctuations and price competition in emerging countries via increased competitiveness through differentiated products that provide high added value. We also formulated strategies that included increasing our competitiveness through resource-saving fermentation and other technologies and strengthening our pharmaceuticals business through external partnerships. Regarding the shift from bulk to consumer sales, we set targets of increasing the ratio of MSG used for consumer sales from the 68% forecast in FY2013 to 74% in FY2016 and the ratio of sweeteners used for consumer sales from the 49% forecast in FY2013 to 57% in FY2016. For feed-use amino acids, our goal was to raise the ratio of specialty products to 40% in FY2016. Also, to enhance asset efficiency and shareholder value, we set

3. In 2011, Harvard University Professor Michael E. Porter and others advocated a new approach to CSR, which had generally focused on social contribution outside of a company's business. The CSV approach encourages companies to resolve social issues and contribute to society and the environment through their business and thereby raise their competitiveness.

Figure III-2: Open New Sky

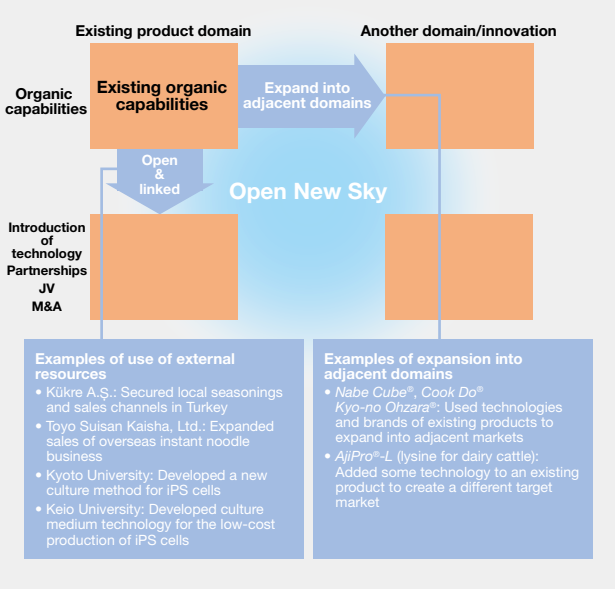
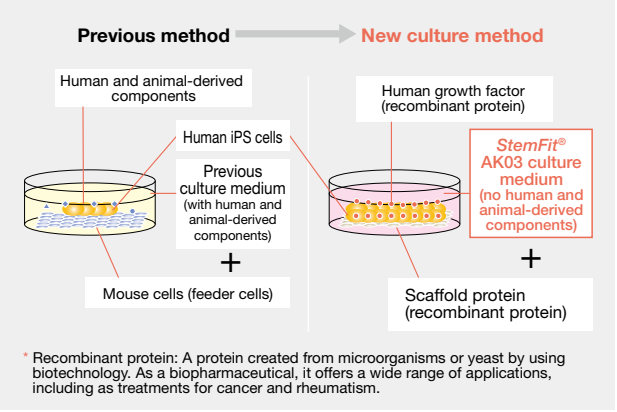


Figure III-3: Development of a new culture method for iPS cells



* Recombinant protein: A protein created from microorganisms or yeast by using biotechnology. As a biopharmaceutical, it offers a wide range of applications, including as treatments for cancer and rheumatism.

a new theme of focusing on a value chain offering high added value and aimed to continue efforts to optimize our cash flow management, business portfolio, and optimization of functional value chain.

To reinforce our management foundation, first of all we advanced corporate governance in the overseas business. We aimed to achieve a structure that properly balanced functions between headquarters, which was seeking overall optimization, and the affiliates that were expanding the businesses in close coordination with localities. We especially delegated authority in the Southeast Asian region and South America, including the Five Stars. Another theme of management foundation reinforcement was to cultivate around 200 potential management candidates by FY2016 through the development of a solid and large class of global human resources and introduction of global HR systems (see p.76). We also responded to the need for diversity (active recruitment of personnel of diverse races, genders, ages, etc.) by setting specific target figures for the ratio of locally hired overseas executives. In April 2016, we introduced our Global Governance Policy (GGP) Group-wide in order to take a forward step in delegating authority to overseas business locations to help them make use of their human resources. A further theme was Open New Sky (see Figure III-2), in which all businesses made daily efforts to flexibly utilize external capabilities (open & linked) and took a wider approach to expand into domains adjacent to existing businesses. In regard to "open & linked," we pursued joint development with Kükre A.Ş. (securing local seasonings and sales channels in Turkey), Toyo Suisan Kaisha, Ltd. (collaboration that expanded countries covered in the overseas instant noodle business), Kyoto University (development of a new culture method for iPS cells, see Figure III-3), and Keio University (development of culture technology for the low-cost production of iPS cells). With respect to development in adjacent domains, we leveraged technology to launch new products in adjacent domains, such as the development of *Nabe Cube*® from consommé, and in specialty chemicals, we developed a server application for *Ajinomoto Build-up Film*® (*ABF*), an interlayer insulating material for semiconductor packages.

We actively engaged in M&A, including acquiring the U.S. frozen foods company Windsor Quality Holdings, LP (November 2014), making Ajinomoto General Foods, Inc. into a full subsidiary (April 2015), taking a 33% share in the African foods company Promasidor Holdings Limited (November 2016), and acquiring Örgen Gida Sanayi ve Ticaret A.S. in Turkey (April 2017), and as a result, we realized three consecutive years of revenue and profit increases up to FY2015. Takaaki Nishii was appointed as President & CEO in June 2015, and he drove firm progress on the plan together with Masatoshi Ito, who had been made Chairman of the board. While revenue and profit decreased in FY2016 due to factors such as difficulties in the animal nutrition business and exchange rate fluctuations, a sensible approach to financial matters, such as using a portion of the funds raised through selling businesses as part of structural reinforcement for M&A, resulted in a debt-to-equity ratio of around 30% and laid the foundation for realizing growth in markets in emerging countries.

As shown above, under these two medium-term management plans, primarily advanced while Masatoshi Ito was President & CEO, the Group managed to realize a V-shaped recovery from a full-year loss and steadily built a foundation for becoming a global company (see Table III-2) through the utilization of external resources while expanding into emerging countries and narrowing the focus of R&D, based on ASV management.

Continuing and advancing "FIT & GROW with Specialty" - FY2017-2019 Medium-Term Management Plan

Formulated under the leadership of President & CEO Takaaki Nishii, the direction of the FY2017-2019 Medium-Term Management Plan was to continue "FIT & GROW with Specialty" to become a global top 10 class food company, based on tackling issues remaining from previous medium-term

management plans (further transformation of animal nutrition business[4], slow growth in Thailand, increasing diversity of talent). In terms of FIT (further business structural reform), our main plan was to scale-down commodity business and expand and accelerate specialty. In terms of GROW (growth driver advancement), our main plan was to enhance growth drivers tailored to changes in society and food habits in the Five Stars. To reinforce our management foundation, in addition to advancing the reinforcement of our organization, human resources and workstyles as a global top class food company, we added "establish business structure with high asset/capital efficiency capable of creating sustained profitability" as a financial KPI.

In terms of what we aimed for as the Group, besides clarification of the conditions required to be a GGSC, the plan also included the following ASV Value Creation Stories.

- We contribute to health and well-being by utilizing our leading-edge bioscience and fine chemical technologies and deliciousness technologies to deliver delicious and healthy food
- We contribute to the development of a society that enables strong family/social bonds and diverse lifestyles through diets well
- We contribute to the sustainability of living with the society and the earth, with our customers and local communities, across the value chain from production to consumption
- Our global, top-class and diverse human resources co-create value with each region through a customer perspective.

We aimed to utilize the Group products to realize A) better nutritional balance by eating more proteins and vegetables with umami, B) more eating together, C) smart and delicious cooking, and D) comfortable lifestyles through amino acid products. In addition to this, we also aimed to create value for society and employees by reducing environmental impact through the construction of a value chain (VC) that optimizes the use of resources and improving employee engagement and work environments supported by ICT, thereby realizing sales growth, cost reductions, greater efficiency in various areas, and the enhancement of corporate brand value.

Specific strategies were as follows.

FIT: Business structural reform in animal nutrition including external partnerships, structural reinforcement in sweeteners and pharmaceuticals custom manufacturing (intermediate pharmaceuticals), reorganization of the food product value chain in Japan including affiliated companies, construction of sustainable value chains on a global scale

GROW: Realization of key product innovation and stronger customer applications in Japan as a unified Group, category strengthening and acceleration of new regional development in the Five Stars and North America, establishment of a BtoBtoC[5] (Business-to-Business-to-Consumer) model centered on deliciousness solutions, establishment of businesses in the advanced biopharmaceuticals area.

Through these strategies, by FY2020 we aimed to achieve quantitative targets (see Table III-2) including business profit of over 137 billion yen (96.8 billion yen in FY2016), a business profit margin of 10% (8.4% in FY2016), ROE of 10% or higher (8.56% in FY2016), double-digit annual growth in earnings per share (92.81yen per share in FY2016), and double-digit annual overseas sales growth (consumer foods).

Table III-2: Trends in Major Indicators

		FY 2010	FY 2013	FY 2016	FY 2019
Business indicators (*1)	Operating (business) income ratio	6.8%	6.5%	8.9%	9.0%
	Overseas sales ratio	37%	50%	52%	56%
	Overseas operating (business) profit ratio	(*2) 59%	47%	54%	55%
	Return on equity (ROE)	5.0%	7.1%	8.7%	3.3%
Shareholder return indicators (*1)	Payout ratio	37%	29%	32%	93%
Human resources strengthening indicators	Ratio of locally hired overseas executives	34%	40%	44%	41%
	Ratio of female managers	14%	14%	19%	24%

(*1) Figures for FY2010 and FY2013 are based on Japan GAAP (operating profit) and figures for FY2016 and FY2019 are based on IFRS (business profit)
(*2) The allocation of administrative expenses and a portion of R&D expenses was revised in the operating profit ratios between Japan and overseas businesses

4. While specialization had progressed for products such as *AjiPro®-L* (lysine for dairy cattle), competition had become fiercer.
5. A style of business which involves supporting companies that are conducting consumer business (B-to-C). For the Group, BtoBtoB business means A) raises the value of the products which these companies deliver to consumers by differentiated materials and products (taste, texture, resistance to time degradation, etc.), and B) utilizes consumer information possessed by the Group to provide appropriate advice on product development for food manufacturers and restaurant businesses. By using these methods, we realize the delivery of products that have more value for consumers.

2 The Challenge towards Structural Reform and Creating Growth Drivers - Specific Measures for "FIT & GROW with Specialty"

(1) Rapid portfolio transformation through sales of businesses and other means

Selling businesses to clarify domains – Establishing NST and selling Calpis Co., Ltd.

At Ajinomoto Co., Inc., we considered how to optimize our business portfolio based on the policy of "optimization of business portfolio and functional value chains" in our FY2011-2013 Medium-Term Management Plan. In order to advance FIT (structural reform), we worked to strengthen our focus on core businesses under the new basic policy of "with Specialty" (specialization and focus on our strengths) which was added in our FY2014-2016 Medium-Term Management Plan.

First of all, in February 2012, we formed a strategic business alliance with regards to IT services with Nomura Research Institute, Ltd. (NRI) which included the transfer of 51% of shares in our subsidiary, Ajinomoto System Techno Corporation, renamed as NRI System Techno, Ltd. (NST) the following April. While IT was a non-core area, we aimed to optimize operational performance through collaboration with NRI, who offer advanced consulting and system building capabilities, and focus on systems that are important for enhanced productivity and technical capabilities over the affiliate.

Following this, in October 2012, we transferred all shares in our holding of Calpis Co., Ltd. to Asahi Group Holdings, Ltd. The value of this transfer was 119 billion yen, which made it the largest in the Japanese beverages market at that time. We first invested in Calpis Co., Ltd. in 1990 and integrated our beverage business into the company the following year, finally making it a fully owned subsidiary in 2007. Although Calpis' business was performing well, we wanted to concentrate business resources on the core businesses of seasonings and foods, and leading-edge bioscience and fine chemicals, so we decided to make the transfer. Calpis Co., Ltd. and Asahi Group Holdings, Ltd. had been collaborating since 2001, including on sales of beverages through each other's vending machines, and had built up a partnership that included integration of vending machine businesses in 2007. Asahi Group Holdings, Ltd. made its approach based on this collaborative relationship and its plans to grow in scale and acquire lactic acid technology that it did not yet possess.

Structural reinforcement through the establishment of AJINOMOTO PHARMACEUTICALS CO., LTD. and external partnerships

The pharmaceutical field was in a stage of intense competition over the discovery of new drugs, such as antibody and molecular targeted drugs, progressive globalization, and dramatic change, such as the growth of companies through M&A and the sudden rise of venture companies.

