

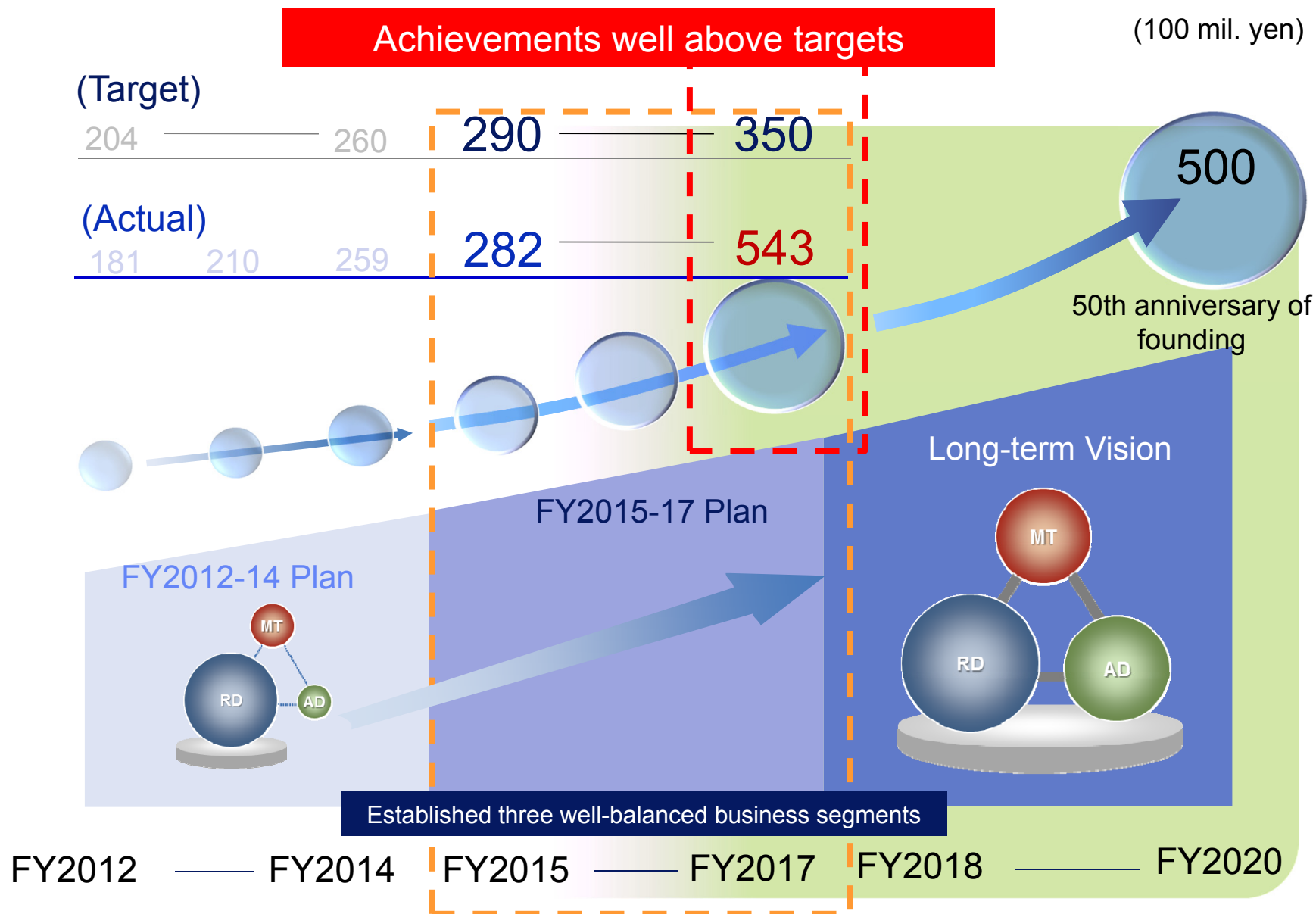
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New Mid-term Management Plan and Long-term Vision



