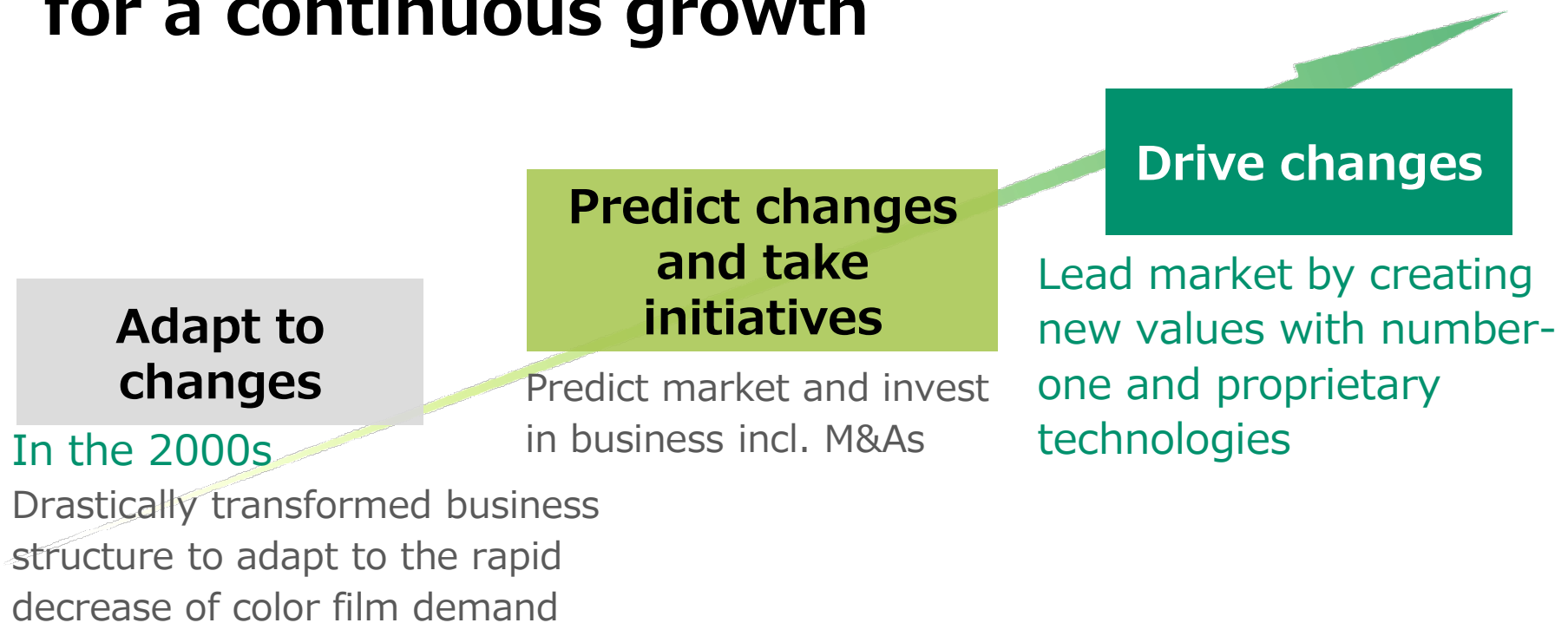

The Growth Strategy of FUJIFILM through the acquisition of a biopharmaceutical manufacturing company

**FUJIFILM Holdings Corporation
Chairman and CEO
Shigetaka Komori
March 12, 2019**

Fujifilm “NEVER STOP” Evolving

To become "a company driving changes"
for a continuous growth



Continue timely and decisive management to keep on creating new products and value

Medium-Term Management Plan "VISION2019"

Strong growth of healthcare as a core business

Prevention

Cosmetics
Dietary supplements



Diagnosis

Diagnostic imaging systems,
Medical IT, Endoscope,
In-Vitro Diagnosis (IVD),
Ultrasound systems