Within this environment, our Pharmaceutical Company differentiated from major manufacturers by advancing business development as a specialty pharma[1] company. In April 2010, when we transitioned from a virtual company system to a business headquarters system, we split off our Pharmaceutical Company and merged it with Ajinomoto Pharma Co., Ltd. (sales and marketing) and Ajinomoto Medica Co., Ltd. (production and distribution), our group companies in the pharmaceutical field, to form AJINOMOTO PHARMACEUTICALS CO., LTD., which were capable of all functions from development through to manufacturing and sales. After the licensing of technology from Netherlands-based Norgine B.V., AJINOMOTO PHARMACEUTICALS CO., LTD. set gastrointestinal care as its main business area and in February 2012, it applied for approval to market and manufacture a new oral bowel cleansing solution in Japan. In June 2013 it began sales of *MOVIPREP*®, a preparation for colonoscopies and colon surgery.

The focus on gastrointestinal care as a main business area meant that there emerged an urgent need to implement structural reform that dealt with the transfusion and dialysis businesses, remnants from when it was the Pharmaceutical Company. Although these two businesses made up a quarter of total sales, they were recording losses. Therefore, in December 2012, we partnered with Yoshindo Inc., a generic drug manufacturer based in Toyama, Japan, to establish the joint venture AY PHARMACEUTICALS CO., LTD. (AJINOMOTO PHARMACEUTICALS CO., LTD.: 49%, Yoshindo Inc.: 51%), and these two businesses were transferred to the new company.

Although AJINOMOTO PHARMACEUTICALS CO., LTD. advanced structural reforms in this manner, difficulties continued. In October 2015, we established EA Pharma Co., Ltd.[2] with Eisai Co., Ltd., and the companies agreed to integrate

1. The New Vision for the Pharmaceutical Industry released by Japan's Ministry of Health, Labour and Welfare in 2007 divided pharmaceutical companies that can survive the intense competition of the industry into five categories: mega, specialty, basic drug, generic, and OTC (Over The Counter). A specialty pharma company is a new drug manufacturer that creates drugs in specific fields and can achieve an incredibly high share of the global market.
2. Startup capital: 9,145 million yen (Eisai Co., Ltd.: 60%, Ajinomoto Co., Inc.: 40%). EA is a combination of the first letters of both companies' names.

and concentrate AJINOMOTO PHARMACEUTICALS CO., LTD.'s business and a portion of Eisai Co., Ltd.'s business related to gastrointestinal diseases into the new company. The two companies combined their knowledge and expertise with the goals of new drug discovery and overseas expansion as Japan's largest manufacturer of specialty pharmaceuticals for the digestive system and improved efficiency in business operations. The new company was inaugurated in April 2016 with the aim of becoming a company that creates new innovation. Subsequently, EA Pharma Co., Ltd. disposed of its transfusion and dialysis businesses by selling shares in AY PHARMACEUTICALS CO., LTD. to Yoshindo Inc., its partner in the AY PHARMACEUTICALS CO., LTD. joint venture, and it now aims to survive and grow as a specialist in gastrointestinal diseases such as inflammatory bowel disease and gastric ulcers.

In this way, in the pharmaceutical field, we sold its transfusion and dialysis businesses and attained collaborations with other pharmaceutical companies to make its business related to gastroenterological diseases into a strength. Furthermore, we also realized structural reinforcement by concentrating on businesses that leverage proprietary technology such as pharmaceutical intermediates, cell culture media and *AminoIndex*®.

Restructuring our sweeteners business in Europe

In our sweeteners business, centered on aspartame, we set a basic policy of increasing specialization through reinforcement of the structure of the bulk business and growth of the consumer business. Over the FY2014-2016 Medium-Term Management Plan, our target was to raise the specialty ratio from the 49% in the FY2013 forecast to 57% in FY2016. In the bulk business, a succession of new entrants into the market[3] from 2000 led to a difficult condition in which unit selling prices fell, and structural reinforcement became urgently needed issue.

As part of this structural reinforcement, in August 2015, we decided to sell its sweetener business subsidiary in Europe[4] to HYET Holding B.V., a holding company established newly by HYET Sweet B.V., an import and retail company in the Netherlands, and all shares in the company were transferred that October (an extraordinary loss of approximately 7.0 billion yen).

As a result, we made the bulk business more robust by consolidating the production of aspartame at the Tokai Plant and achieved cost reductions, while advancing specialization through expanded sales in the consumer business.

Terminating an instant noodle joint venture with NISSIN FOODS HOLDINGS CO., LTD. in Brazil

In October 2015, we sold its share in NISSIN-AJINOMOTO ALIMENTOS LTDA., a joint venture company for the manufacture and sale of instant noodles in Brazil, to the Brazilian subsidiary of NISSIN FOODS HOLDINGS CO., LTD., its joint venture partner for 32.5 billion yen, which terminated the joint venture. NISSIN-AJINOMOTO ALIMENTOS LTDA. was established in 1972. We acquired a 55% share in MIOJO PRODUTOS ALIMENTICOIS LTDA., which had been founded in 1965. In 1975, NISSIN FOOD PRODUCTS CO., LTD. joined as a joint venture partner, with Ajinomoto Co., Inc. and NISSIN FOOD PRODUCTS CO., LTD. both taking a 50% share.

The transfer of shares in NISSIN-AJINOMOTO ALIMENTOS LTDA. was prompted by a proposal by NISSIN FOODS HOLDINGS CO., LTD. Furthermore, the instant noodles produced by the company were being sold under the "Nissin brand", so we decided to terminate the joint venture to concentrate business resources in the seasonings business and focus on further promotion of the "Ajinomoto Brand".

(2) Cultivating new markets and acquiring technology through M&As

Acquiring Windsor Quality Holdings, LP, a frozen food company in the U.S.

In our FY2014-2016 Medium-Term Management Plan, advancing specialty business was the basic focus of GROW, which means cultivating growth drivers. Specifically, we intended to become a global top 10 class food company through global development and the creation of new businesses that leverage our food and amino acid technologies, and it was crucial we realized this quickly in order to compete globally. Therefore, we needed to evolve beyond developing everything in-house and actively utilize external business resources. In other words, we aimed to acquire business platforms, technologies, and brands through precisely targeted M&A and alliances.

Global development was divided into the following strategies.

- Emerging markets such as Southeast Asia: Cultivate markets with a focus on seasonings
- Advanced countries in Europe and North America: Focus on a product lineup that offers unique value originating from Japan (develop Asian/Ethnic foods businesses tailored to local markets, with a particular focus on frozen and packaged foods)

In Europe and North America, the Asian food market was growing amid increased interest in health, and there was a boom for Japanese foods[5] in particular. Since 2000, we had been

3. A rise in obesity and lifestyle-related diseases raised consumer demand for low-calory products, and low-calory sweeteners began to be used in various foods, such as sweets and beverages. Japan approved the use of sucralose as a food additive in July 1999 and acesulfame potassium, which was developed by Hoechst AG (now Nutrinova), in April 2000. In addition to this, the U.S. beverage giant The Coca-Cola Company and major agricultural producer Cargill, Incorporated., launched stevia onto the market in 2007. Sucralose in particular is approved for sale in more than 80 countries around the world and it is being used in a wide range of products, from sweets and beverages to processed livestock and seafood products, health foods, and pharmaceuticals.
4. Ajinomoto Sweeteners Europe S.A.S., a sweeteners manufacturing and sales subsidiary based in France.
5. In 2006 there were about 24,000 Japanese restaurants outside of Japan. In 2013, this had grown to 55,000 (investigation by the Ministry of Foreign Affairs, estimates by the Ministry of Agriculture, Forestry and Fisheries). According to a survey conducted in 2014 by the Japan External Trade Organization (JETRO), Japanese food was the most popular ethnic food in the world.

developing a full-scale frozen foods business in North America with gyoza (Japanese-style dumplings), noodles, and rice dishes as our main products. In 2014, we recorded sales of around US$130 million (approx. 13.5 billion yen). In order to accelerate this progress, in November 2014 we acquired Windsor Quality Holdings, LP, a U.S. frozen foods company based in Houston, Texas. The deal was worth US$800 million (approx. 87.0 billion yen), which made it the biggest M&A in our history.

Windsor Quality Holdings, LP had seven production locations across the U.S. and the top market share for Asian foods, as well as a strong lineup of Mexican, Italian, and snack food brands. It also had a solid business base within the U.S. frozen foods markets for both retail and food service customers, with approx. 80,000 retail stores handling its products, including major distributors, and approx. 120,000 restaurants. The goals of the acquisition were to instantly expand the scale of our business by supplying our frozen food products through these sales channels, and to become the clear No. 1 manufacturer of Asian/Ethnic foods. In April 2015 we changed the name of the company to Ajinomoto Windsor, Inc., and we have continued to invest in improved production capabilities, which includes increased production of frozen cooked rice products in 2016 and production of frozen appetizers[6] in 2017. Over this period, we made steady progress towards becoming a GGSC (see p.62), such as by establishing Ajinomoto Toyo Frozen Noodles Inc., a frozen noodle production company established as a joint venture with Toyo Suisan Kaisha, Ltd., in April 2015 and selling its products through Ajinomoto Windsor, Inc. sales channels from October 2016[7].

Gyoza (Japanese-style dumplings) | Chahan (Fried rice) | Harumaki (Spring rolls) | Gyoza (Japanese-style dumplings)

Acquisition of Althea Technologies, Inc., a U.S.-based contract development and manufacturing company for biopharmaceuticals to expand the biopharmaceutical business

In April, 2013, we acquired Althea Technologies, Inc., a contract development and manufacturing organization for biopharmaceuticals based in San Diego, California U.S. to accelerate specialization in our pharmaceutical peripheral businesses. The deal was agreed for US$175 million (approx. 16.0 billion yen) and the company was renamed Ajinomoto Althea, Inc.

Biopharmaceuticals are a kind of pharmaceuticals created from biological sources, such as proteins, peptides, and nucleic acids, through the use of biotechnologies including genetic engineering. Biopharmaceuticals can be used to treat severe diseases and are expected to be safer, offering high efficacy with

Ajinomoto Althea, Inc. (Recent photograph)

minimal side effects. At the time of the acquisition, the size of contract development and manufacturing market was approx. US$ 2.3 billion and expected to grow by over 10% per year on average.

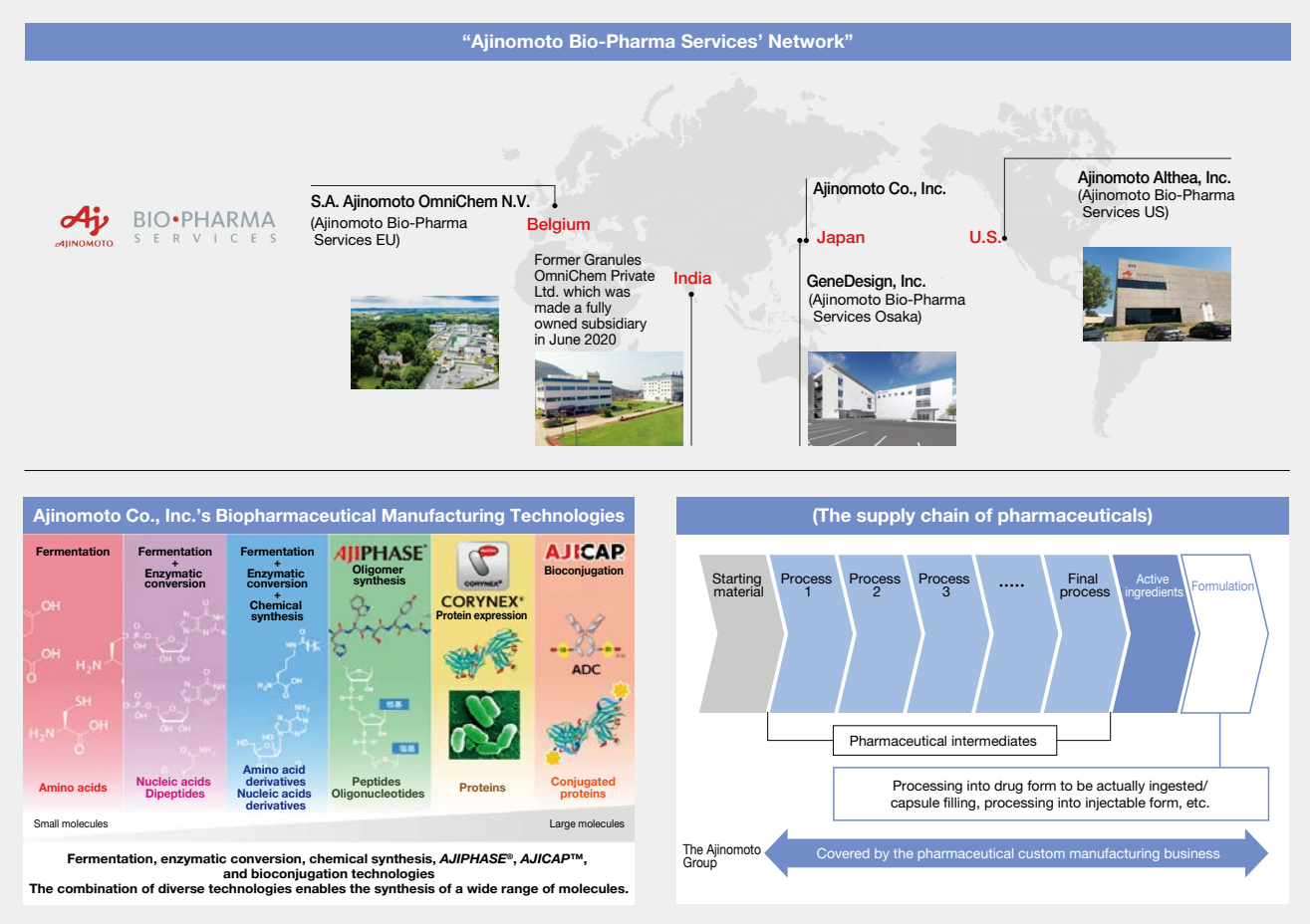
Founded in 1998, Althea Technologies, Inc. engages in contract manufacturing and development for pharmaceutical companies and biopharmaceutical formulation based on quality controls in line with cGMP[8]. We worked to expand the development and manufacturing services business for biopharmaceutical by combining its propriety protein production technology (*Corynex*®, see p.47) with Althea Technologies, Inc.'s business resources.

