

Biomedical Business Gunma Site Tour

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01 | Positioning of the Diagnostics and Life Sciences Domain

02 | Introduction to the Biomedical Business

02-1 Business Overview

02-2 Products, Customers, and Key Strengths

02-3 New Products in the CGT Field

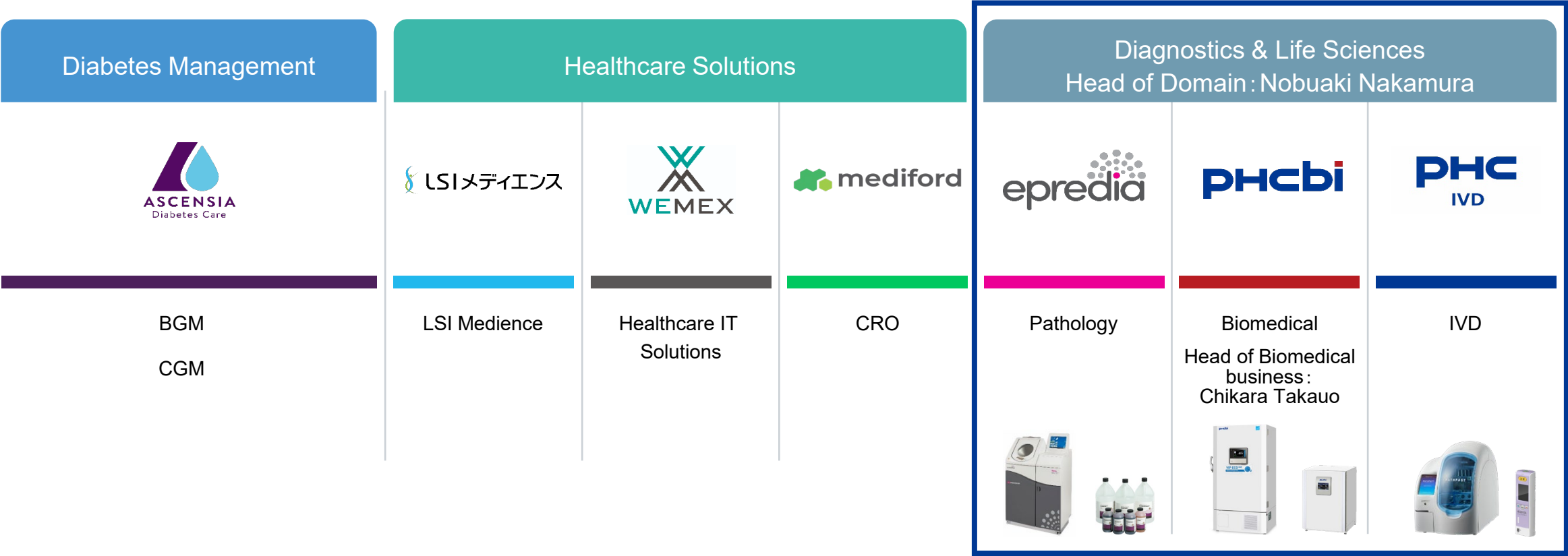
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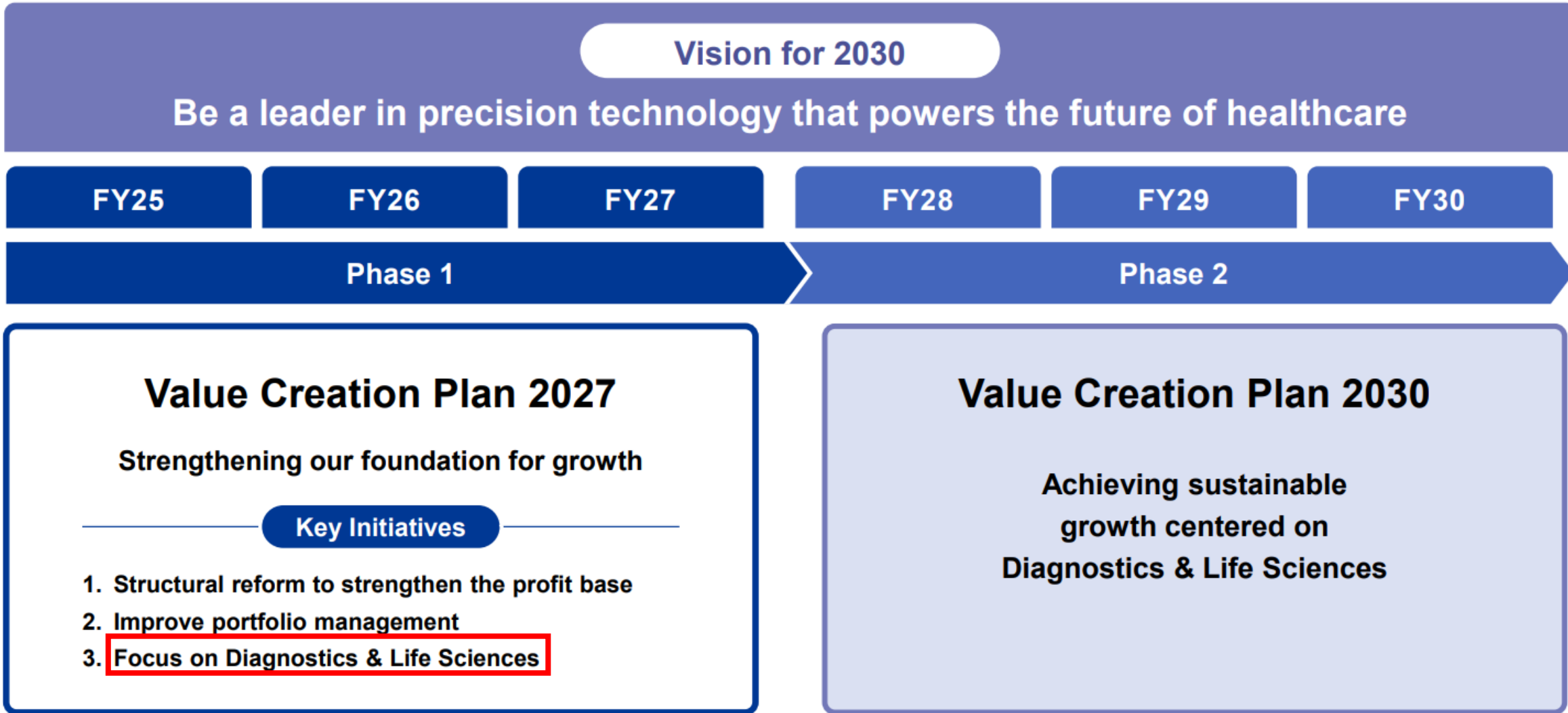
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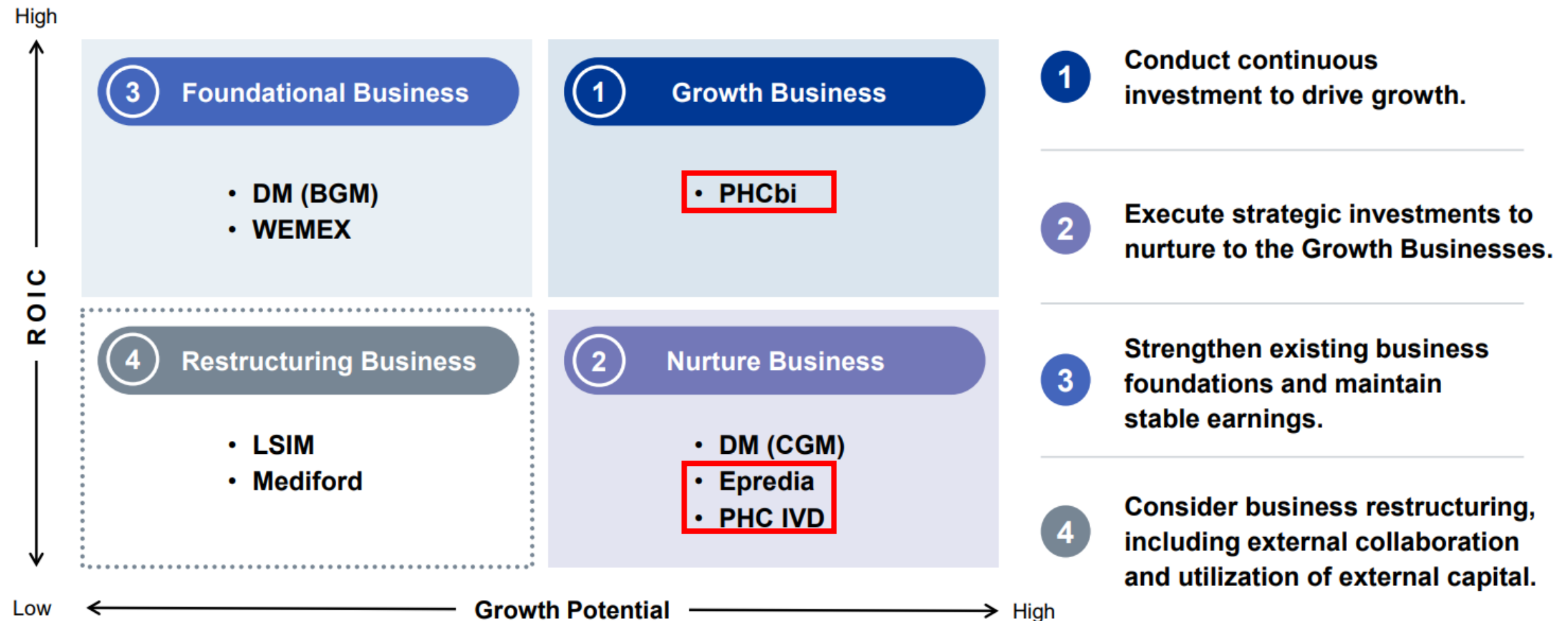