Treatment

Bio CDMO*¹,
Regenerative Medicine,
Cell Culture Media,
Pharmaceuticals,
Small-molecule CDMO*¹

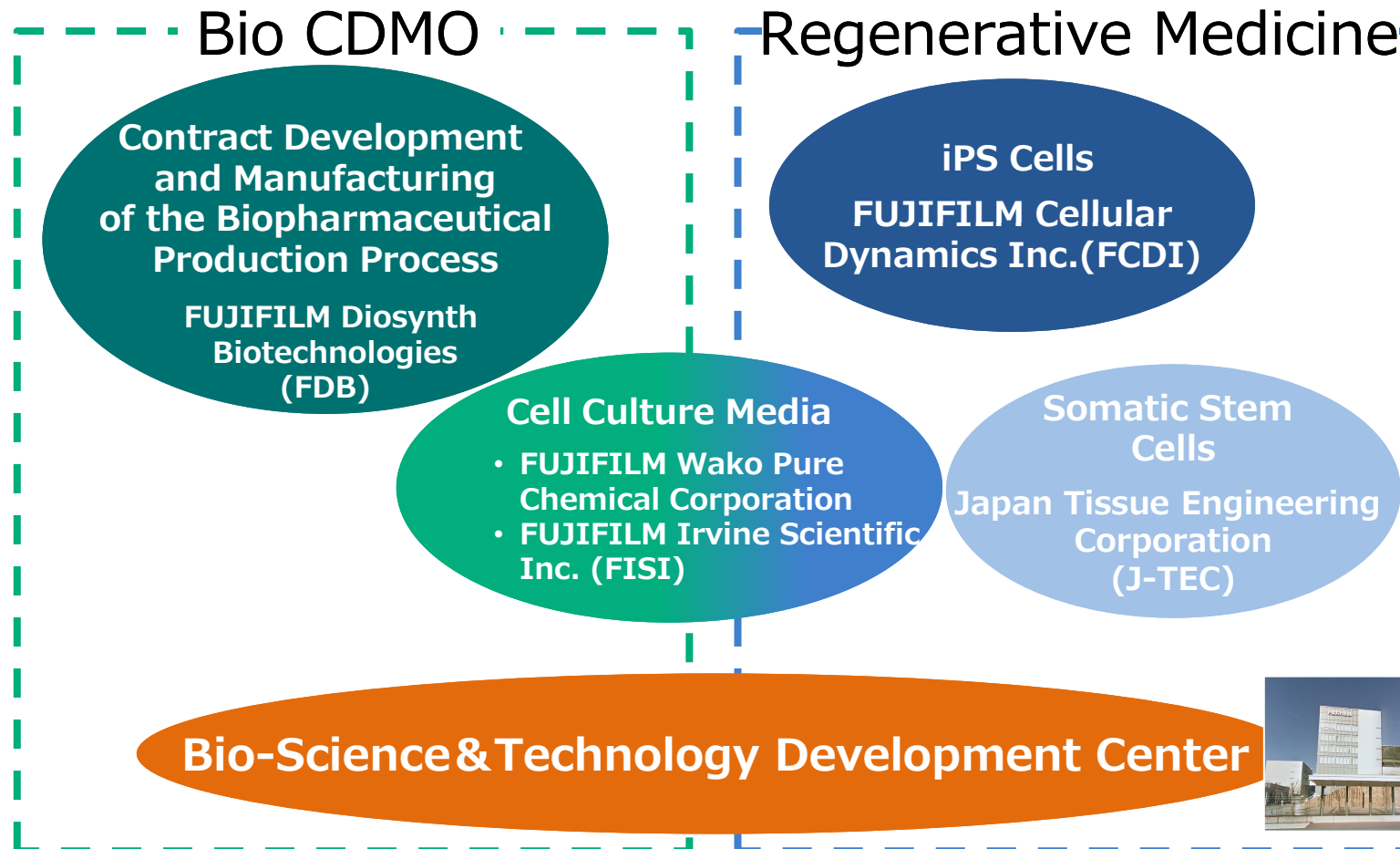
Biology



- Actively expand the medical biology field such as bio CDMO and regenerative medicine