In addition, we acquired GeneDesign, Inc. in December 2016 in order to achieve future business growth. The M&A was carried out to realize production synergies between GeneDesign, Inc.'s small volume multiproduct manufacturing technology for oligonucleotide medicine which is expected to grow largely in the future, and our proprietary *AJIPHASE*® mass production technology (see p.52).

Furthermore, in September 2011, our fully owned subsidiary S.A. Ajinomoto OmniChem N.V., based in Wetteren, Belgium, established Granules OmniChem Private Limited through a fifty-fifty joint venture with Granules India Ltd., a manufacturer of active ingredients based in Hyderabad, India. This deal responded to the accelerated trend[9] in which pharmaceutical companies outsource the manufacturing of active ingredients. We established the manufacturing site for

6. In frozen foods, "appetizers" refers to snacks and deep-fried products as a side dish to eat while drinking, such as battered cheese and vegetables (onion, zucchini, etc.).
7. Around that time, North America experienced a boom for Japanese-style ramen noodles, particularly in urban areas.
8. Current Good Manufacturing Practice (the name given to the most recent regulations for manufacturing and quality management for pharmaceuticals, etc.). A quality management system regulated by the FDA (the U.S. Food and Drug Administration) and applied to the manufacturing and testing of pharmaceuticals, etc.
9. In the pharmaceutical industry, factors such as the "2010 problem" (in and around 2010, patents for various major pharmaceutical products, particularly established low-molecular-weight drugs, expired at around the same time) and the promotion of controls on healthcare costs led to companies outsourcing production functions in order to survive. It was particularly common to subcontract active ingredient manufacturing.

Figure III-4: Biopharmaceutical supply structure, manufacturing technologies, and areas covered by the pharmaceutical custom manufacturing business



pharmaceutical intermediates[10] in India, a country that offered low manufacturing costs and was making rapid progress in the pharmaceuticals market. The new company constructed a plant in a special economic zone in the Visakhapatnam region of the Indian state of Andhra Pradesh. The new plant began production in July 2014.

Our pharmaceutical custom manufacturing businesses started to operate under the umbrella brand of "Ajinomoto Bio-Pharma Services" from October 2018 as a virtual CDMO[11] (Contract Development and Manufacturing Organization). Up to then, each Group company or division in the pharmaceutical custom manufacturing businesses had provided various services independently, but now, the business has been unified and is being operated through corporation between each Group company and division. In June 2020, Granules OmniChem Private Limited was made a fully owned subsidiary (Company name: Ajinomoto Bio-Pharma Services India Private Limited) and became an important part of "Ajinomoto Bio-Pharma Services."

Making Ajinomoto General Foods Inc. a fully owned subsidiary

In April 2015, we acquired shares in Ajinomoto General Foods Inc. (AGF) held a subsidiary of U.S.-based Mondelēz International, Inc., headquartered in Illinois, in a deal worth approx. 27 billion yen and made it a fully owned subsidiary. The goals of the move were to reinforce business structure in line with our FY2014-2016 Medium-Term Management Plan and thoroughly implement a Group-wide policy of expanding into adjacent domains (launching products in areas that are adjacent to existing products and developing into adjacent markets). We worked to achieve these goals through the creation of development and production synergies between Ajinomoto Co., Inc. and AGF centered around powdered and processed products.

AGF was established in 1973 as a 50-50 joint venture between Ajinomoto Co., Inc. and General Foods Corporation in the U.S. and it boasted both marketing and technological capabilities, which earned it the top share of the Japan's

10. Drug development is normally separated into multiple processes. The materials used between the starting materials and the active ingredients are referred to as intermediates.
11. Contract Development and Manufacturing Organization. Drug development requires significant sums of investment, so CDMOs first appeared in the U.S. in response to a trend by pharmaceutical companies to concentrate business resources on drug discovery and clinical development. The increase in biopharmaceuticals and the tightening of regulations regarding licensing requirements for research and manufacturing facilities led to contracts for formulation study and clinical trial material production in addition to manufacturing.

consumer coffee market (excluding canned coffee). Despite a change in our joint venture partner[12], AGF's business grew smoothly and in 2015, it concentrated on products such as stick-sachet beverage products and expanded its range of beverage products to include black tea and cocoa, and it also focused on the commercial market.

However, after this acquisition, Mondelēz International, Inc. still owned the trademarks for AGF products such as *Blendy*® and *MAXIM*®, so AGF was using these under license first from Mondelēz International, Inc., and then from Netherlands-based Jacobs Douwe Egberts B.V. (JDE), which had acquired Mondelēz' coffee business. Therefore, in October 2016, we acquired all trademarks for all brands, which includes *Blendy*® and *MAXIM*®, from JDE for approx. 25.9 billion yen.

This not only removed the risk of licenses being removed, but also prevented new product development and use of brand logos without consent or licensing to other companies, enabling us freedom to develop brand strategies.

Acquiring two Turkish food companies and amalgamating three companies, including our local subsidiary

We have actively used M&As to cultivate new markets overseas.

We started our seasonings for food service use business in Turkey in July 2011 with the establishment of Ajinomoto Istanbul Food Sales Ltd. and in December 2013, we acquired 50% of shares in the Turkish food company Kükre A.Ş. for around 60 million Turkish lira (approx. 2.9 billion yen). In 2012, the population of Turkey was around 75 million and GDP per person surpassed US$10,000. We estimated that the seasonings and packaged foods market in the country was worth around 65 billion Turkish lira (approx. 3.2 trillion yen), and the need for convenient seasonings and packaged foods increased as economic development led more women to enter the workforce in urban areas. There was also significant growth forecast for the future. Therefore, in its Medium-Term Management Plans for FY2011-2013 and FY2014-2016, we positioned Turkey and the Middle East as Rising Stars and made Turkey business the key for further market cultivation in the Middle East and Central Asia into a core strategy.

Kükre A.Ş. was a company headquartered in Eskişehir, a city in the west of Turkey, and boasted a history of about 100 years. It manufactured and sold products such as seasonings (table vinegar, fruit-based sauces) and pickles and its main product series, Kemal Kükrer, was widely recognized in Turkey as a premium brand. It also possessed a logistics platform covering over 30,000 retailers across Turkey and had strong sales capabilities for food service, nationwide mass retail chains, and influential stores. Our equity participation in the company enabled us to sell our new and existing products through this network.

Following this, in April 2017, we agreed to acquire all shares of another major Turkish food company headquartered in Izmir, Örgen Gida Sanayi ve Ticaret A.S., along with the trademark rights for its Bizim Mutfak (meaning "our kitchen") brand for 220 million Turkish lira (approx. 7.4 billion yen).

Pomegranate sauce Kükre

Apple vinegar Kükre

Menu-specific seasonings Örgen

Bouillon Örgen

Powdered soup Örgen

Powdered dessert Örgen

Örgen Gida Sanayi ve Ticaret A.S. manufactured and sold a wide range of seasonings and foods, and we were especially interested in its bouillon, powdered soup, menu-specific seasonings, and powdered dessert businesses[13].

Furthermore, we made Kükre A.Ş. into a fully owned subsidiary in August 2017 and in July 2018, the three companies of Ajinomoto Istanbul Food Sales Ltd., Kükre A.Ş., and Örgen Gida Sanayi ve Ticaret A.S. were amalgamated to form Ajinomoto Istanbul Food Industry and Trade Limited Company (Ajinomoto Istanbul Gida Sanayi ve Ticaret Limited Sirketi). This new company aimed to double its sales to over 10 billion yen by FY2020 through the following policies.

- Combine and strengthen the corporate functions of the previous three companies and reinforce existing business by leveraging brand, product lineups, marketing and sales functions
- Advance product development that leverages our proprietary ingredients and technology and strengthen exports to the Middle East and Eastern Europe

After the amalgamation, we created new packaging for Kükre and Örgen brands with the Ajinomoto Group Global Brand Logo (AGB, announced October 2017) and accelerated awareness of the "Ajinomoto Brand."

Taking a share in Promasidor Holdings Limited, a major African seasonings and packaged foods company

In our FY2014-2016 Medium-Term Management Plan, we positioned Africa as one of our Rising Stars. As of 2015, the

12. In 1985, General Foods Corporation was acquired by Philip Morris International Inc. (now Altria Group, Inc.) and in 1989 it was merged with Kraft Foods Company under the Philip Morris International Inc. umbrella. Kraft Foods Company then spun off its global divisions under the name of Mondelēz International, Inc.
13. Örgen Gida Sanayi ve Ticaret A.S.'s coffee business was transferred to another group company belonging to its parent company, Yildiz Holding A.S., through a corporate split before the acquisition. Its ketchup, mayonnaise and spice businesses were ended following the acquisition.

continent was estimated to have around 1.2 billion people and during 2011-2015, the average annual real GDP growth rate for sub-Saharan Africa was high at approximately 5%. It was predicted to become a huge economic block. As the middle class grew, food demand was diversifying, especially among younger people, and the need for simplicity and convenience was rising, significant growth in the seasonings and packaged foods markets was expected.

We had already fully entered the continent in May 1991 through the establishment of West African Seasoning Company Limited (WASCO), a subsidiary for small-unit packaging and sales for *AJI-NO-MOTO*®, in Nigeria. After Masatoshi Ito became President & CEO of the Company, sales of *AJI-NO-MOTO*® grew as we established Ajinomoto Foods Egypt S.A.E. (a sales company) in October 2011 and AJINOMOTO AFRIQUE DE L'OUEST S.A. (a plant for small-unit packaging) in Cote d'Ivoire in January 2012, and WASCO set up branch offices in Cameroon in March 2014 and Kenya in April of the same year.

In order to further accelerate development, in November 2016 we acquired a 33.33% share in Promasidor Holdings Limited a major seasonings and packaged foods manufacturer headquartered in the British Virgin Islands, for US$532 million (approx. 55.8 billion yen). Promasidor Holdings Limited conducts business in 36 African countries with a particular focus on five countries – Nigeria, Algeria, Ghana, the Democratic Republic of the Congo, and Angola. It produces and sells products such as powdered milk, powdered beverages, flavor seasonings, and cereals, and its brands are widely found in markets throughout Africa. By combining our product development and production technology capabilities with Promasidor's robust sales foundation, we intend to strengthen our business base in each region of Africa and establish a presence as a leading player in African markets in the medium- to long-term.

(3) Cultivating markets utilizing external resources in Japan and overseas

Establishing a culture medium company for biopharmaceuticals joint venture business in South Korea

We have used external business resources to dynamically advance alliance strategies that cover both FIT (business structure reform) and GROW (cultivating growth drivers).

In November 2012, we established a joint venture for manufacturing and culture media for biopharmaceuticals in South Korea as an alliance initiative covering GROW.

We had been leveraging its high purity amino acid technology to sell serum-free culture media for animal cells since 1987. As the global market for biopharmaceuticals expanded, demand for the animal cell culture media used in their production rose sharply and the new company was established with the goal of establishing production and sales locations in South Korea, one of Asia's leading culture media consumption markets, to establish a stable supply structure and capture new demand, particularly in Asia.

Our joint venture partner was Genexine Co., Ltd., a South Korean bio-venture company advancing biopharmaceutical research and development based in Seongnam Gyeonggi Province, and from March 2011, it joined us in the development of animal cell culture media.