One of the three key initiatives in the VCP 2027 is to focus on the Diagnostics and Life Sciences domain.



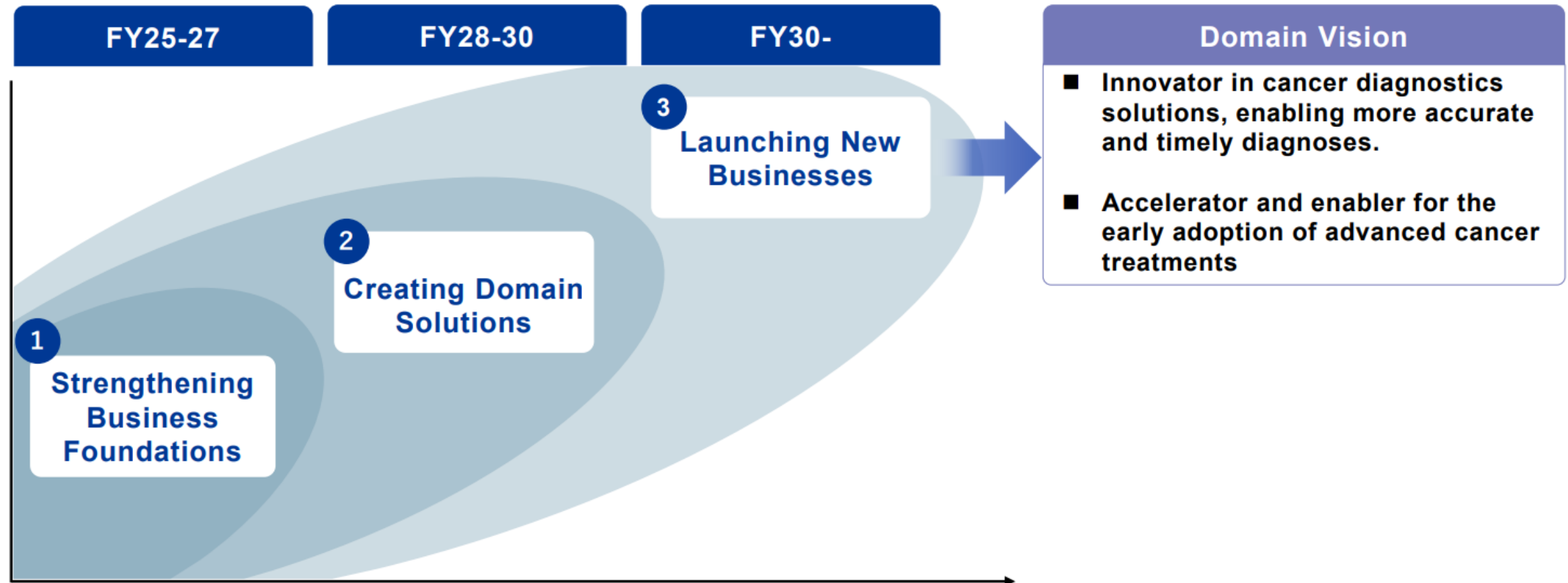
Positioning of the Diagnostics and Life Sciences Domain in the Value Creation Plan 2027 (2/3)

We have positioned the businesses in this domain as a “Growth Business” or a “Nurture Business” within our business portfolio.



Positioning of the Diagnostics and Life Sciences Domain in the Value Creation Plan 2027 (3/3)

- During the VCP 2027 period, we will focus on strengthening our business foundation, including business integration within the domain.
- Looking ahead, we strive to contribute the early adoption of diagnostic and therapeutic solutions for cancer by leveraging our core strength.



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We will create new value in the life sciences and in medical care,
and contribute to the building of a healthy and rich global society

Life Science Innovator Since 1966



phcbi

Key Points of Today's Presentation

- The values that PHCbi provides are ...
 - A proven track record of continuously improving inefficiencies in research practices over the past 60 years.
 - To be the indispensable, fundamental equipment that every laboratory must have.
- The essential factors for fundamental equipment are the following:

1

High Performance, High-Quality Products

Achieve a high caliber of quality by continually pursuing improvements in primary functions.

2

Excellence in Product Development and Manufacturing to Address Diverse Customer Needs

Contribute to improving customers' workplaces by pursuing usability.

3

Global Customer Base and High Market Share

Build strong relationships with a wide range of customers in various fields.

4

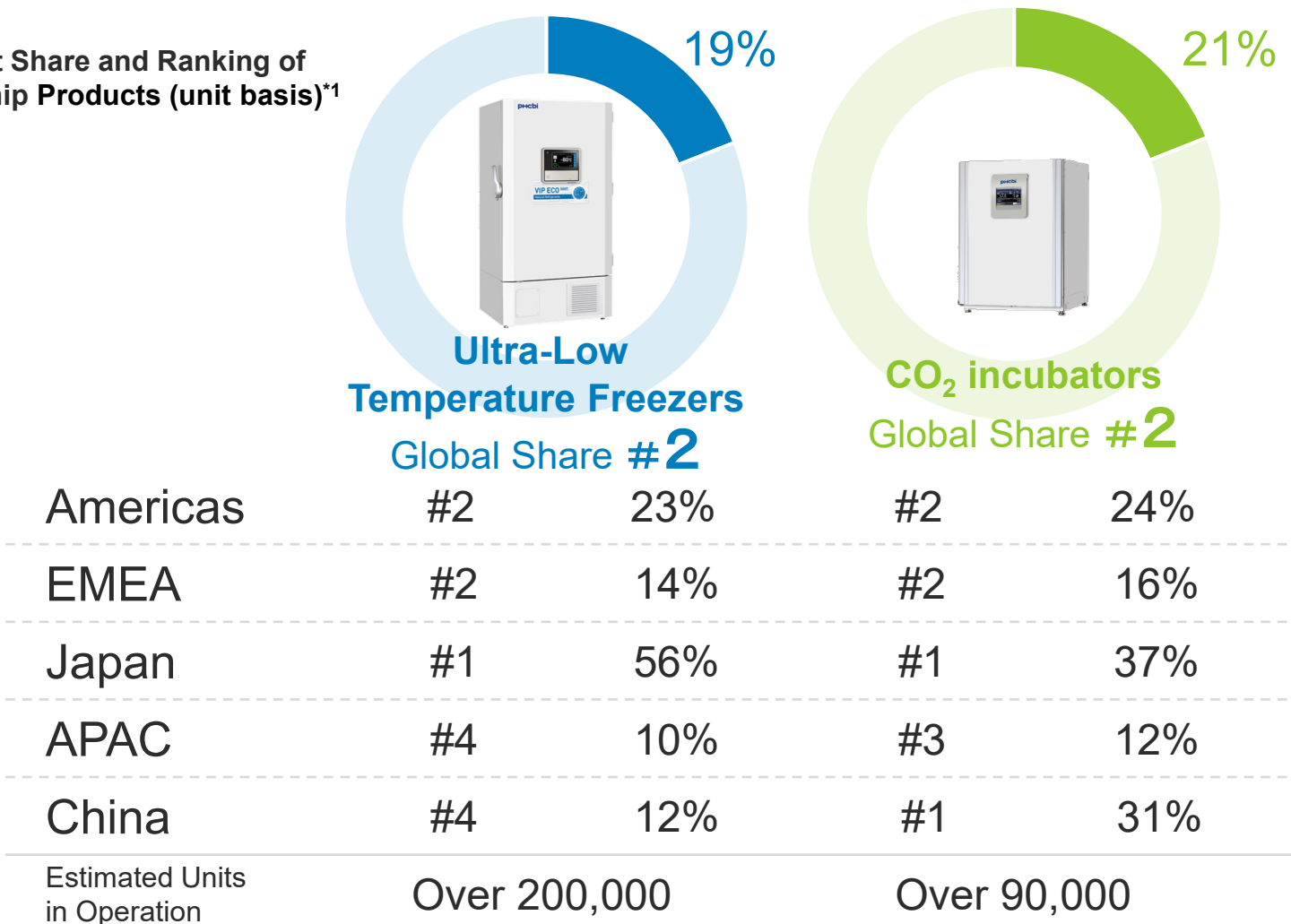
Service Network in Some 110 Countries and Regions

Respond quickly and courteously to every trouble and need with a meticulous support service.