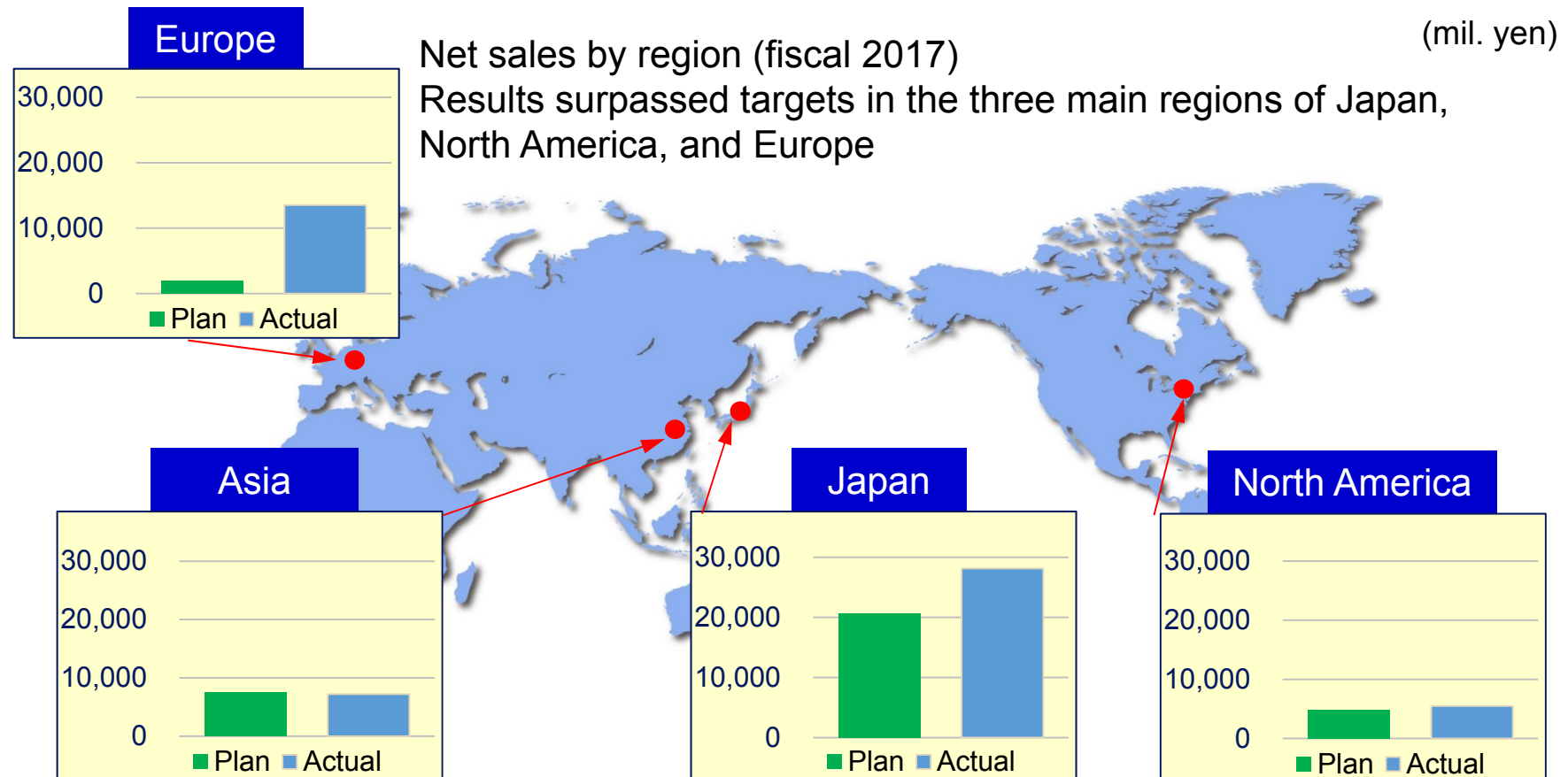
1. Looking Back at the Previous Mid-term Management Plan (fiscal years 2015-2017)

Targets and actual results of previous Mid-term Management Plans (consolidated)



Main factors for achieving consolidated sales above target


1. Business growth: Sharp rise in demand for use in industrial robots and other main applications
2. M&A benefits: German affiliate made a subsidiary



Revenue targets and results (consolidated)