Biopharmaceutical category initiatives

- Expanding in the medical biology business sector through investment in Bio CDMO, regenerative medicine and cell culture media



Growing Bio CDMO market

◆ Biopharmaceutical market

Biopharmaceutical market is expected to continue to grow with **8% annually** due to higher efficacy for intractable diseases and rare diseases with lesser side effect

(Market size: approximately JPY27trillion in 2018)



◆ Bio CDMO market

- Manufacturing biologics requires high quality control technologies, large-scale manufacturing facilities, and accumulated know-how which are large barrier to entry.
- Outsourcing of process development and manufacturing to CDMO with highly-skilled capabilities and expertise is increasing

• Fujifilm focuses on BioCDMO, expected to grow beyond the growth of biopharmaceuticals, and invest management resources.

Significance of acquiring a biopharmaceutical manufacturing company

Acquisition of Denmark manufacturing subsidiary from Biogen Inc, a leading global biopharmaceutical company, for approximately **USD890mm**^{*1}

This acquisition is expected to be completed around August 2019

<Expected achievements>

- Through addition of large scale bioreactors
 1. Enhanced production capabilities
 2. Provide comprehensive manufacturing solutions covering small-large production demands
- Expansion of business in the medical biology sector through creating collective synergy by deployment of group resources such as cell culture media and cell-related technologies

Through supporting the acceleration of biopharmaceutical development, and contributing to the growing healthcare industry, Fujifilm, resolves to address social issues for unmet medical needs

*1: Subject to the quantity of incoming orders of Biogen Hillerød

Acquisition of a Biogen's Manufacturing Company in Denmark and the Growth Strategy of Fujifilm's CDMO business

**FUJIFILM Holdings Corporation
President and COO**

Kenji Sukeno

March 12, 2019

Overview of Biogen Inc.

Company name : Biogen Inc.



One of the world's leading biopharmaceutical companies

Headquarter : Cambridge, Massachusetts, United States

Established : 1978

Overview : •Has its strength in Central nervous system, rare disease, and neurodegenerative disease
•Has introduced treatment for multiple sclerosis and spinal muscular atrophy

Financial result : Revenue: USD13.5bn
Operating profit: USD5.9bn
(Consolidated, FY2018)

CEO : Michel Vounatsos

Manufacturing site : Denmark, US, Switzerland(building)

Overview of Biogen's Manufacturing Subsidiary in Denmark

- Company name : Biogen (Denmark) Manufacturing ApS
- Location : Denmark Hillerod (purlieus of Copenhagen)
- Established : 2003
- Business : • Multi-product manufacturing facility delivering marketed therapeutics including multiple sclerosis
• Large scale biologics manufacturing, labeling and packaging, quality laboratories and contract research all supported by its high-end biotechnology and manufacturing know-how

<Detail>

- Manufacturing Capacity : 90,000L
(15,000L×6 reactors)
- No. of employees : Approximately 800
- Building area : 48,000m²
(8 building blocks)
- Site area : 247,000m²



Global footprint of our Bio CDMO Business

- Enhanced manufacturing facilities that support a global client base throughout the clinical journey through to commercialization
- **Our 4th Bio CDMO site** will be added through this acquisition

FUJIFILM
Diosynth Biotechnologies,
Billingham, England
Acquired 2011 



Biogen (Denmark) Manufacturing
Hillerod, Denmark
Acquired in 2019 



FUJIFILM
Diosynth Biotechnologies,
North Carolina, USA
Acquired 2011 




FUJIFILM HQ
Tokyo, Japan



[Collaboration]