The new company was established as Ajinomoto Genexine Co., Ltd. with a starting capital of 35.7 billion South Korean won (approx. 2.5 billion yen, Ajinomoto Co., Inc.: 75%, Genexine Co., Ltd.: 25%), and it established a business location in South Korea's Incheon Free Economic Zone. It started production and sales in the first half of FY2014.

Development and licensing of *Corynex*® technology that makes pharmaceutical production more efficient

Corynex® is our proprietary technology that makes pharmaceutical manufacturing more efficient. It achieves high purity production of new proteins and peptides through the use of glutamic acid-producing bacteria *Corynebacterium glutamicum*.

Heterologous proteins and peptides secreted by the *Corynex*® system do not require processes such as cell lysis and refolding[14] to maintain an active form. Also, as *Corynebacterium glutamicum* secretes a limited amount of host cell-proteins and it does not produce endotoxins[15], the *Corynex*® system makes it possible to obtain proteins and peptides with very high purity and therefore simplify the purification process. It is possible to manufacture proteins that are difficult to produce with high density culture expression systems and/or scale-up the other expression systems (biopharmaceuticals, potential pharmaceutical target proteins, various enzymes, etc.).

We are expanding its business and making pharmaceutical development more efficient by entrusting this technology to Ajinomoto Althea, Inc. in the U.S. and licensing it out to various pharmaceutical companies.

Structural reform of the animal nutrition business – Production outsourcing and company spin-off

We also advanced an alliance strategy that covers FIT (business structural reform).

In 1965, we became a global pioneer in the commercialization of feed-use amino acids and while we built a global production structure from the 1990's into the 2000's, price offensives by manufacturers from the U.S., China, and South Korea led to a continuously difficult environment.

We implemented a series of reforms to counter this. One of these was in November 2010, when we formed an alliance with Inner Mongolia Fufeng Bio-technological Co., Ltd., a

14. When heterologous protein is overexpressed using expression systems such as E. coli, the target protein is accumulated within a cell, so the cell body has to be broken and the target protein is often expressed as insoluble aggregates called inclusion bodies in a cell, so the cell has to be disrupted and dissolve the inclusion body. As these processes possibly change the structure of the target protein, it requires a process to be returned to original conformation (refolding).
15. A polysaccharide found in the outer membrane of Gram-negative bacteria (E.coli, Salmonella, etc.). They can be found in any living environment and if they enter the blood stream, they can cause fevers, septic shock, multiple organ failure, rapid heart rates, and other symptoms.

group company of China's FUFENG GROUP LTD. based in the Hohhot Economic and Technological Development Zone in China's Inner Mongolia Autonomous Region.

We started to sell feed grade threonine produced by the company under our brand and production started on March 1, 2011. Prior to this, CHUANHUA AJINOMOTO CO., LTD. (Sichuan Province) had made a voluntary transfer of all its shares (70% share) in a joint venture to produce feed grade lysine in China to SICHUAN CHEMICAL WORKS GROUP, LTD., a local chemical company that was its joint venture partner. CHUANHUA AJINOMOTO CO., LTD. had lost ground to cheaper local products and in fall 2008, it stopped production. Then in 2011, we spun off our animal nutrition business (see p.59 - 60) to establish Ajinomoto Animal Nutrition Group, Inc. (AANG) and through AANG, in August 2017, we agreed a production outsourcing agreement for feed grade lysine and threonine with Meihua Holdings Group Co., Ltd., a major Chinese amino acids manufacturer based in the Langfang Economic & Technical Development Zone, Hebei Province. Through these deals, AANG reduced its own production of feed grade lysine and threonine from 2018.

We also increased focus on new areas such as high value-added products and *AjiPro®-L* (see p.88), and advanced external outsourcing for products that were facing excessive competition in a way that leveraged our brand, technological, and quality control capabilities. Through these reform measures, we reinforced the structure of the business.

Advancing diverse alliances

We have advanced a variety of alliances, not just ones that are directly related to business.

In May 2012, we allied with Kao Corporation over a health-related business (see p.56). The Society for Sustainable Food and Lifestyles established by the two companies carries out initiatives such as hands-on environmental education programs for children in Kawasaki City, where both companies have plants.

Additionally, we are actively advancing multi-faceted collaborative projects with external partners, including business and sales alliances in the health-related and pharmaceutical peripherals fields, nutrition improvement projects in Japan and overseas together with local governments and NGOs, and research and development partnerships with universities and research facilities. Below are some of our representative efforts (details of each project below are provided in the corresponding articles).

- Overseas governments and NGOs: The Ghana Nutrition Improvement Project, Vietnam Nutrition System Establishment Project
- Local governments in Japan: *Love Vege*, measures tackling metabolic syndrome and locomotive syndrome, development of *AminoIndex®*, salt reduction project in Iwate Prefecture
- Universities and research facilities: Development of *AminoIndex®*, on-site production of ammonia, development of iPS cell culture media

Initiatives tackling regional nutrition issues (salt reduction, vegetable intake)

Establishing a powdered soup production company with NONGSHIM CO., LTD. in South Korea

In our FY2017-2019 Medium-Term Management Plan, we positioned South Korea as one of our Rising Stars. In 2017, it had a population of approx. 52 million and with a GDP per person of over US$30,000, which was close to becoming a G7-level country. We established a representative office in Seoul in 1983 and formed Ajinomoto Korea, Inc. in 2003 to promote sales of our products and provide technical support and sales to food manufacturing and food service companies. From 2006, we contracted Seoul-based NONGSHIM CO., LTD., a major local instant noodle and snack foods manufacturer, to take over sales of products that include flavor seasonings and *VONO®*[16] brand single-serving powdered soups. NONGSHIM CO., LTD. offered strong sales capabilities with supermarkets through its Shin Ramyun brand of instant noodles, and we had already built up a good relationship with the company.

Furthermore, in December 2017, we established a powdered soup production company, Ajinomoto Nongshim Foods, Co., Ltd., through a joint venture with NONGSHIM CO., LTD. in order to accelerate expansion into the consumer market. The new company had a starting capital of 13 billion

16. The unified soup brand for our overseas consumer foods business. It was developed following the termination of a joint venture with Netherlands-based Unilever N.V. (which had acquired U.S.-based CPC International Inc., owner of the *Knorr®* brand, in 2000) which meant that we could only use the *Knorr®* brand name in Japan. Currently active in South Korea, Brazil, and Taiwan.

South Korean won (approx. 1.3 billion yen) with Ajinomoto Co., Inc. owning 51% and Nongshim 49%. It established a new plant in the Nongshim Boseong Distribution Center in Pyeongtaek, Gyeonggi Province and in September 2019, it began sales of locally produced *VONO*® products.

As of 2016, the powdered soup market in South Korea was estimated to be worth 58 billion South Korean won (approx. 6.0 billion yen) and from 2014 to 2016, it had a stable annual growth rate of 7%. Single-serving powdered soups accounted for about 40% of this demand and had a high growth rate of 26%, and *VONO*® boasted an overwhelming market share of over 70%. While the consumption rate for single-serving powdered soups in South Korea is only about one tenth of the size of Japan's at 0.6 times per year (based on studies by Ajinomoto Co., Inc.), demand for bread as a breakfast continues to grow, and the need for smart cooking is rising due to an increase of people who lives alone and women entering the workforce, so further market growth is expected.

Alliances with Toyo Suisan Kaisha, Ltd. in North America, Nigeria, and India

Instant ramen noodles originated in Japan and in 2012, the global market had grown to 100 billion servings per year, and it has maintained these levels since. We deal in this market, primarily through instant noodle broths, and in December 2013, we agreed an overseas business alliance with general foods manufacturer Toyo Suisan Kaisha, Ltd.

One of the businesses agreed was a frozen noodle business in North America. Frozen noodles (Yakisoba, launched in 2007) had made a big contribution to the growth of our frozen foods business (operated by Ajinomoto Frozen Foods U.S.A., Inc.) in the region, which was worth over 10 billion yen in FY2013. The frozen noodle market was expected to continue its growth due to factors such as a Japanese food boom, so in April 2015, we established a frozen noodle production company through a joint venture (the Ajinomoto Group: 80%, Toyo Suisan Kaisha, Ltd.: 20%) as Ajinomoto Toyo Frozen Noodles Inc. (ATFN), headquartered in Portland, Oregon. During this period, we had also acquired Windsor Quality Holdings, LP in November 2014 (see p.43), so ATFN constructed a frozen noodle production plant (investment amount: approx. 2.6 billion yen) with an annual production capacity of about 8,600 tons, and construction was completed in June 2016. Sales of the plant's products began in October through Ajinomoto Windsor, Inc., to club stores[17] and supermarkets, as well as frozen noodle kits (frozen noodles and soup sets) to food service sectors. The combination of Toyo Suisan Kaisha, Ltd.'s advanced noodle production technology, Ajinomoto Frozen Foods Co., Inc.'s production technology, and Ajinomoto Windsor, Inc.'s strong sales network and ability to develop products suited to local tastes have made frozen noodles into a core product alongside frozen rice products.

In addition to this, in December 2013 we also agreed to establish instant noodle joint venture companies in Nigeria and India. Nigeria is an emerging country considered as one of Next Eleven[18], with a population of about 170 million. In May 1991, we established WEST AFRICAN SEASONING COMPANY LIMITED in the country (see p.47). In January 2015, we established the joint venture company Maruchan Ajinomoto Nigeria Ltd. (MAN) with a starting capital of 3.2 billion Nigerian naira (approx. 2.0 billion yen; the Ajinomoto Group: 51%, Toyo Suisan Kaisha, Ltd.: 49%). Headquartered in the capital Abuja, it began to sell A&M (the first letters of Ajinomoto Co., Inc. and Maruchan) brand products in FY2016. However, factors such as a slowdown in the Nigerian economy due to a decline in oil prices resulted in us having to dissolve and liquidate the company.

ATFN's representative product

Furthermore, since the 2000's, India has been experiencing accelerated economic growth as one of the BRICS countries and its population (1.34 billion in 2018) is expected to surpass China's in the 2020's. With this in mind, in December 2014 we established MARUCHAN AJINOMOTO INDIA PRIVATE LIMITED[19] (MAI), headquartered in Kanchipuram, Tamil Nadu State. Afterward, MAI constructed a plant and began to produce and sell A&M brand instant noodles in November 2016, with the objective of establishing a presence by targeting younger generations.


AJINOMOTO INDIA PRIVATE LIMITED's A&M brand instant noodles

17. Membership-based volume retailers (that can be used by regular consumers) that sell wholesale goods through large warehouse-like stores, which have been gaining in popularity since the 1990's. Also known as warehouse clubs or wholesale clubs. The representative example is Costco Wholesale Corporation.
18. Next Eleven are eleven countries (Iran, Indonesia, Egypt, Turkey, Nigeria, Pakistan, Bangladesh, the Philippines, Vietnam, Mexico, and South Korea) which in 2005, investment bank Goldman Sachs predicted would become the next big global presences following BRICS (Brazil, Russia, India, China, and South Africa, predicted to experience rapid economic growth by the same bank in 2001).
19. Starting capital of 1.27 billion Indian rupees (approx. 1.93 billion yen), the Ajinomoto Group: 49%.

Accelerating Pakistani market cultivation through a joint venture with the Lakson Group

In July 2016, we established a joint venture company in Pakistan with the Lakson Group, an influential local conglomerate, as a part of efforts to cultivate new markets in Islamic countries through the overseas consumer foods business under our FY2014-2016 Medium-Term Management Plan. The cultivation of new markets through capital alliances with local partners was a strategy that was also carried through to the FY2017-2019 Medium-Term Management Plan and implemented in Turkey and Africa in the same way.

The new company, Ajinomoto Lakson Pakistan (Private) Limited (ALP), had a starting capital of 1.0 billion Pakistani rupees (approx. 1.2 billion yen; Ajinomoto SEA Regional Headquarters Co., Ltd.: 85%, Lakson Group: 15%) and a headquarters was established in Karachi, Pakistan's biggest city. It began by importing Halal-certified (a certification that means followers of Islam can eat a product) seasonings from PT AJINOMOTO INDONESIA and selling them in Karachi, and gradually expanded its sales area.

The Lakson Group is engaged in business areas from consumer goods and food manufacturing and sales through to paper and packaging manufacturing, finance and insurance, and IT services, and it has strong distribution capabilities to 180,000 retailers across Pakistan and a robust network of locally-rooted distributors. It also offers a wealth of insight about Pakistani consumers and markets, and has the ability to develop products tailored to the local food culture and eating habits. This made it a good joint venture partner for the rapid establishment of a business base in the country.