Market Share and Ranking

- Our flagship products, the ultra-low temperature freezers and CO₂ incubators hold the second-largest global market share.
- In Japan, both products hold the No.1 share with high percentages.

Market Share and Ranking of
Flagship Products (unit basis)*1



*1 Frost & Sullivan 2024 report “Global Assessment of Life Science Equipment”, created based on the 2023 Actual

The Core business of PHCbi is life science solutions. Offers equipment vital for preserving specimens to pharmaceutical companies, research institutions, and hospitals globally.

Life Science Solution



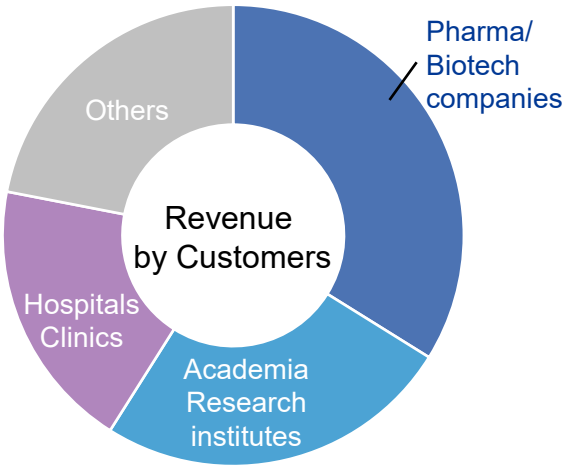
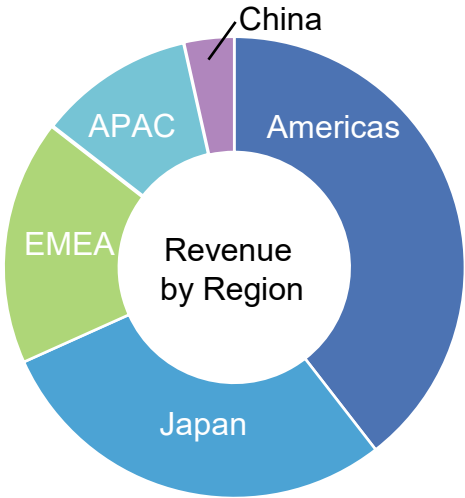
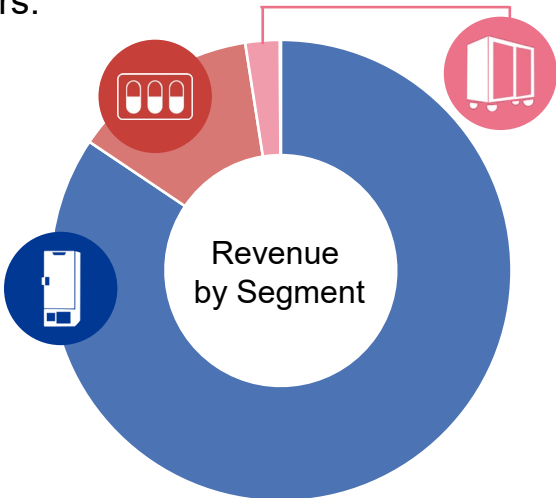
We support cutting-edge research and the development of next-generation medicine by providing lab equipment and services vital for preserving various specimens and culturing cells, among others.

Pharmacy Solution



We contribute to risk management and operational efficiency in hospitals by automating operating processes.

Food Solution



Graphs are based on FY23 results.

History of New Development and Technology

- Since 1966, we have extended our business by creating industry-leading products with the advanced technology and high-quality standards we have built over the past 60 years.
- Our business originated from SANYO Electric Co., Ltd. and was integrated into Panasonic Healthcare Co., Ltd. (at that time), becoming part of the PHC Group.

1966 The 1st in Japan^{*1}  Pharmaceutical Refrigerator	1973 The 1st in Japan^{*1}  Automatic Tablet Counting and Packaging System	1977  Ultra-Low Temperature Freezer	1984  CO₂ Incubator	1991  Ultra-Low Temperature Freezer w/ the lowest temperature available in the industry	1995  Food Catering Cart		
2000 The 1st in the World^{*2}  Cell Processing Center	2003  Ampoule Dispenser System	2007  Cell Processing Isolator	2009 The Industry's 1st Tech.^{*3}  CO₂ Incubator w/ H₂O₂ decontamination function	2009  Monitoring System	2022 The World's Top Level^{*4}  Energy Saving Ultra-Low Temperature Freezer	2023  IoT Solutions	2024  Live Cell Metabolism Analyzer

*1 From "50-Year History of Product Development at SANYO Electric Co., Ltd." *2 From the press release published on June 30, 2010 by the PR dept. of SANYO Electric Co., Ltd.