Merck & Co., Inc.
Brinny Manufacturing Plant
Cork, Ireland 



FUJIFILM
Diosynth Biotechnologies,
Texas, USA
Acquired 2014 

Overview of our Bio CDMO manufacturing base

	Base	Geography	Overview
Fujifilm Diosynth Biotech -nologies Group	FDBK*1	Billingham England	<ul style="list-style-type: none"> • Has strength in process development service • Expanded developing site in 2017
	FDBU*1	North Carolina USA	<ul style="list-style-type: none"> • Has strong track record of small-mid scale GMP*2 grade manufacturing for clinical and commercial products • Expanding mid-scale manufacturing capacity for biologics production
	FDBT*1	Texas USA	<ul style="list-style-type: none"> • Expanding mid-scale manufacturing capacity for antibodies • Has high containment technologies and capability to manufacture advanced therapies
	Biogen (Denmark) Manufacturing	Hillerod Denmark	<ul style="list-style-type: none"> • Has six 15,000L large-scale bioreactors • Adds large-scale manufacturing capability to the FDB Group to meet wider client needs

*1 FDBK: FUJIFILM Diosynth Biotechnologies UK Limited (Fujifilm 80%, Mitsubishi 20% share)
 FDBU: FUJIFILM Diosynth Biotechnologies U.S.A. Inc. (Fujifilm 80%, Mitsubishi 20% share)
 FDBT: FUJIFILM Diosynth Biotechnologies Texas, LLC (FDBU 100% share)

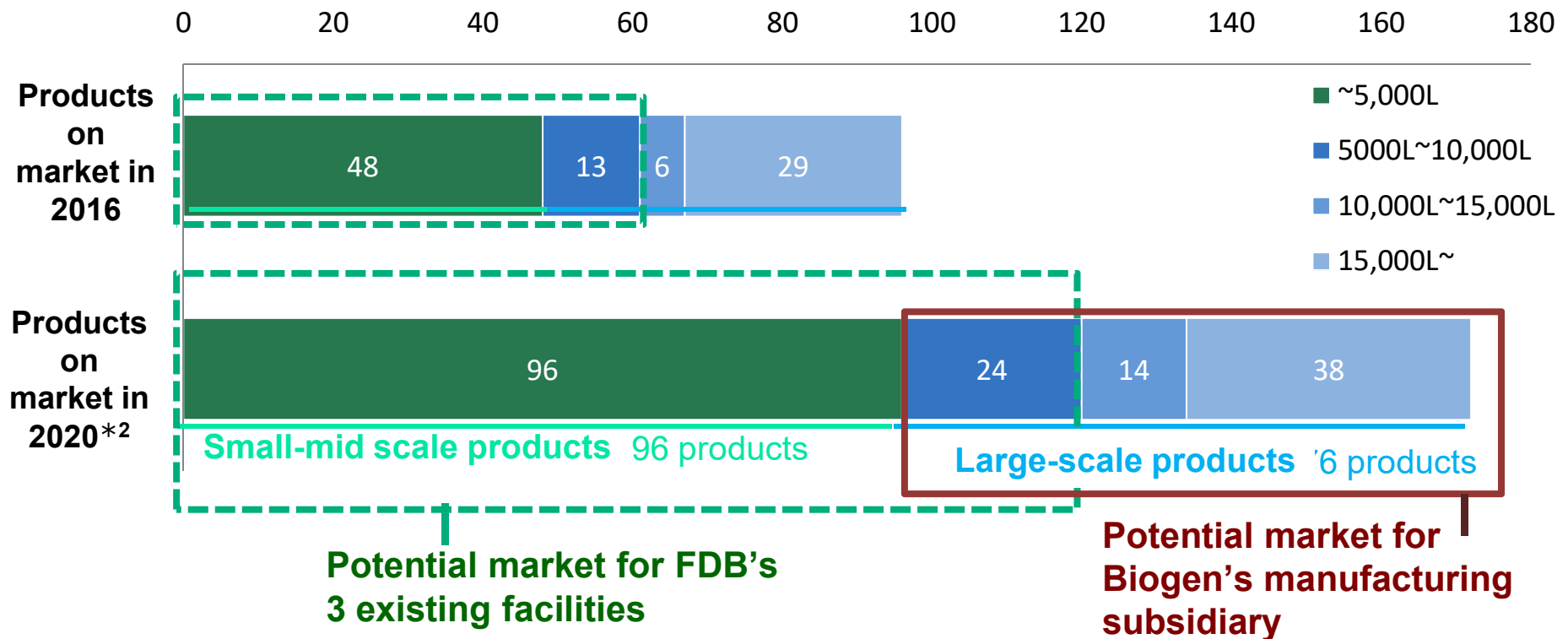
*2 GMP refers to the Good Manufacturing Practice Regulations promulgated by the US Food and Drug Administration etc.