As of 2013, Pakistan had a population of about 180 million, including a large amount of young people, and this is predicted to grow to 310 million by 2050, which will make it the most populous country in the Islamic world. Pakistani people tend to eat at home more compared to other countries and normal cuisine includes dishes centered on boiled chickpeas (dal) and vegetables, so we expect a particular increase in the use of flavor seasonings and menu-specific seasonings, which are our specialty products. Additionally, it is geographically located between the Southeast Asia and the Middle East, so establishing a business location through a joint venture had significant meaning for our strategy in terms of shifting from self-reliance.

A scene from the deal signing with the Lakson Group

Joint development of *StemFit*® cell culture media for regenerative medicine with CiRA, Kyoto University

Since 1987, we have leveraged our expertise in amino acids to sell cell culture media for manufacturing biopharmaceuticals. Culture media, nutrient solutions in which microorganisms or biological tissue are kept in an appropriate environment for artificial culture, can be broadly divided into serum culture media, to which blood serum from animals has been supplemented as a growth factor, and synthetic culture media, which are formulated with synthetic chemicals such as sodium bicarbonate and L-glutamic acid. Serum culture media usually come with the risk of contamination by microorganisms that were not intended to be cultured. In comparison, synthetic culture media can be free from contamination as being formulated with completely purified components.

In February 2014, we announced that we had successfully developed *StemFit*® *AK03*, an iPS cell culture medium with a higher level of safety, free of animal- and human-derived components.

iPS cells (induced pluripotent stem cells), established by introducing a minute number of genes into ordinary human somatic cells, such as a skin cells, have the ability to differentiate into various tissue and organ cells and propagate indefinitely in culture, which makes them an important element in regenerative medicine. The use of patient's own cells enables the realization of regenerative medicine with low risk of immune rejection.

Representative *StemFit*® products

The joint research with Kyoto University (CiRA[20], Kyoto University led by Professor Shinya Yamanaka[21]) targeted at regenerative medicine bore fruit as *StemFit*® *AK03*. The product was developed through a combination of our analysis and synthesis technologies and Kyoto CiRA's knowledge and research results. The use of recombinant proteins synthesized with biotechnology and the formulation optimized for cell culture enabled the medium in which iPS cells and ES cells can be stably propagated over the long term.

Conventionally, iPS cells have been cocultured with mouse cells called "feeder cells" in a culture medium containing bovine serum, because iPS cells need a scaffold provided by the "feeder cells" to attach the vessels. On the other hand,

20. An abbreviation of Center for iPS Cell Research and Application, Kyoto University.
21. Winner of the 2012 Nobel Prize for Physiology or Medicine for his work on iPS cells.

StemFit® AK03 replaces it with a protein called laminin, which makes the culture system completely free from animal-derived components, which is ideal for the safety of culture media used in regenerative medicine. On this point, the Pharmaceuticals and Medical Devices Agency (PMDA), the pharmaceutical regulatory agency under the Ministry of Health, Labour and Welfare, agreed with us in an official consultation.

Since then, we have successfully commercialized *StemFit® AK03* through providing it to Healios K.K[22] and CiRA, Kyoto University. On the sales side, it has been accelerating development in collaboration with Takara Bio Inc. and ReproCELL Inc. in Japan, and local sales distributors in the U.S.

October 2015: *StemFit® AK02N*, a culture medium for basic research that has the same composition and performance as *StemFit® AK03*, launched for research institutions (successful commercialization)

July 2016:
StemFit® AK03N launched in the U.S.

September 2016:
StemFit® Basic02, an iPS/ES cell culture media for use in basic research, launched in the U.S.

Alliance with T. HASEGAWA CO., LTD.

In May 2015, we agreed to a business alliance with T. HASEGAWA CO., LTD., that concerned the research, development and commercialization of natural flavors by fermentation process. This was to aid the speedy realization of the strategy in our FY2014-2016 Medium-Term Management Plan to pursue "Specialty", or in other words, "be each country's No.1 in deliciousness through assimilation with customers/countries (regions)" and "be world No. 1 in seasoning technologies: Deepen our ability to define deliciousness in three dimensions and design it."

"Deliciousness" is decided by taste, texture, and flavor that complements these characteristics. Therefore, the goal of our alliance with T. HASEGAWA CO., LTD., which offers global top class materials and technologies as a flavor-focused company, was to deepen the qualities of our "deliciousness" technologies so that we can provide comprehensive value through deliciousness that meets the needs of customers in each country.

In order to raise the effectiveness of the alliance, we also acquired 900,000 shares (2.11% of issued shares) of T. HASEGAWA CO., LTD. treasury stock at a cost of approximately 1.6 billion yen through a third-party allocation.

Opening the Client Innovation Center (CIC) as a space for co-creation

As we were actively utilizing external capabilities (open & linked) to swiftly advance globalization and shift to specialty business, we also used a similar approach for R&D. In June 2018, we opened the Client Innovation Center (CIC), which had been built in the premises of the Kawasaki Plant, as a place for understanding and implementing open and linked innovation to co-create new values.

The CIC is a two-storied ferroconcrete building with a partial steel frame construction and a total floor area of 1,211.72m^2. It was built on the site of our former main research building at a cost of about 1.1 billion yen and offers the following facilities.

- An Introduction Space that uses video presentations to introduce the history of Ajinomoto Co., Inc. and its efforts to help resolve social issues with our technologies, among other features
- A Technology Space that introduces the 37 representative technologies in 14 categories possessed by us, and our creation of solutions to issues faced by society and business partners
- A Digital Ideation[23] Space that incorporates the latest ICT (Information and Communications Technology) to share and deepen discussion about issues faced by society and business partners to generate hypotheses of new values
- A Convention Hall where lectures and poster sessions can be held to promote exchange and share details of leading-edge research with internally and outside partners

Additionally, the building design is modelled on the shape of a neuron, which embodies the image of various information being communicated and passed around, leading to creation[24].

As a precursor to this, we established the Value Creation Group in the Research Institute for Bioscience Products & Fine Chemicals in 2014. Since then, it had been introducing our various research and development technologies to business partners through individual visits. The CIC has been positioned as a hub for promotion that aims to contribute resolutions to social issues in the areas of "Health and Well-being," "Food resources," and "Global sustainability" by further deepening relationships with business partners developed through previous activities with the objective of co-creating new value and new businesses. At the same time, in FY2020 we plan to realize collaborations

The CIC design, which resembles a neuron

22. This involved joint research with RIKEN on treatments of age-related macular degeneration through transplants of retinal pigment epithelium cells derived from iPS cells.
23. In business, ideation means to come up with ideas based on certain themes or concepts. It is a process designed to draw out originality and creativity.
24. The design was created by RUI SEKKEISHITSU Co., Ltd., which designed buildings such as the Nagano Olympic Stadium and Doshisha University's campus.

by concentrating the R&D functions of four Ajinomoto Group companies in Japan at the Kawasaki Plant to create a hub that strengthens co-creation within the Group.

(4) Innovating and strengthening R&D to support specialties

Innovating R&D operations to accelerate commercialization

As we pursued our basic policy of "with Specialty," it became fundamental to possess leading-edge technological capabilities in the bioscience and fine chemical fields, especially in areas related to the amino acids that we have developed, and deliver products that responded to consumers' issues and needs. Therefore, we also changed the way we carried out R&D based on this policy.

Broadly speaking, the fields of consumer foods and AminoScience became our main focuses and in terms of organization, in October 2010, we reorganized into three research institutes and one center (see p.58). Furthermore, we also carried out the following measures to strengthen commercialization based on corporate R&D results.

Revise evaluation systems:

Theme evaluation meetings and progress check meetings with business departments as members

Organize and concentrate research themes:

Divide research into themes for Group-wide strategy, themes on technology to be shared with the Group, and themes for our future business and set time deadlines for each theme, etc.

In the foods field, where alignment between corporate themes and business department themes went smoothly, we combined our proprietary materials with consumer-orientated product development to create new product brands such as *Cook Do*® *Koumi Paste*, *Cook Do*® *Kyo-no Ohzara*®, and *Nabe Cube*® (see p.84). In the AminoScience field, we used external alliances effectively to commercialize new technologies such as *AminoIndex*®, a diagnostic method that detects health risks from amino acid balance in blood, *Corynex*®, a technology that makes pharmaceutical production more effective, and *AJIPHASE*®, a service for contract manufacturing of peptide and oligonucleotide active ingredients that uses new liquid-phase synthesis methods (see p.47, p.53, and p.87).

In regard to recognition from outside of the Group, in September 2011, we achieved the global No.1 spot in the food, beverage and tobacco segment of U.S.-based Patent Board Company's quarterly Patent Board Ranking[25] for two consecutive quarters, and the evaluation showed that our technological capabilities are top class worldwide according to patent-related indicators. Additionally, in FY2012, Ajinomoto Fine-Techno Co., Inc. won a Porter Prize[26] for its innovations such as *Ajinomoto Build-up Film*® (*ABF*), an interlayer insulating material for semiconductor packages.

Receiving the prize from Professor Michael Porter at the ceremony (2012)

The Active Senior Project

The Active Senior Project, established by Ajinomoto Co., Inc. in October 2013, is a cross-sectoral Group-wide initiative that contributes to improved quality of life for the elderly through food, to help them extend their healthy life expectancy[27]. At the time, Japan had one of the world's highest average life expectancies and the number of active seniors was on the rise, especially among the baby boomer generation (approx. seven million people) who had reached around 70 years of age. However, the discrepancy between average life expectancy and healthy life expectancy was thought to be around nine years for men and 12 years for women, and the elimination of this discrepancy has become a social issue.

Amid this, we were focused on tackling locomotive syndrome[28] and we built up knowledge and expertise, including through external collaborations, as shown below.

May 2012:

Health solutions business collaboration with Kao Corporation

December 2012:

Participated in Japan Locomo Challenge Promotion Conference established by the Japanese Orthopaedic Association as a full member

March 2013:

Established the Active Senior Food and Nutrition Club with amino acid material BtoB users, registered dieticians, and others

November 2013:

Through a joint research with the University of Nottingham in the U.K. and a joint research with the Tokyo Metropolitan Institute of Gerontology in Japan, it was demonstrated and published in the Japanese Society for Amino Acid Sciences that our proprietary leucine-rich essential amino acid mixture "*Amino L40*®" has properties which achieve muscle protein synthesis with a small dose and can be an effective measure against sarcopenia[29], one of the forms of locomotive syndrome (the discovery was

25. A comprehensive assessment of the strength of companies in areas such as technology, research and development that scores in six categories, including U.S. patents granted and number of patent citations. Out of the six categories, we were ranked No.1 out of 31 major global food companies in the categories of U.S. patents granted, technology strength, and science strength.
26. A prize established in 2001 by the Hitotsubashi University Graduate School of Business Administration in honor of Harvard University's Professor Michael Porter. It presents awards to companies that are realizing high profitability through innovation.
27. The amount of time a person can live independently without the need for daily nursing care.
28. A condition that reduces movement ability by impairing the musculoskeletal system, such as legs and the lower back, which results in the requirement of nursing care or a high possibility of needing nursing care in the future.
29. A type of locomotive syndrome that lowers muscle strength through muscle loss that occurs with aging. Among the elderly, it can cause the loss of physical ability, a reduction in activity in everyday life, and the need for nursing care. One of the causes is thought to be a loss of muscle protein synthesis ability that occurs with aging.

30 stick pack of *Amino Aile*®, containing *Amino L40*®

based on the joint research on the effects of amino acids on the maintenance of health among seniors that has been carried out with the University of Texas Medical Branch at Galveston in the U.S. since 1999).

The project has carried out various activities with local governments, which included joining efforts to support recovery after the 2011 Great East Japan Earthquake through coordination with the health promotion department of Watari Town, Miyagi Prefecture, and the Red Apron Project to support Tohoku over activities such as providing information and exercise tips to prevent the locomotive syndrome to "health mate" community leaders who promoted a better dietary habit (later, these activities were taken over by THE AJINOMOTO FOUNDATION, which currently supports locally-led programs being held in each region of Japan). Furthermore, it disseminates information through a multi-faceted approach that includes sharing recipes, exercise tips, and other methods for preventing locomotive and metabolic syndrome through the website "Karada-Gohan-Labo," launched in November 2013, setting up sales spaces at retailers and drugstores based on the theme of locomotive syndrome prevention, and publishing 150,000 copies of Protein Intake Recommendation to Prevent Locomotive Syndrome, a booklet created together with the Japan Dietetic Association.

Commercialization of *AminoIndex*®

AminoIndex®, a service launched in April 2011, is a success story that demonstrates that our amino acid research directly contributed creation of a new business. It is known that a balance of about 20 kinds of amino acid concentrations in blood is maintained constant in a healthy human but that it is disrupted by various diseases. *AminoIndex*® is an unique service that can assess the probability of multiple types of cancer or risk of lifestyle-related diseases based on amino acid balance in blood by a single 5-ml blood withdrawal.