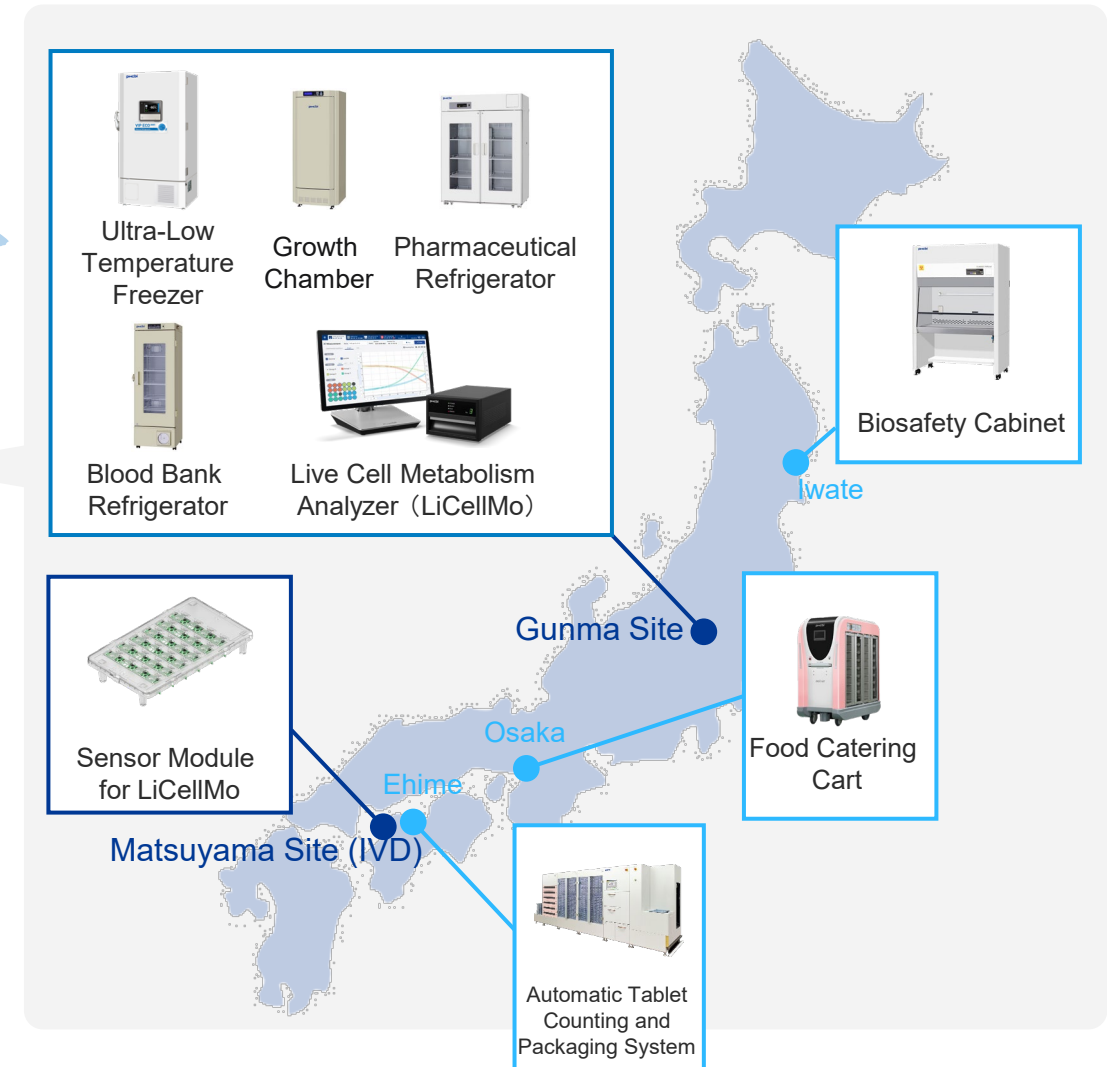
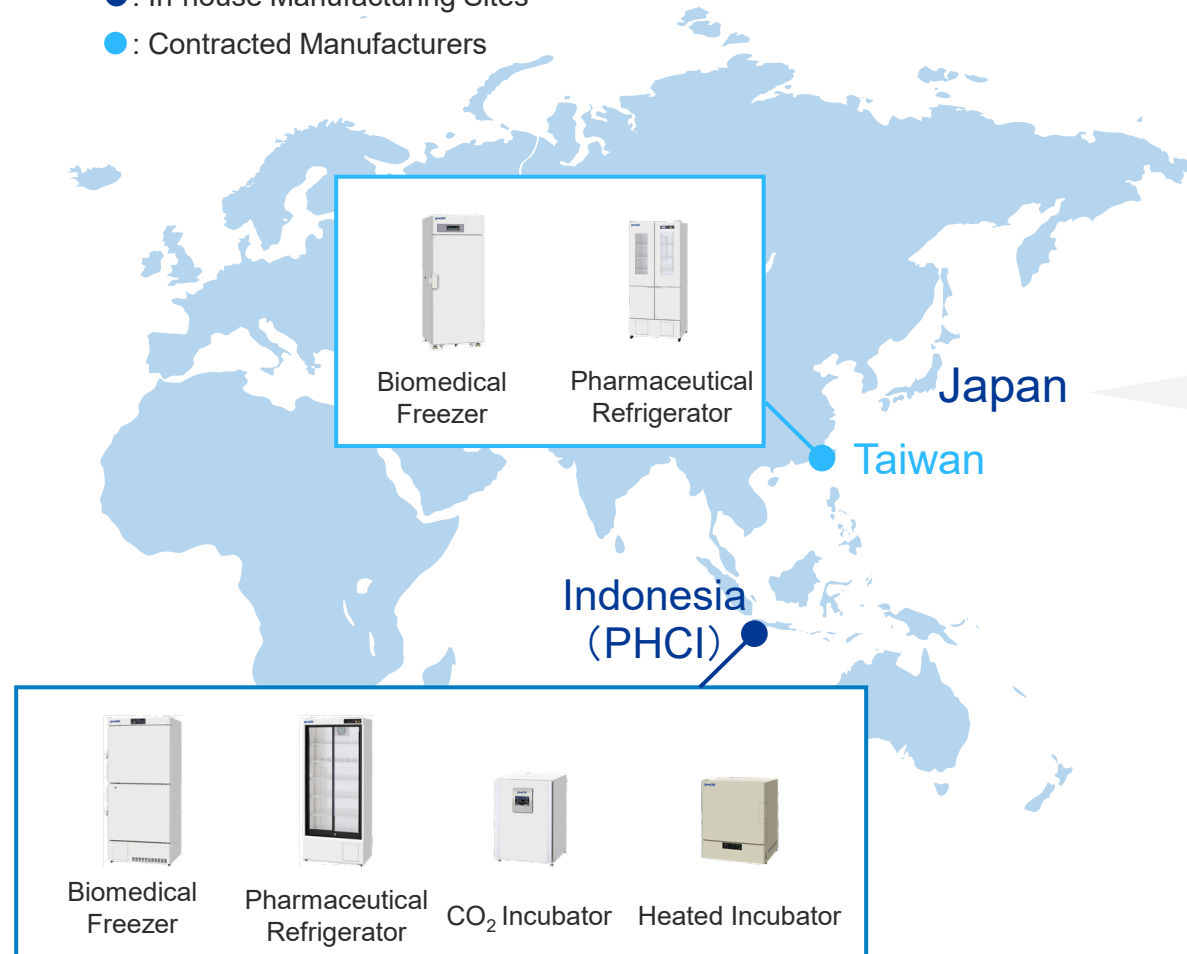
*3 Based on in-house survey as of January 2009, within Japan *4 Certified with the world's top-level energy-saving certification, ENERGY STAR

Manufacturing Sites

Established a streamlined and robust manufacturing network by promoting optimal management of manufacturing sites, including contracted manufacturing.

● : In-house Manufacturing Sites

● : Contracted Manufacturers



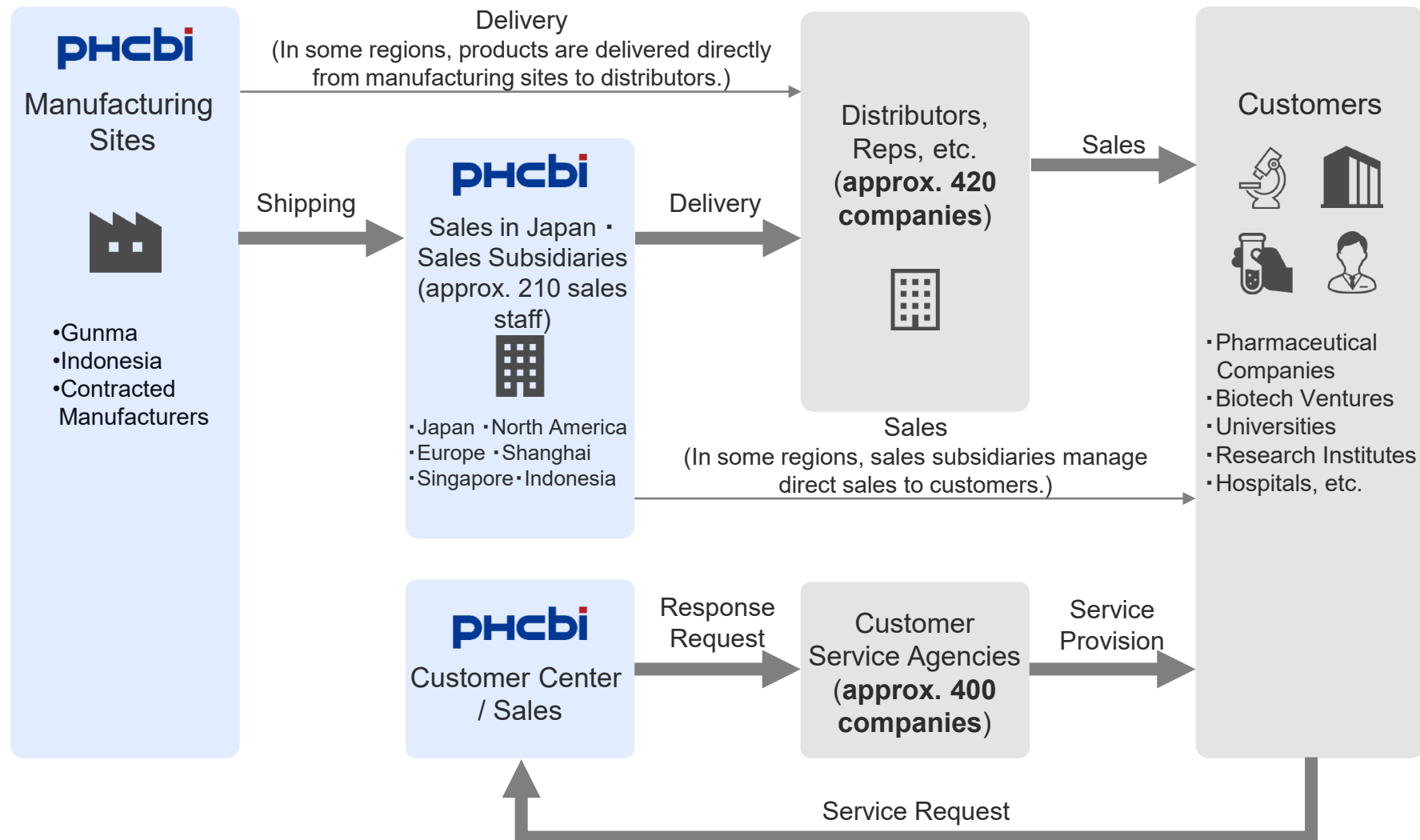
Global Sales Network

Sales in over 110 countries and regions worldwide.