Strategic significance of this acquisition to our Bio CDMO business (1)

- Provide comprehensive manufacturing solutions covering small to large scale production demands throughout the clinical journey, including commercialization

Number of products on market by bioreactor capacity*1

Source: Fujifilm



*1. Optimal bioreactor scale (mammalian expression) based on the assumption of producing once a month and ten batches per year 6

*2. Estimate based on success rate considering number of preclinical pipelines

Strategic significance of this acquisition to our Bio CDMO business (2)

- **Acquisition of existing manufacturing contracts with Biogen and other major pharmaceuticals and highly-skilled professionals as well as facilities' strong track record**



- **Situated in a location with sufficient space for capacity expansion to further support the biopharmaceutical industry e.g., drug substance manufacturing, drug product filing**



Strength of FUJIFILM's Bio CDMO Business

• Our strength is industry-leading expression system, advanced facilities, and technologies coupled with the advanced manufacturing technologies developed through the photographic film business

Expression System

- Industry-leading microbial and mammalian expression platforms*¹
- Experts in gene therapy production



Advanced facilities

- State of the art manufacturing solutions small-high volume scale
- High containment mobile cleanroom technologies*²
- Best in class process development capabilities



Single use bioreactor

Application of Fujifilm's advanced manufacturing technologies to manufacture under constant conditions and superior quality control



Mobile clean rooms

*1: "ApolloX" advanced mammalian expression system is capable of delivering industry leading titres in excess of 10 g/L in Bio CDMO industry based on Fujifilm data as of February 20, 2019

*2: Complies to BSL-2+ (Biosafety Level) containment with capabilities to comply to BSL-3, which is in the top-tier level as a facility for commercial manufacturing

Strategy of Bio CDMO business

- 1** | **Active investment for expand capability**
 - Adds large-scale manufacturing capability through this acquisition, total scale of tanks to be 150,000L*¹ , three times of current scale
 - Sales rank will be 2nd group from 3rd group in bio CDMO industry
- 2** | **Further enhancement of productivity**
 - Developed ApolloX mammalian expression system is capable of delivering industry leading*² titres in excess of 10 g/L
 - Developing next generation technology continuously
- 3** | **Fill Finish services to include recombinant protein**
 - Offer full service CDMO from bulk drug substance to fill/finish (2021~)

Achieving business expansion through providing comprehensive manufacturing solutions