Previously, it was known that various health conditions can alter concentrations of amino acids in blood. However clinical use of amino acid balance in blood as biomarkers had been limited to screening for inborn error of metabolism or evaluations of the severity of liver disease because there were challenges such as large individual differences in blood amino acid concentrations and the poor reproducibility of the analysis. We had been measuring concentrations of amino acids in blood since around the year 2000 and discovered the possibility of their use as a risk assessment index to evaluate health conditions. Accordingly, we made efforts to overcome the hurdles of individual discrepancy and reproduction by combining technology for statistical analysis of blood amino acid balance with technology for the rapid and highly sensitive analysis of amino acids. In 2001, our research and development team began to use Liquid Chromatography/ Mass Spectrometry (LC-MS) that can separate amino acids based on differences in the time it takes to pass through a column tube[30] and differences in molecular weight. Furthermore, they developed pre-column derivatizing reagent that could realize a rapid and highly sensitive analysis of amino acids. This shortened the time for analysis of a single sample from 2 hours to about 7 minutes, enabled us to measure a huge number of samples in a short period.

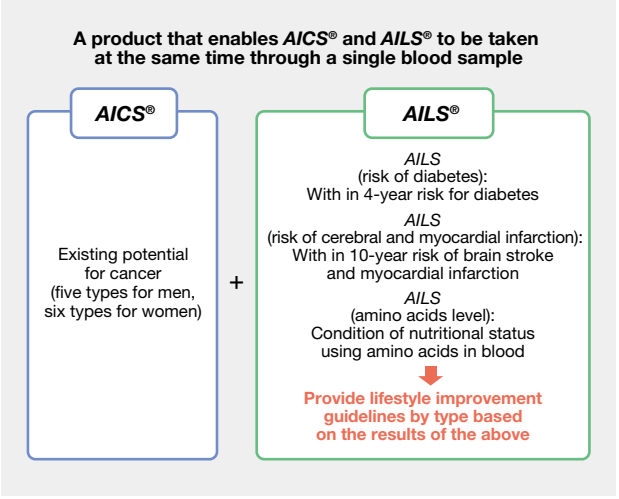
We started publishing the scientific results on the basis of "*AminoIndex*® technology" in 2006 and in 2009, we started releasing papers related to its use in assessing the possibility of cancer. In November 2010, we agreed a joint business contract to commercialize *AminoIndex*® with clinical testing company SRL, Inc. Subsequently, we carried out large-scale clinical trials focused on lung, stomach, colorectal, breast, and prostate cancer with the Kanagawa Cancer Center and many other facilities. In 2011, we announced that the balance of amino acid concentrations in the blood of cancer patients is significantly different to that of healthy people and that these changes were observed in cancer patients at an early stage of the disease.

In April 2011, it was verified that it was possible to assess the probability of cancer at an early stage, leading to commercialization under the *AminoIndex*® *Cancer Screening* (*AICS*®) trademark. *AICS*® offers the following characteristics.

- Can be taken as part of a health checkup as it only requires a single blood sample
- Can simultaneously assess the probability of multiple types of cancer through a single blood sample
- Can assess the probability of cancer at an early stage

The business contributes to cancer prevention in Japan, which has a lower rate of cancer screening uptake compared to Europe and North America.

Figure III-5: *AIRS*® (*AminoIndex*® *Risk Screening*)



In October 2011, a joint research with the Yokohama City University Hospital Department of Obstetrics &

30. A tube with an inner diameter of 1-4mm filled with bulking agents such as particulate or liquids.

Gynecology and others revealed applications for three types of gynecological cancer (cervical cancer, endometrial cancer, and ovarian cancer), and in September 2014, a joint research with the Osaka Medical Center for Cancer and Cardiovascular Diseases revealed an application for pancreatic cancer.

We added *AminoIndex*® *LifeStyle Diseases Risk Screening* (*AILS*®) services including a screening that assesses the risk of diabetes in November 2017, and one that assesses the risk of brain stroke and myocardial infarction in April 2019. These *AICS*® and *AILS*® were then combined in a package named *AminoIndex*® *Risk Screening* (*AIRS*®).

Commercialization of *AjiPro*®*-L*

AjiPro®*-L*, a rumen bypass lysine product for cows launched in North America in April 2011, is the result of 20 years of tenacious work by our research and development teams.

A cow is a ruminant animal that has four stomachs. When lysine was given to a cow, most of the lysine would be broken down in the first stomach (rumen) and not be absorbed as a nutrient. *AjiPro*®*-L* was developed to solve this issue. Our researcher tackled this by:

A) Establishing evaluation technologies for its bio-availability through animal testing and accumulating data

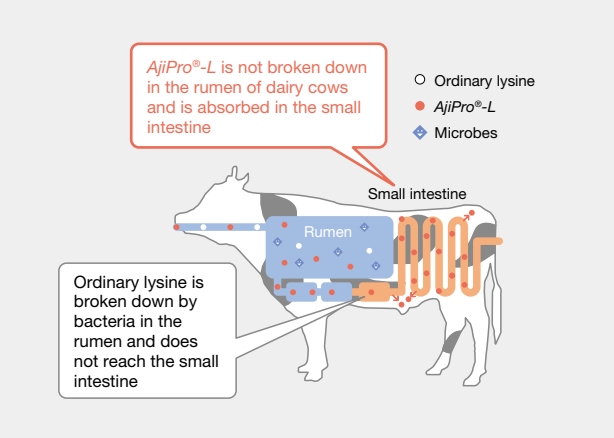
B) Developing simple and effective screening methods that could obtain the same results with animal testing

C) Developing granulation technology that protects the lysine

As a result, they successfully developed *AjiPro*®*-L* which ensures that lysine is dissolved slowly in the small intestine after ingestion by the cow.

This product led to business expansion into an unexplored market of amino acids for ruminants, and sales in North America grew smoothly. Then, in November 2014, Ajinomoto Heartland, INC. increased production capacity to 6,500 tons per year from an initial 1,500 tons.

Figure III-6: *AjiPro*®*-L*, a lysine product with unique technologies for protection and dissolution



Commercialization of *kokumi* ingredient glutamyl-valyl-glycine

In August 2014, we gained approval to use glutamyl-valyl-glycine as a food additive. This is a *kokumi* ingredient found in foods like scallops and authentically brewed soy sauce that combines glutamic acid, valine, and glycine, three kinds of amino acids. We defines "*koku*" as the substantial, broad multisensory experience created by sensations related to the taste, flavor, and texture of food (such as richness, complexity, and body) and the way that these are balanced. Additionally, "*kokumi*" is defined as an ingredient that does not have a taste itself but enhances the "*koku*" of a food that it is added to.

In February 2010, glutamyl-valyl-glycine was reviewed by the Flavor and Extract Manufacturers Association in the U.S. and approved as "Generally Recognized As Safe" (GRAS). In June 2012, the FAO/WHO Joint Expert Committee on Food Additives (JECFA) assessed it as "no safety concern." It is currently approved in the three major regions of Japan, North America, and Europe, and also in various other countries.

Just a small amount of glutamyl-valyl-glycine can enhance "*koku*" and it is currently used in our consumer and industrial-use products. In addition to helping to improve the quality of products that are used with meat, dairy products, and products that are used with edible oils, it also enhances the "deliciousness" of products such as fat-reduced foods.

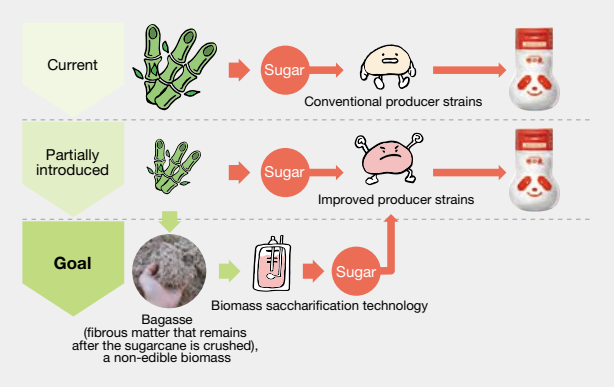
Examples of products that contain glutamyl-valyl-glycine

Conserving and recycling resources and realizing local partnerships through resource-saving fermentation technologies

The amino acids used in our products, including umami seasoning *AJI-NO-MOTO*®, are manufactured at 18 plants in nine countries around the world through a fermentation process that uses raw materials that are easy to procure locally, such as sugar cane, corn, sugar beets, and wheat. As populations grow, demand for these ingredient crops is increasing as a precious food resource, and also as biofuels and industrial materials. Therefore, in consideration of the sustainability of society and the planet, we developed the resource-saving fermentation technologies shown below.

A) Technologies that require less main raw materials by maximizing fermentation productivity
B) Technologies that use less auxiliary materials (acids, alkalis) and discharge less water
C) The introduction of biomass boilers that use resources not being used locally as a fuel source, such as rice husks and woodchips
D) Technologies that enable the self-production of a portion of fermentation raw materials or that use bagasse (fibrous matter that remains after the sugarcane is crushed), from a biomass by-product as a fuel

Figure III-7: Using less main raw materials



In order to avoid competition between crops for amino acid manufacturing and crops for food use, we are advancing research and development into next-generation production technologies that limit the use of food resources by using ingredients such as cellulose derived from non-edible biomass or grease and oils created from microalgae as the main fermentation raw material.

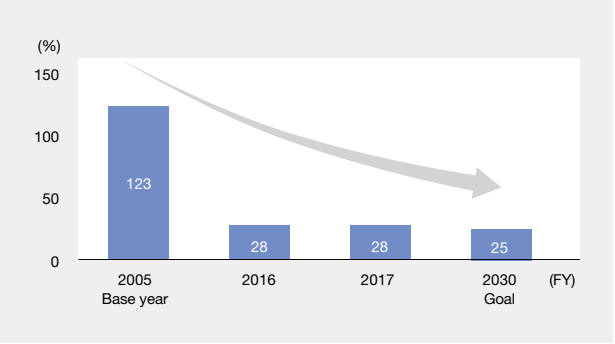
With regards to the production of feed grade amino acids, we introduced resource-saving fermentation technologies in Brazil in March 2012, the U.S. in July 2013, and France in January 2014. Since the end of 2011, manufacturing of *AJI-NO-MOTO*® at our plant in Thailand has included a process through which the plant makes its own molasses as a raw material from cassava chips. In addition to this, our Kyushu Plant is effectively using the biomass produced as a by-product of fermentation by mixing it with fertilizer. They are collaborating with Saga City, local retail stores, agricultural cooperatives (JAs) and others to sell fruits and vegetables grown with the fertilizer under the brand names *Kyushu Rikisaku Yasai*® and *Kyushu Rikisaku Kudamono*®.

Evolving palatability technologies

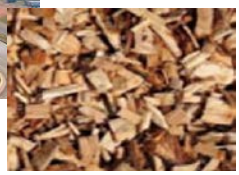
We have positioned "global industry leading seasoning technologies" as a specific goal for the achievement of R&D leadership, one of the growth drivers in our FY2017-2019 Medium-Term Management Plan. This strategy realizes growth through the provision of solutions such as:

- A deeper comprehension of biological mechanisms for deliciousness

Figure III-8: Trends in water use per unit of production



Limeira Plant (Brazil)



Woodchips

A sugar cane field

- Technologies to control deliciousness
- Technologies to optimize deliciousness for preferences in local markets
- Digital technologies to deliver the value of deliciousness for individual consumers

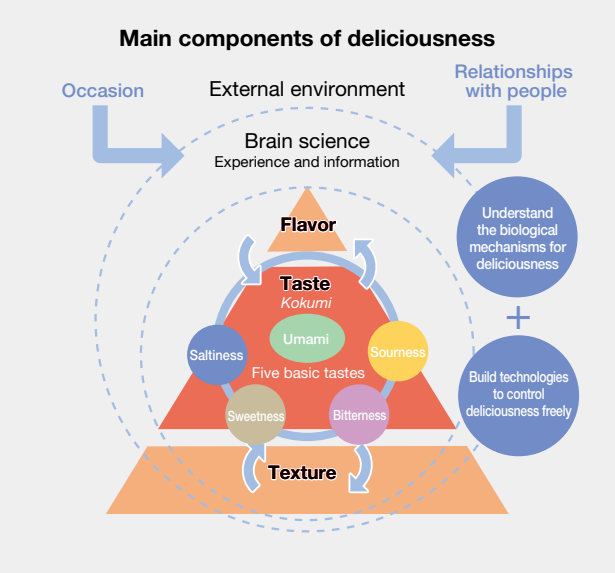
"Deliciousness" comprises not only the basic tastes (sour, bitter, sweet, salty, and umami), but also elements such as "*koku*," texture, and flavor. It is also affected by factors such as a person's mental state at the time of eating. We seek to understand the biological mechanism for deliciousness through the analysis and synthesis technologies outlined below, so we have been advancing the design and realization of deliciousness, such as the flavorings, aromas, and textures that we want to make, using proprietary materials.