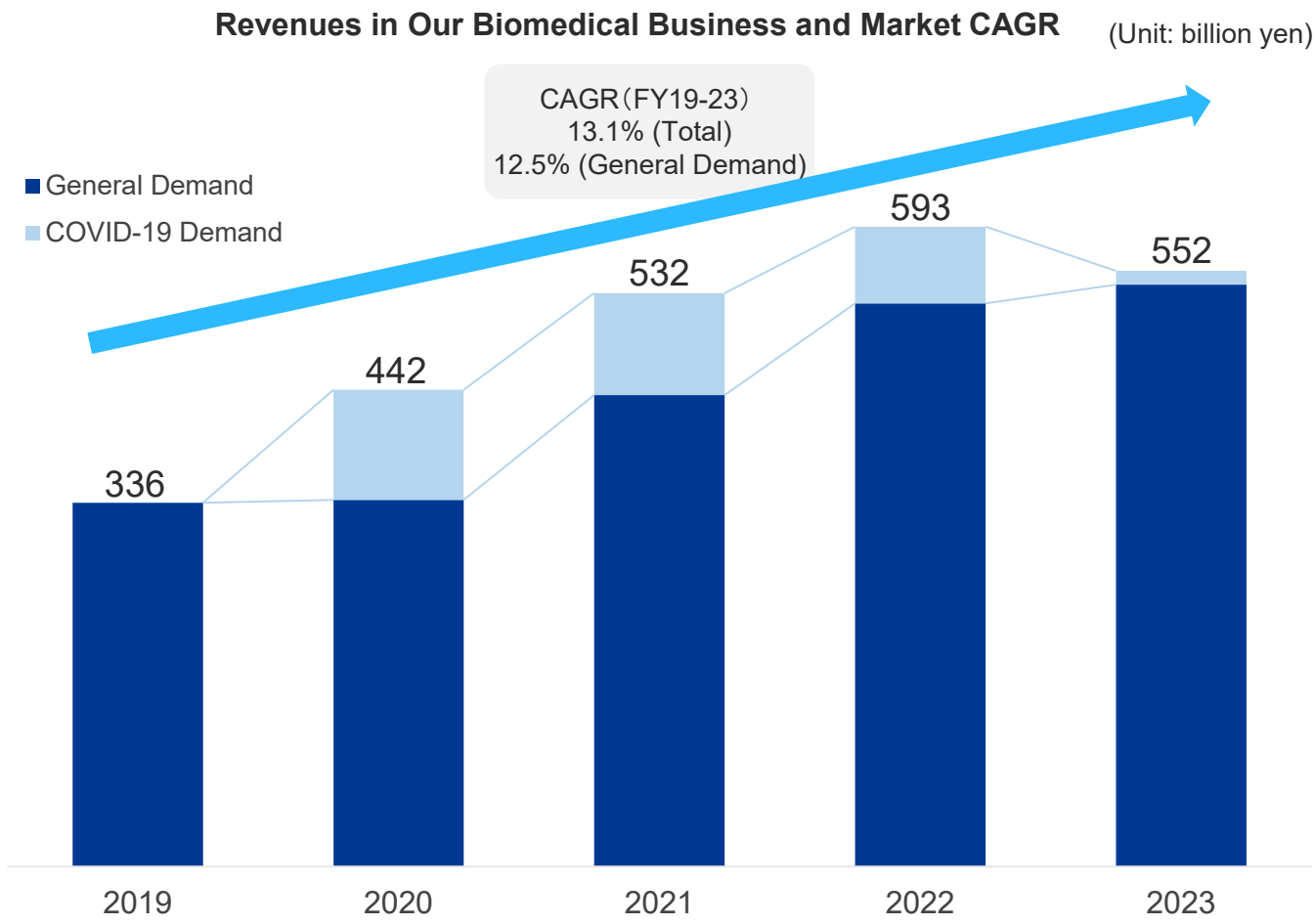


Product and Service Distribution Flow

- We enhanced global reach by leveraging distributors.
- Through our customer service agencies, we provide global maintenance services.



- We have achieved consistent growth, even without the COVID-19 demand surge.
- With our ability to handle special demand, an established strong customer base, and new product launches, we will drive further stable growth.



Market Share (unit basis)*1	2019	2023
Ultra-Low Temperature Freezers	17%	19%
CO ₂ Incubators	19%	21%

*1 Frost & Sullivan 2024 report “Global Assessment of Life Science Equipment”, created based on the 2023 Actual

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A wide range of product offerings to meet all needs in the life science field.

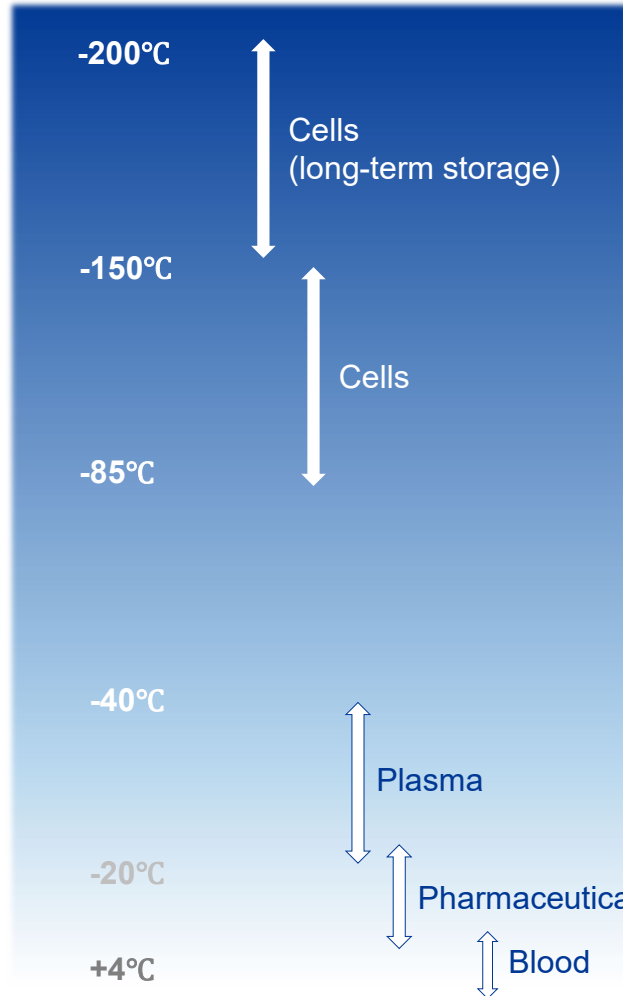
3rd party / Alliance

Cold Chain Solution 52series	Ultra-Low Temperature Freezers Cryopreservation for cells, specimens, etc.																					
	Biomedical Freezers Cryopreservation for frozen plasma, vaccines, reagents, etc.		Pharmaceutical Refrigerators Cryopreservation for pharmaceuticals, vaccines, etc.			Blood Bank Refrigerators Cryopreservation for blood		Monitoring Systems Management of product operations and others.														
CGT Solution 51series	CO ₂ Incubators Cultivation of animal cells		Cooled Incubators Culture of microorganism		Heated Incubators Culture at high-temperatures		Growth Chambers Culture of plant cells		Cell Metabolic Analysis		Substance Production		Cell Analysis		3D Culture Analysis		Cell Transportation		3D Culture Plates			
	Biosafety Cabinets Workbench for clean space		Bioclean Benches Workbench for anti-contamination			Sterilization Equipment		Pharmacy 9series		Automatic Tablet Counting and Packaging Systems		Ampoule Dispenser Systems		Dosage Inspection		Food Catering Cart Food service at optimum temp.						
Experiment 14series																						

*1 The number of product series is calculated only for the product and excluded services.

A Part of Product Portfolio: Examples of Cold Chain Solutions

- We offer products tailored to the optimal temperature ranges for specific stored items.
- By incorporating customer feedback and requirements, we have a lineup of products with diverse capacities and features within each category.