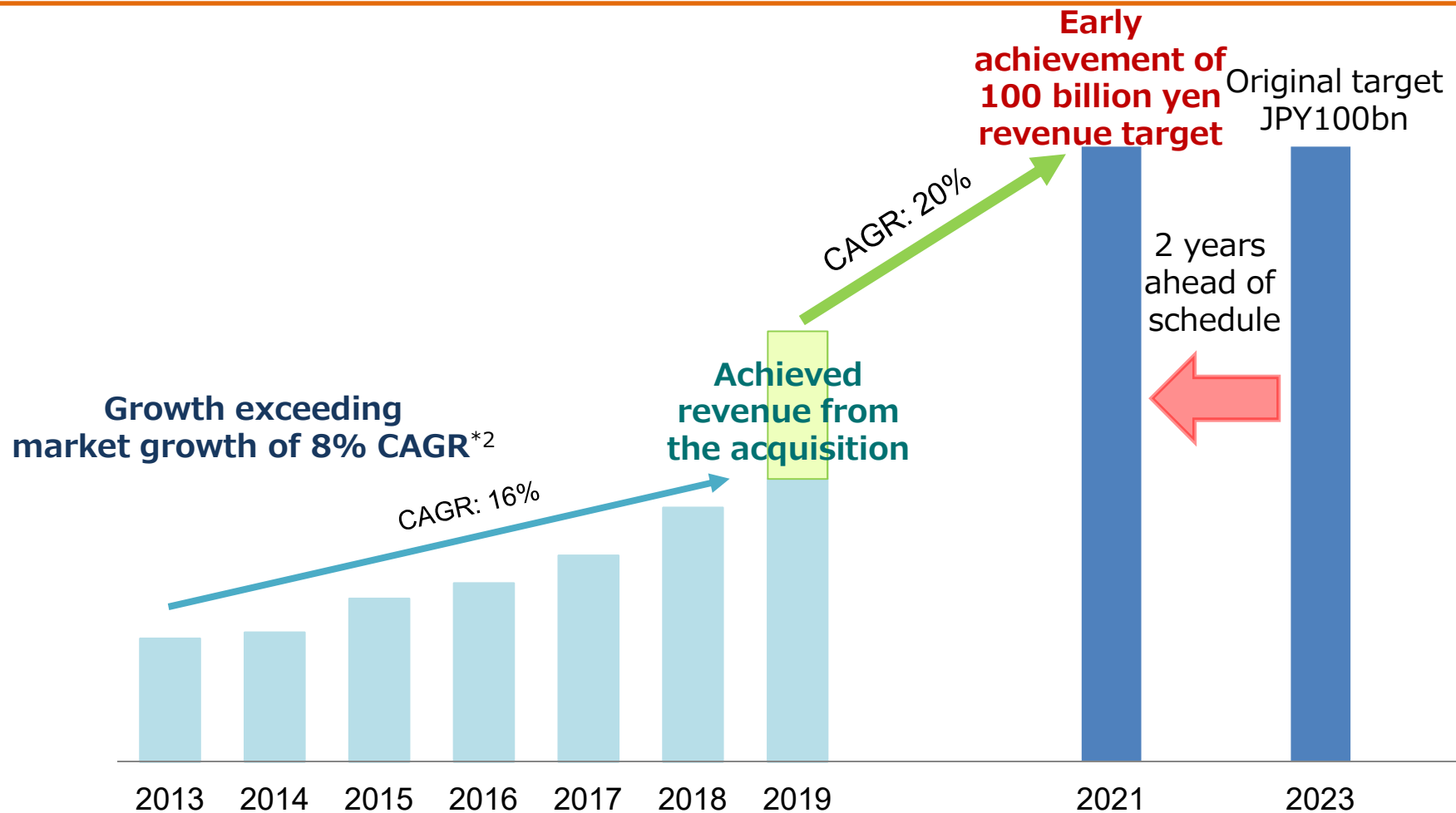
- Antibodies, recombinant proteins, gene therapy and vaccine products
- process development and small-large scale manufacturing
- manufacturing of drug substance to fill/finish

*1: Total of tank size for mammalian cell culture and microbial fermentation, including expanding facilities in-house .

*2: In Bio CDMO industry based on Fujifilm data as of March 12, 2019

Bio CDMO revenue target post acquisition

Further acceleration in Bio CDMO business through the acquisition
Expected to reach the revenue target of 100 billion yen*1
in FY2021 ending Mar 2022, 2 years ahead of original schedule



*1: Including low molecular CDMO

*2: Source: FUJIFILM

FUJIFILM

Value from Innovation