- Understanding the biological mechanisms for deliciousness: Design statistical models that use taste and olfactory receptors to understand the interaction of tastes, flavors and textures and measure intraoral sensations.

・Technologies to control deliciousness: Acquire key flavor and texture materials (in-house development + external collaborations), build synthesis and application technologies, ensure important materials can be produced in-house

There are many examples of applications that take a step forward from conventional product development, such as understanding deliciousness that is craved worldwide and then making this a reality with reduced salt, or achieving meat that is more tender through the use of enzymes.

Figure III-9: Understanding the structure of deliciousness and deepening design capabilities



Development and introduction of *AJI-PMap*®

We developed and introduced *AJI-PMap*® as a way to make product development that is tailored to consumer preferences quantifiably more efficient and effective. The "P" stands for "preference," and the name describes how we are mapping the characteristics of consumer preferences. With this map, it is possible for product developers to understand the optimal sensory characteristics that consumers prefer and to identify clear words which they can use during quality design.
First of all, the product developers make a list of the sensory characteristics that describe the product and could influence consumer preferences. Then, several test products are prepared. These test products are used to assess consumer preferences. The preference data obtained is used to carry out statistical analysis to get the map and identify the optimal sensory characteristics for consumers based on their preferences.

Quality design that uses *AJI-PMap*® enables us to target all consumers or to target segmented consumers based on factors such as age or gender. Also, it contributes to a shorter product development period because *AJI-PMap*® visualizes important characteristics, including the optimal levels of these, to obtain an optimal quality design.

This process was used when renewing the *Knorr*® *Cup Soup* series in FY2016 and year on year sales grew. It has also been used in the quality design for *HON-DASHI*® and *Nabe Cube*®, and development is spread between in our group companies in Japan and overseas.

Knorr® *Cup Soup* (FY2016 renewal)

Alliance strategy in the pharmaceutical peripherals business

We have been dynamically advancing open and linked innovation in R&D in the pharmaceutical peripherals business as well.

In May 2012, we agreed a health solutions business collaboration with Kao Corporation. The aim was to build a health support platform that targets individuals by realizing synergies between the healthcare-related products possessed by Kao, the lifestyle-related disease prevention programs being implemented by its subsidiaries, and our health-related products and amino acid technologies.

In February 2016, we entered into an agreement (effective from April 2016) with Nestlé Japan Ltd. to transfer our concentrated liquid foods business and entrust sales and sales promotion activities (sole agency agreement) for nutritional care foods through healthcare channels. Nestlé Japan Ltd. possesses Nestlé Health Science S.A. and by entrusting these sales to Nestlé Japan Ltd., which has strong healthcare sales channels, we transferred the nutritional care foods business to the Consumer Foods & Seasonings Dept. (at that time) and concentrate on development, production, and sales through consumer channels. As a result of this alliance, AJINOMOTO NUTRITION FOODS Co., Ltd., which had been in charge of sales through healthcare channels, was dissolved at the end of November 2016.

We pursued joint research in various forms, including joint research with Massachusetts General Hospital in Boston, U.S., aimed at the global development of *AminoIndex*®, a prediction service that screens amino acid balances in blood to detect cancer and lifestyle-related diseases (2014-2016: verification of effectiveness in different countries and among different races), as well as implementation of the Ajinomoto Innovation Alliance Program (AIAP, 2013-2019) which solicited innovative ideas related to health and healthcare and then supported research

on them. AIAP evolved from the Ajinomoto Amino Acid Research Program (3ARP) that had been continuing since 2004. It solicited applications on a wide range[31] of themes each year, and then funded a portion of research costs. More than 30 research projects had already been supported.

(5) Market cultivation and business area expansion through global development

Business expansion in the Five Stars

In our FY2014-2016 Medium-Term Management Plan, as part of efforts focused on achieving the "global" part of "becoming a genuine global company," we named the key countries of Thailand, Vietnam, Indonesia, the Philippines, and Brazil as the Five Stars, to achieve higher growth than the overall overseas business. Our products and brands were widely known in these countries while at the same time their economic growth as members of BRICS and Next Eleven was at the center of attention (see footnote on p.49).

At Ajinomoto Co., Inc., we have set social value targets for volumes of meat and vegetable consumption through our products as part of ASV (see p.63). In the Five Stars, our basic strategy was to realize these targets through the promotion of umami seasoning and developing and selling flavor seasonings for local traditional home-cooked cuisine. Our 2020 targets for these countries have been set as the consumption of 8.6 million tons of meat and 5.5 million tons of vegetables per year. If we could realize these goals, we estimated that we would increase umami seasoning consumption by about 100,000 tons and flavor seasoning consumption by about 90,000 tons compared to those in FY2015, which would enable us to achieve the sales target. In other words, our targets linked improvements in dietary balance and eating habits in each country to business growth.

Our basic strategy was as follows.

A) Cultivate seasonings rooted in each region and develop new categories tailored to changes in eating habits and society brought about by urbanization

B) Invest 35 billion yen to enhance and streamline facilities that support growth.

For strategy A) in particular, we worked to attain growth by becoming "No.1 in Deliciousness" through our proprietary materials and technologies attained by enhancing the quality of existing products and actively launching new products. We pursue global development through the introduction of new products such as menu-specific seasonings, expansion in areas in which we sell such products, accelerating development in the coffee business area using Ajinomoto AGF, Inc. technologies, and expanding sales to food manufacturers and food service.

Development in emerging countries – Turkey, Africa, Asia

In FY2011, we announced its plan to expand its foods business into 30 new countries over the following six years by creating firm footholds through the establishment of local subsidiaries.

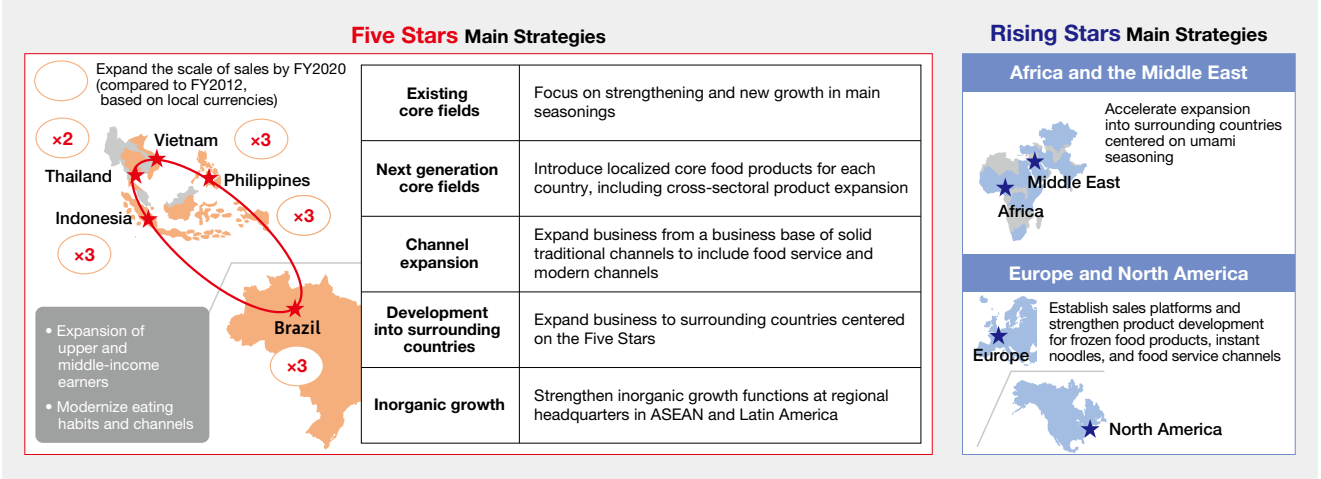
In 2011, we set up business locations in quick succession, establishing Ajinomoto Istanbul Food Sales Ltd. in Turkey in July, Ajinomoto Foods Egypt S.A.E. in October, and AJINOMOTO AFRIQUE DE L'OUEST S.A. in December. We began full scale cultivation of markets in the Middle and Near East and Africa in conjunction with the reform of our European business in July of that year.

We put Ajinomoto Istanbul Food Sales Ltd. in charge of business in Turkey, Central Asia, Iran, Israel, and Jordan, with a primary focus on applying sales expertise cultivated in South America to develop its seasonings business.

Ajinomoto Foods Egypt S.A.E. was headquartered in Cairo and its sales region extended to Libya, Tunisia, Algeria, and Morocco. We aimed to leverage cash sales expertise developed in the Southeast Asia region to develop a seasonings and packaged foods business in Egypt and across North Africa.

31. Includes nutrition, diagnosis, digital technology, biopharmaceutical manufacturing and DDS (drug delivery systems) improvements, manufacturing, storage and administration processes for cellular therapy products, food processing and storage methods that can contribute to food sustainability, and provision of solutions using proteins and amino acids.

Figure III-10: Five Stars and Rising Stars



Both companies possessed the strength of being able to utilize production sites in Europe and Asia. AJINOMOTO AFRIQUE DE L'OUEST S.A. was headquartered in Abidjan, the former capital of Cote d'Ivoire. It focused on the development of a flavor seasonings and packaged foods business by establishing a new repackaging plant (creating retail packaging for selling *AJI-NO-MOTO*® imported from Brazil) and working to penetrate 11 West African countries[32]. In the African region, we had already established WEST AFRICAN SEASONING COMPANY LIMITED (WASCO) in Nigeria in 1991, and while we had started by cultivating sales through distributors, the establishment of the two new companies enabled us to pursue full-scale market cultivation through direct sales.

Furthermore, in Asia, we established AJINOMOTO (CAMBODIA) CO., LTD. in September 2009. This started by selling *AJI-NO-MOTO*® with support from AJINOMOTO CO., (THAILAND) LTD. and then expanded into the flavor seasonings, powdered beverages, and instant noodle businesses. Following this, in August 2011, we established AJINOMOTO BANGLADESH LIMITED in Dhaka, Bangladesh's capital, which strengthened the cultivation of the South Asian market. The cultivation of these two countries is an example of "expanding into adjacent domains" centered on AJINOMOTO CO., (THAILAND) LTD.

These countries and areas are forecasted to experience further economic growth in the future and have lots of young people. Furthermore, they have local cuisines which can be made more delicious using *AJI-NO-MOTO*®, so they are expected to support the growth of the Group in the 2020's.

(6) Organizational reform focused on overall optimization and streamlining

From a virtual company system to a business headquarters system

In April 2010, after the appointment of Masatoshi Ito as President & CEO, we abolished a virtual company system and adopted a business headquarters system.

The in-house company system had been introduced in FY2002 to strengthen the swiftness of decision making and enhance profit-consciousness at each business. However, as the transfer of authority progressed, it led to confusion and duplication, which included foods and amino acids being manufactured at the same site, and multiple research projects being implemented in similar fields, such as health ingredients. Factors such as the time taken to arrange collaboration that crossed company boundaries led to a negative silo effect. Therefore, the first stage of FIT (structural reform) was to spin off the pharmaceuticals company (see p.42) and return Food Products Company and Amino Acids Company to a business headquarters system, establishing a Food Products Division and a Bioscience Products & Fine Chemicals Division. This made it easier to realize collaborations between the businesses and simpler to revise areas such as raw material procurement and production structures on a global scale to optimize the overall business and make management more efficient. Furthermore, the major goal was streamlining and cost reductions, which included the Wellness Business Division that had been established in July 2009.

We also continued the China Business Strategy & Planning Division which oversaw business in China, which was expected to become a big market.

Concentrating R&D in two institutes and two centers structure

As we moved from a virtual company system to a business headquarters system, we also merged and concentrated our research and development organizations.

Under the company system, R&D was carried out by 11 organizations – two research institutes, the Institute of Life Sciences and the Research Institute for Health Fundamentals and the Technology & Engineering Center that catered for the entire company, as well as two organizations in the food company (the Food Development & Technology Center and the Food Product Application Center), five organizations in the amino acids company (the AminoScience Laboratories, the Fermentation & Biotechnology Laboratories, the Production & Technology Administration Center, the Fine Chemical & Pharmaceutical Industrialization Center, the Bio-Industrialization Center) and one organization in the pharmaceuticals company (the Pharmaceutical Research Laboratories). After the Pharmaceutical Company was spun off, the 10 remaining organizations were concentrated into three institutes – the Institute for Innovation (Corporate Sector), the Institute of Food Sciences and Technologies (Food Products Division) and the Research Institute for Bioscience Products & Fine Chemicals (Bioscience Products & Fine Chemicals Division) – and the Production & Technology Administration Center which was responsible for production technology was reorganized. Then, research personnel were reassigned into organizations that researched fields that were important for our growth strategy and organizations involved in areas such as new product development.