Liquid Nitrogen (LN₂) Freezers

Long-Term Cryogenic Storage of Cells and Specimens [-196°C to -150°C]



Ultra-Low Temperature Freezers

Cryopreservation of Cell and Specimen [-85°C / -150°C / -152°C]



Biomedical Freezers

Preservation of Frozen Plasma, Vaccines, and Reagents [-40°C to -20°C]



Pharmaceutical Refrigerators

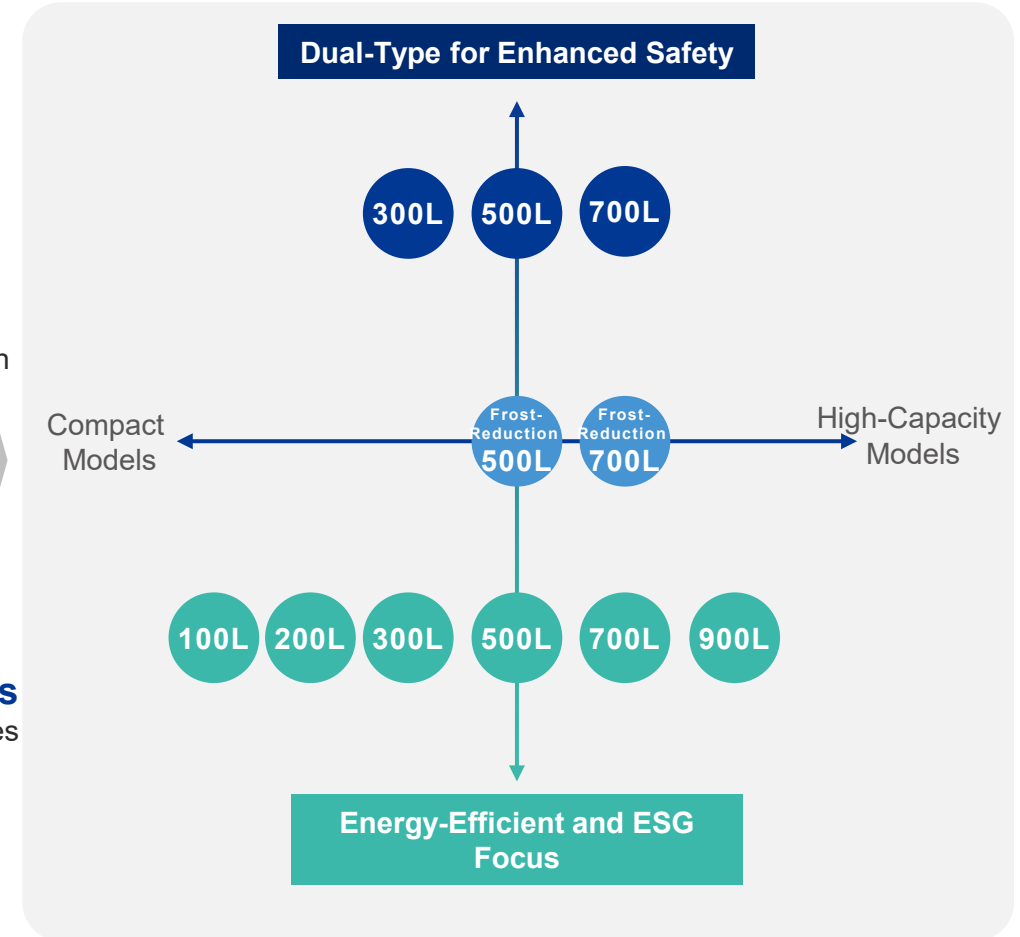
Preservation of Medicines and Vaccines [-23°C to 2°C]



Blood Bank Refrigerators

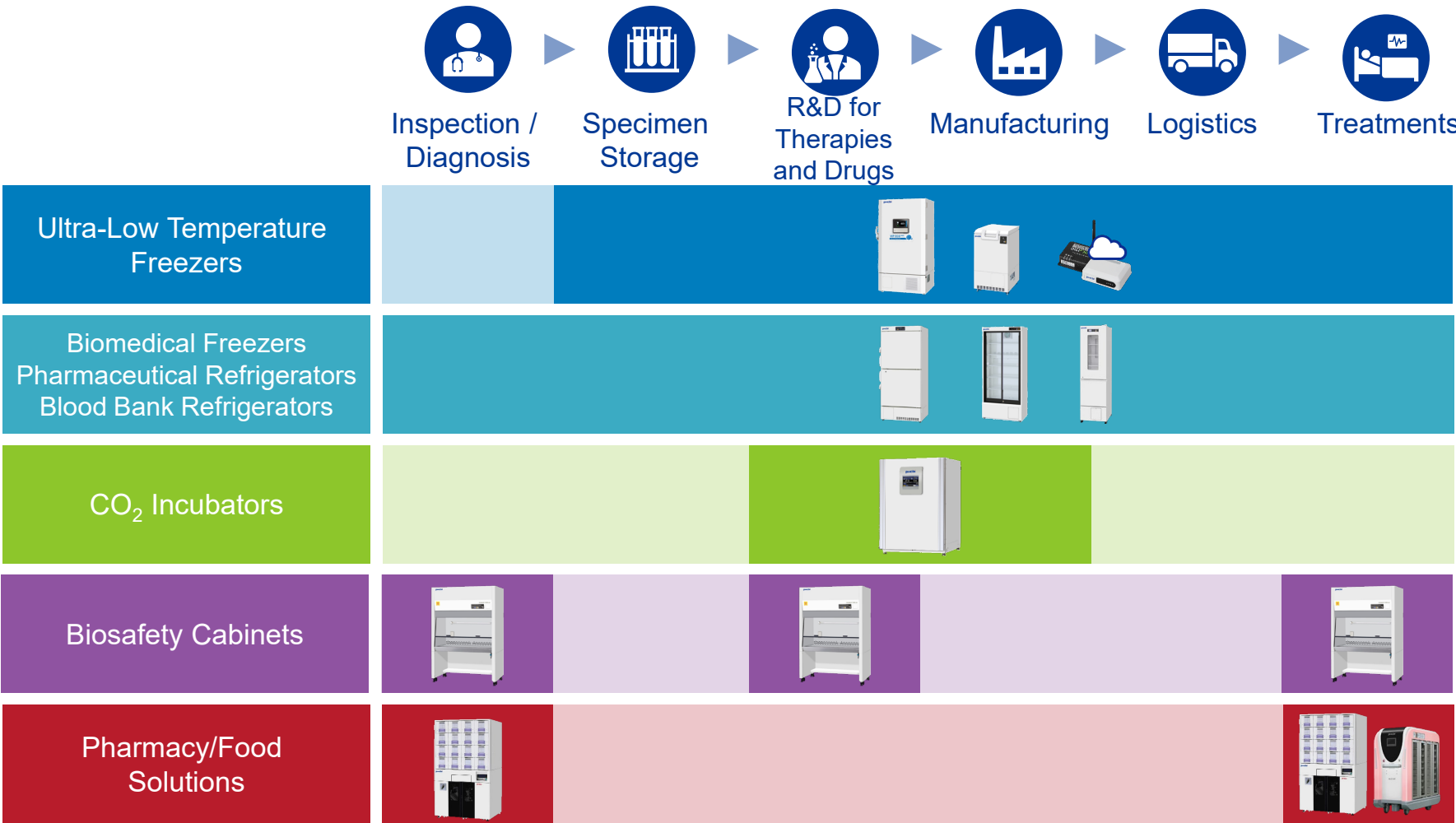
Preservation of blood [4 °C]

Lineup of Ultra-Low Temperature Freezers



Examples: Drug Discovery, Manufacturing, and Therapeutic (Use) Processes

Our products are used in various processes.



*Products are used in the processes indicated in dark colors.

Example: Product Use Situations in a Life Science Laboratory

- Equipment for reservation, culture, and experimental environment is essential in the R&D process at laboratories and testing facilities in every field.
- In the case of drug discovery, for instance, which generally takes 10-15 years or more^{*1}, our products continuously safeguard the user's assets throughout the R&D process.