Following this, in April 2015, the Production & Technology Administration Center's food product-related projects were separated to establish the Food Production & Technology Administration Center under the jurisdiction of the Food Products Division. Also, in April 2019, the Institute for Innovation was abolished and its functions were transferred to the Institute of Food Sciences and Technologies, the Research Institute for Bioscience Products & Fine Chemicals, and the Information Systems Planning Department to accelerate the development of products and technologies in the health and wellness fields.

Assimilation of the China Division

Going into the 1990's, China experienced a continuous period of rapid economic growth and in the aftermath of the global

32. Cote d'Ivoire, Mali, Burkina Faso, Togo, Liberia, Sierra Leone, Gambia, Senegal, Guinea, Guinea Bissau, and Ghana

financial crisis in 2008, it maintained a high growth rate compared to advanced nations through measures such as a four-trillion-yuan stimulus package and monetary easing.

We had progressively deepened its expansion into China, forming a joint venture with a local company in 1993 and then taking a 100% share in this venture in 1996 to establish Ajinomoto (China) Co., Ltd. Under the company system, we established the China Business Strategy & Planning Division to oversee our four offices in Beijing, Shanghai, Hong Kong, and Guangzhou, in an organizational structure that focused on the characteristics of each area. Simultaneously we acquired Amoy Food Ltd. (Hong Kong) in 2006. However, the operation of Amoy Food Ltd. (Hong Kong) did not go smoothly due to issues such as excessive facility renewal, the deactivation and liquidation of multiple group companies in accordance with our restructuring, steep rises in personnel, raw materials and fuel costs, and worsening price competition with mainland companies in areas such as Chinese ethnic sauces and frozen foods.

As a result, in April 2012, we dissolved the China Business Strategy & Planning Division and the China Foods & Seasonings Department, and developed our business in the country as a part of overall food product business under the Food Products Division's China Division. In November 2018, all shares in Amoy Food Ltd. (Hong Kong) were transferred to CITIC Capital Asian Foods Holdings Limited, a company owned by investment funds of CITIC Capital Holdings Limited, a part of the influential CITIC Group in China. At the same time, we acquired a 15% share in CITIC Capital Asian Foods Holdings Limited to develop and expand new businesses in China through the partnership. Additionally, development by us alone was focused on the food service and food manufacturing fields rather than the consumer field, in order to secure profitability and realize further development.

Establishing the Wellness Business Division and transitioning to a two-business headquarters system

In July 2009, before the transition to a business headquarters system, the Wellness Business Division was established by bringing together the Amino Acid Company's Amino Acid Consumer Products Department, the Health Services Development Department, the Medical & Nutrition Food Business Department, and other businesses. This provided unified management of health-related products such as amino acid sports beverages, sleep improvement supplements, and food products for the elderly, with the objective of improved business growth. The new Wellness Business Division comprised the Wellness Business R&D Planning Department, which was responsible for planning and governing in the division, as well as the Sports Nutrition Department, the Direct Marketing Department, the Nutrition Care Department, and the AminoIndex Department.

The health foods market had experienced continuous, growth up to 2005, almost reaching a worth of 1.3 trillion yen before the impact of regulations and the like caused it to level out. However, factors such as the aging of Japan's population had increased the social need for a variety of wellness services, and it was a field in which we could use the technologies cultivated by us such as amino acids and plant-derived materials, to provide high added value products. Therefore, with a sales goal of 200 billion yen, we concentrated dispersed business resources in order to accelerate business expansion by speeding up product development in line with market demand.

In April 2015, the Wellness Business Division was dissolved and we transitioned to a two-business headquarters system that consists of the Food Products Division and the AminoScience Division. Regarding the Wellness Business Division's five businesses (health foods, sports nutrition, *AminoIndex*®, nutrition for the elderly, and overseas health foods), the Sports Nutrition Department was moved into the AminoScience Division, while the other four businesses were successively absorbed[33] into the Business Strategy & Planning Department of the AminoScience Division.

Although the Wellness Business Division was reorganized into a new structure after a little shorter than six years, our business in the healthcare field progressed steadily and developed into one of the pillars of our AminoScience business.

Spinning off the animal nutrition business

Our feed-use amino acid business, which handled lysine and threonine mainly, experienced ongoing difficulties due to price offensives from major U.S. companies and Chinese competitors.

As a result, in September 2011, we span off the business and established it as a dedicated animal nutrition company, Ajinomoto Animal Nutrition Group, Inc. (AANG), with the aim of responding to dynamic changes in the global business environment. As well as realizing specialty through products such as *AjiPro*®*-L* (see p.54), a lysine formulation for cows that had started production in North America in April 2011, spinning off the company also meant that production outsourcing and alliances could be achieved faster, and structural reform could take place. In November of that year, we carried out an absorption-type split to transfer the feed-use amino acid business to AANG and we also moved global manufacturing and sales subsidiaries for the business under the AANG umbrella.

Following this, AANG set up a regional headquarters and sales company for the Asia Pacific region in Singapore in April 2013, swiftly responded to rising demand by increasing production of *AjiPro*®*-L* in North America, increasing production of tryptophan in Europe, and launching production of tryptophan in North America. At the same time, AANG strengthening through a shift to added value products such as *AjiPro*®*-L* and feed-use valine. It is also advancing business as it showcases values such as contributing to food resource

33. Although our health foods business in Japan was absorbed into the Wellness Department in April 2015, in April 2016, it was revived as the Direct Marketing Department and in April 2017, it inherited the *Jino*® cosmetics business from the Specialty Chemicals Department.

sustainability, or in other words, reducing the environmental footprint of the entire feed/livestock business through feed-use amino acids.

Rebuilding food production in Japan – Implementing the MORE Project

We started the restructuring of the value chain of Japan food products, as one of the key strategies in our FY2017-2019 Medium-Term Management Plan, by restructuring domestic seasonings and packaged foods production, which was announced in September 2017. The restructuring was advanced under the in-house name of the MORE (Multi Optimized Rebuilding Execution) Project. This project aimed to strengthen the foundation for our Japan food products business in the medium- to long-term through a total investment of 40 billion yen in facilities through the construction of state-of-the-art plants which use cutting-edge technologies such as ICT and automation to dramatically increase efficiency. We concentrated our five existing seasonings and packaged foods production sites in Japan into three sites with the goal of attaining world-class production that can swiftly and flexibly respond to customer demand.

Specifically, in August 2017, we moved Ajinomoto Packaging Inc.'s Kanto Plant into the premises of Kawasaki Plant (Kawasaki-ku, Kawasaki City) and renovated it to increase packaging efficiency through automation and raise quality control levels. Additionally, in November 2017, we invested around 15 billion yen into our Tokai Plant (Yokkaichi City, Mie) and started construction on a new plant for the integrated manufacturing and packaging of seasonings and other products (18,300m^2, four-storied steel-frame structure). This is to be completed within FY2020 and will bring together the functions of Chubu Plant of Knorr Foods Co., Ltd. and Ajinomoto Packaging Inc.'s Kansai Plant (Takatsuki City, Osaka). The plant will become the newly established Ajinomoto Food Manufacturing Co., Ltd.'s Mie Plant. Then, in December 2018, we invested around 20 billion yen to start construction on a new plant for the integrated manufacturing and packaging of soups and other products (approx. 30,000m^2, six-storied steel-frame structure) on the premises of our Kawasaki Plant (Kawasaki-ku, Kawasaki City). It is scheduled to be completed in the first half of 2021 and will bring together the functions of Ajinomoto Packaging Inc.'s Kanto Plant, and Knorr Foods Co., Ltd.'s Kawasaki Plant (Takatsu-ku, Kawasaki City).

The inauguration ceremony for Ajinomoto Food Manufacturing Co., Ltd.

During this period, in April 2019 we inaugurated Ajinomoto Food Manufacturing Co., Ltd. (starting capital: 4 billion yen) and tasked it with manufacturing all seasonings and packaged foods in Japan. In FY2021, seasonings and packaged foods production sites in Japan will be concentrated into three locations under the new company – the Kawasaki Plant, the Shizuoka Plant (Shimada City, formerly Knorr Foods Co., Ltd.'s Tokai Plant) and the Mie Plant. We will strive to dramatically raise efficiency at each of the three plants to achieve as follows.

- Improve EBITDA (Earnings Before Interest, Taxes, Depreciation and Amortization; profit before tax with interest, depreciation, and amortization added back) by approximately 7 billion yen per year and improve domestic seasonings and packaged food product business profit margins by around 2% from FY2022 onward
- Double labor productivity at plants in FY2021
- Realize flexible production which excels at switching between products
- Integrate the technology departments of the three companies to enhance technological capabilities through the merging production technology and knowledge in areas such as manufacturing and packaging, thereby developing and accumulating technology that can realize world-class production
- Advance significant improvements in capital efficiency by shrinking ingredient and intermediate product inventories through the syncing of manufacturing and packaging to demand projections and improvements in logistics efficiency, including through joint logistics with other companies, to reduce inventory across the entire supply chain.

Concentrating gift product businesses into Ajinomoto AGF, Inc.

In April 2015, we acquired all shares in Ajinomoto General Foods, Inc. (AGF) held a joint venture partner U.S.-based Mondelēz International, Inc. and made it a fully owned subsidiary (see p.45). We subsequently pursued synergies with AGF in a variety of areas and the first of these was the integration and concentration of our gift product businesses into AGF through a transfer implemented in April 2016.

At the time, the gift product market was worth around 7 trillion yen and while the markets for traditional summer and year-end gifts given in Japan continued to shrink, the market for personal gifts (gifts other than traditional or corporate gifts), accounting for about 60% of the gift product market, was growing at an average 2% per year and was expected to continue to grow. Integrating our gift product business enabled us to fully utilize the assets of both companies to establish a strong presence in the growing personal gift market through the creation of "food product, beverage and health" gift products

with specialty. In October 2016, we acquired all trademarks for products such as *Blendy*® and *MAXIM*® (see p.46) which enabled AGF to fully leverage the capabilities of top brands in the consumer coffee market (excluding canned coffee) for gift products.

In July 2017, AGF was renamed as Ajinomoto AGF, Inc. and revised its product portfolio advancing the development and deployment of gift products under the three key concepts of "individual portion and personal," "premium and luxurious," and "health-conscious." The integrated provision of our gifts, such as beverages, seasonings, and edible oils[34], raised awareness among fans focused on each field of our overall offerings, and attracted broader customers through combinations such as *Toss Sala*® with Olive Oil. It also attempted business structure reinforcement by raising the efficiency of the gift product business' operational and sales structures and the restructuring of production and logistics locations.

Establishment of the Chushikoku Branch

In FY2009, our food products business sales structure comprised five major branch offices and four minor branch offices. Within this, the Chugoku and Shikoku regions were covered separately by the Chugoku Branch and Shikoku Branch, both under the jurisdiction of the Osaka Branch. However, due to factors such as the growth of retail chains beyond regional boundaries and advances in the use of ICT, it was judged that it would be more efficient to cover both regions together and in July 2017, the Chushikoku Branch was established.

The new branch was headquartered in Hiroshima and included a structure comprising the Chushikoku Branch, the East Chugoku Regional Branch (Okayama) and the Shikoku Regional Branch (Takamatsu), with the objective of making sales more efficient and detailed.

Establishment of the S&I Department

We established its Integrated Food Solutions business (see p.55 - 56) as a growth driver under the FY2017-2019 Medium-Term Management Plan. The concept behind this was to establish a BtoBtoC model (see footnote on p.41) that covers packaged food product manufacturers, ready-made meal business, food service and other customers, based on deliciousness technologies that combine cutting-edge technologies related to tastes, flavors and textures, with our proprietary ingredients.

A specific attempt to achieve this was the establishment of the Solution & Ingredients (S&I) Department within the Food Products Division in April 2018. The use of "ingredients" in the name not only refers to food ingredients, but also components or ingredients that make up a whole. The S&I Department was established by integrating the Food Ingredients Department, which was responsible for industrial use products such as Tencho (savory seasonings) and enzyme preparations targeting packaged food manufacturers, and the Food Service Department, which was responsible for products targeting ready-made meal businesses and food service. The new department aimed to expand business by helping customer companies solve issues based on consumer needs (= BtoBtoC) through deliciousness technologies and an enhanced customer-focused sales structure in unison with each group company (such as setting key customers, etc.).

In July 2018, the S&I Department was moved into the foods research building on the premises of the Kawasaki Plant. This enabled it to enhance its speed and ability to respond to the needs of customers through closer collaboration with research and development departments and we are further strengthening activities with a view to concentrating R&D operations in Japan within the Kawasaki Plant.

Representative gift products

34. From 2009, J-OIL MILLS, INC. unified all consumer-use edible oils under the *AJINOMOTO*® Brand (with the exception of *FILIPPO BERIO*® imported olive oil and Rama margarine).