Pharmaceutical Refrigerators
Refrigerated storage for pharmaceuticals,
reagents, etc. (-23°C to +2°C)

CO₂ Incubators
Culture of cells

Cooled Incubators
Culture of microorganisms,
bacteria, etc. (-10°C to 60°C)

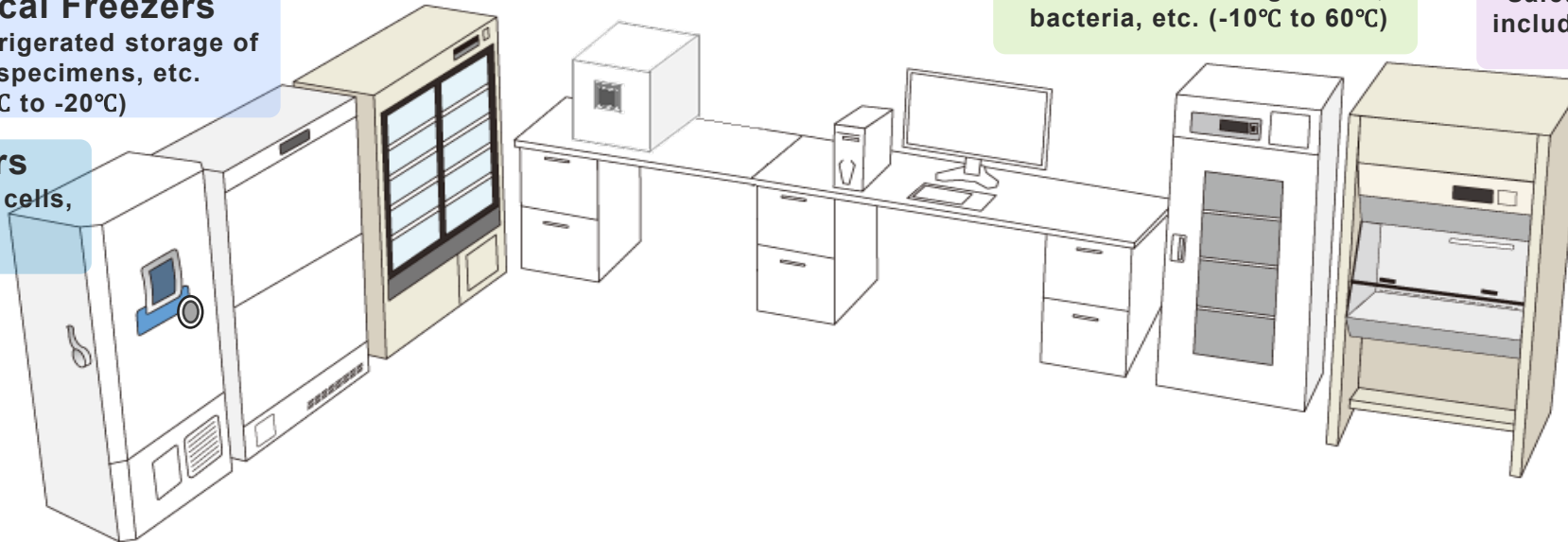
Biosafety Cabinets
Safety assurance in operations,
including culture medium change,
etc.

Biomedical Freezers

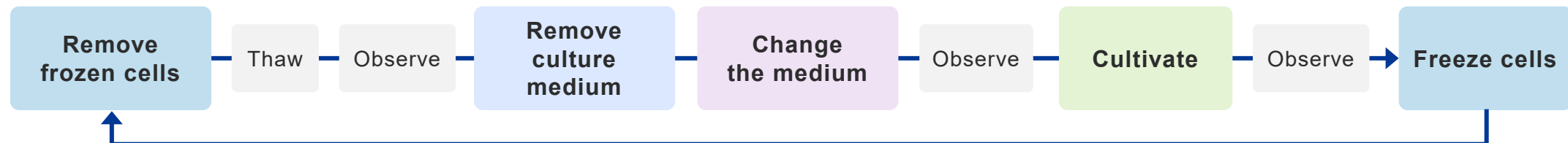
Frozen and refrigerated storage of
reagents, specimens, etc.
(-40°C to -20°C)

ULT^{*2} Freezers

Cryopreservation for cells,
specimens, etc.
(-85°C)



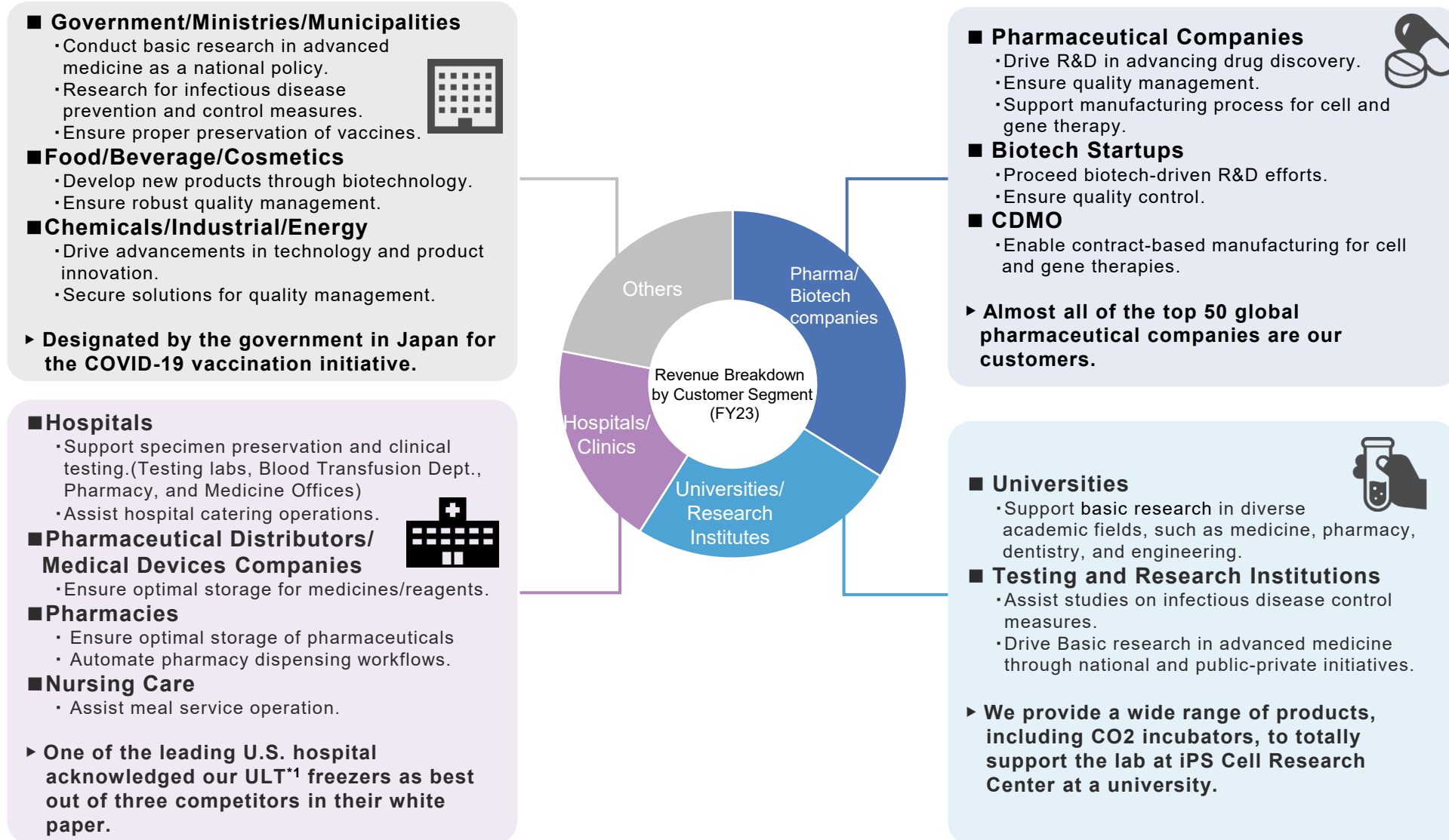
Example of Cell Culture Process



^{*1} See page 11 of the document at the URL by the Ministry of Health, Labor and Welfare (Japanese only). https://www.mhlw.go.jp/content/10807000/001036959.pdf?utm_source=chatgpt.com ^{*2} ULT stands for 'Ultra-Low Temperature'.

Customers and Applications of Products

- Customers use our products and services in R&D, preservation, and quality management in various industries.
- We count key accounts in each sectors.



*1 ULT stands for 'Ultra-Low Temperature'.

Flagship Products

Our flagship products are ultra-low temperature freezers and CO₂ incubators, both requiring advanced precision in control.

Ultra-Low Temperature Freezers



Designed for the cryopreservation of specimens, including cells.
Preserve specimens at temperatures below -80°C.

Want to maintain the condition of specimens during long-term storage.

Q. Why is storage below -80°C necessary?

A. It prevents the re-crystallization of water within biological specimens, allowing long-term preservation while maintaining their pre-storage condition.

-20°C (Day 1)

Cell membrane damaged (dead)

-20°C (Day 7)

Cell damaged (dead)

-80°C (6th Month)

Preserves cells in a healthy state (ensuring survival)

Consistent internal temperature distribution and precise control within the chamber are vital.

CO₂ Incubators



Designed for animal cell cultivation.
Provide an environment like the human body, allowing cells to grow and proliferate.

Want to create an optimal environment tailored to the needs of specific cell types.

Q. Why is an environment similar to the human body necessary?

A. An environment similar to the inside human body in which they were born and raised is suitable for cell growth and proliferation.

Image of the optimal environment for cells in culture

Ideal conditions for cultured cells: (e.g., temperature 37°C)

Improper conditions for cultured cells: (e.g., 37°C ± 0.5°C variations)

Precise control of stable temperature, humidity, CO₂ concentration, and a clean environment, are vital.

Types of Specimens Customers Preserve or Culture

- The specimens that customers store or culture are extremely valuable.
- Customers demand high reliability from equipment to ensure the secure preservation and culture of their specimens.

Ultra-Low Temperature Freezers



Examples of Specimens Preserved by Customers:

- Hospitals (Cell Therapy/Regenerative Medicine): Cells collected from patients
- Universities (Virus Research): Animal tissues obtained from the field and actively cultured cells.
- Biobanks: Blood components, genes, and tissues donated by patients for medical research
- Others (Storage Services): Cells, pharmaceuticals, and clinical trial raw materials entrusted by customers

CO₂ Incubators



Examples of Specimens Cultured by Customers:

- National Research Institutions (Regenerative Medicine): Culturing of iPS cells
- Private Sector (Regenerative Medicine): Culturing and manufacturing of cardiomyocytes
- Medical Institutions (Infertility Treatment): Culturing of ova and embryos for infertility treatment
- Universities (Virus Research): Culturing of cells that serve as hosts for viruses

**The preservation and cultivation of highly valuable specimens that are irreplaceable once lost.
Failure in preservation or culturing results in the loss of specimens and wastes the valuable progress and time invested.**

Customers demand high reliability in preservation/culture equipment.

Strengths of Our Products

- Our ultra-low temperature freezers excel in both reliability and energy-saving performance.
- Our CO₂ incubators excel in high-precision control and contamination prevention.

Ultra-Low Temperature Freezers

Our Core Strengths

 High Reliability	Outstanding core performance (temperature stability)
	High Durability
	Failure Risk Management
	Customer Support
 High Energy-Saving Performance	Energy consumption reduction (lower CO ₂ emissions)

CO₂ Incubators

Our Core Strengths

 High-Precision Control	Stable temperature and humidity control
	Consistent CO ₂ concentration control
 Contamination Prevention	Enhanced cleanability
	Contamination prevention features during cultivation
	Selectable chamber reset options

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New products in the CGT Field (1/2)

- Launched LiCellMo
- Started beta trial of LiCellGrow

Live Cell Metabolic Analyzer



LiCellMoTM

Launched in September 2024

Visualize cellular metabolic changes in real time

Cell Expansion System



LiCellGrow

For process development

Started beta trials in December 2024

Optimally control cell culture environment
and stabilize cell quality

New products in the CGT Field (2/2)

- We entered the CGT field by transferring our core technologies.
- Continuous data measurement dramatically improves the quality of cell observation and culture.

Developing products with In-line monitoring technology

Core technologies

Technologies developed through blood glucose sensor

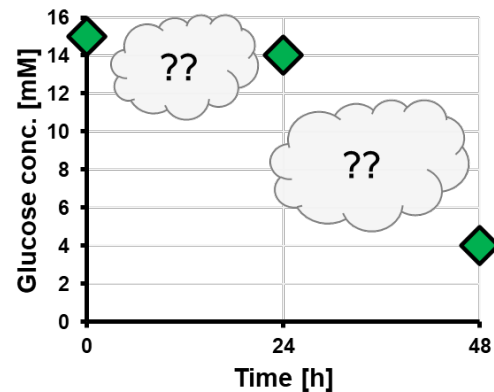


Technology to monitor glucose & lactate continuously in cell culture medium



Conventional Approach

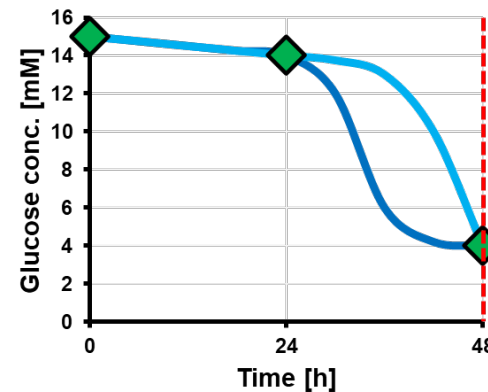
Sampling Data



With 'point-to-point' data, changes between samplings are not visible
Appropriate sampling timing is also unknown.

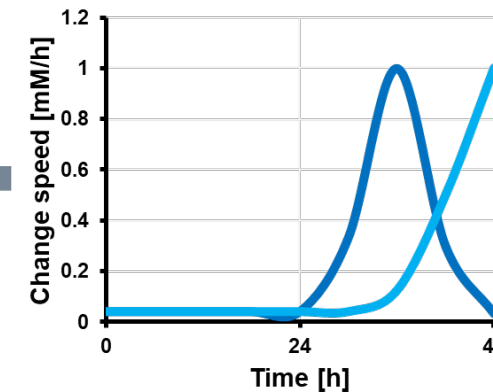
In-Line Monitoring

Continuous Concentration Measurement Data



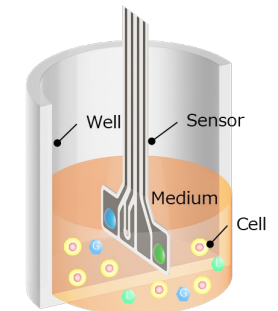
Changes are visible in the 'Line' data

Concentration Change Speed Data



Analysis of the 'Change Speed' index based on continuous concentration change

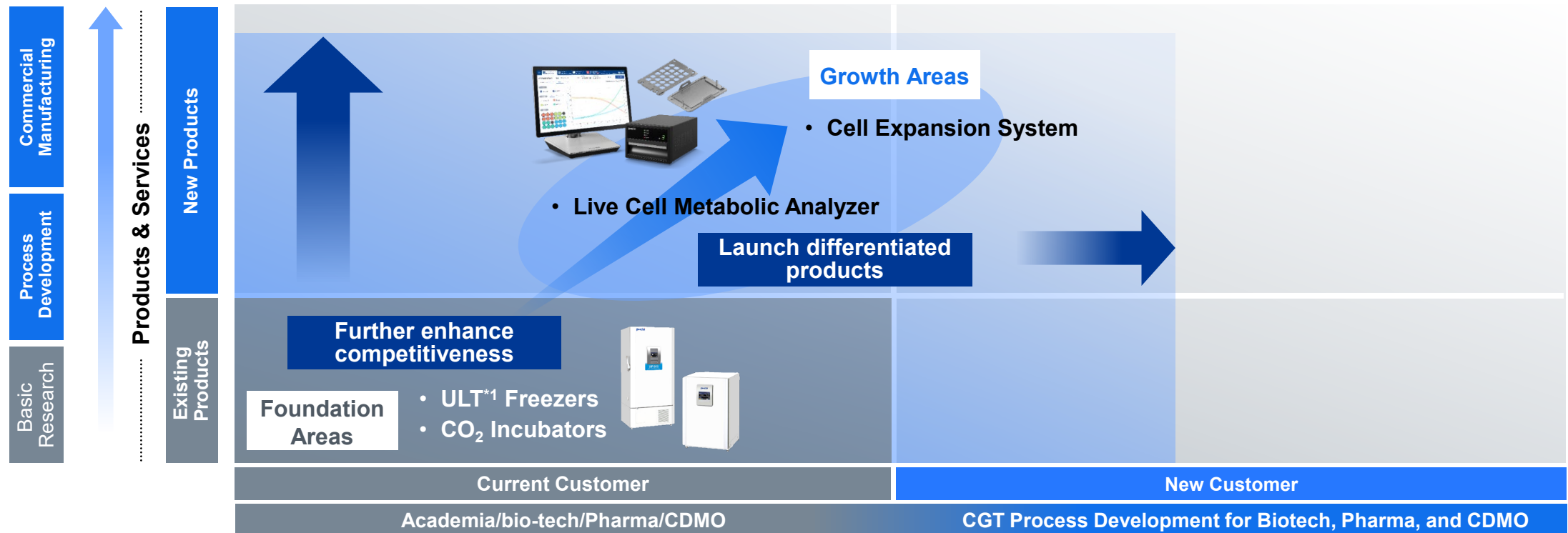
Image of Measurement



Entry into the CGT Field

- There is a strong overlap between the customers for our existing products and those for our new offerings. It is our customer base, built over 60 years, that enables us to expand into new business areas.
- The new products allow us to generate recurring revenue and contribute to diversifying the revenue base for PHCbi.

Concept of New Products to Expand Presence in Cell & Gene Therapy (CGT) field



PHC
GROUP