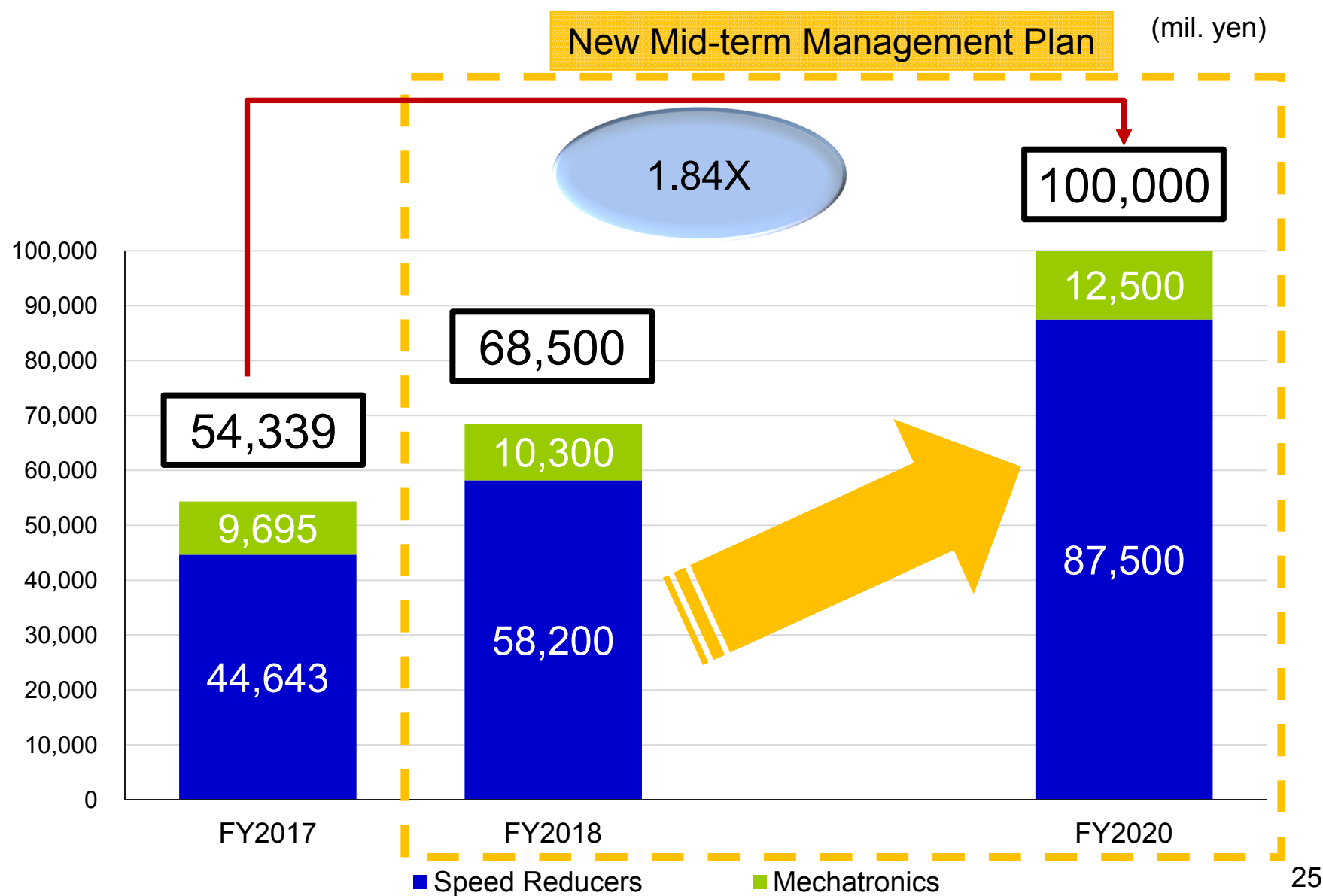
(mil. yen)

	Fiscal 2017					
	Mid-term management plan		Actual		Vs. original plan	
	Amount	Percent (%)	Amount	Percent (%)	Increase amount	Rate of increase
Net sales	35,000	100.0	54,339	100.0	19,339	55.3
Operating income	9,500	27.1	12,598	23.2	3,098	32.6
Current net income	7,000	20.0	8,059	14.8	1,059	15.1
	Cumulative total for three years of Mid-term Plan (Planned for fiscal years 2015-2017)		Cumulative total for three years of Mid-term Plan (Results for fiscal years 2015-2017)			
Capital investment amount	10,000		17,630			
Depreciation and amortization costs	6,000		9,150			
R&D costs	4,800		4,902			

The slide features several decorative, hand-drawn style blue lines that swirl and loop around the central text, adding a dynamic feel to the presentation.

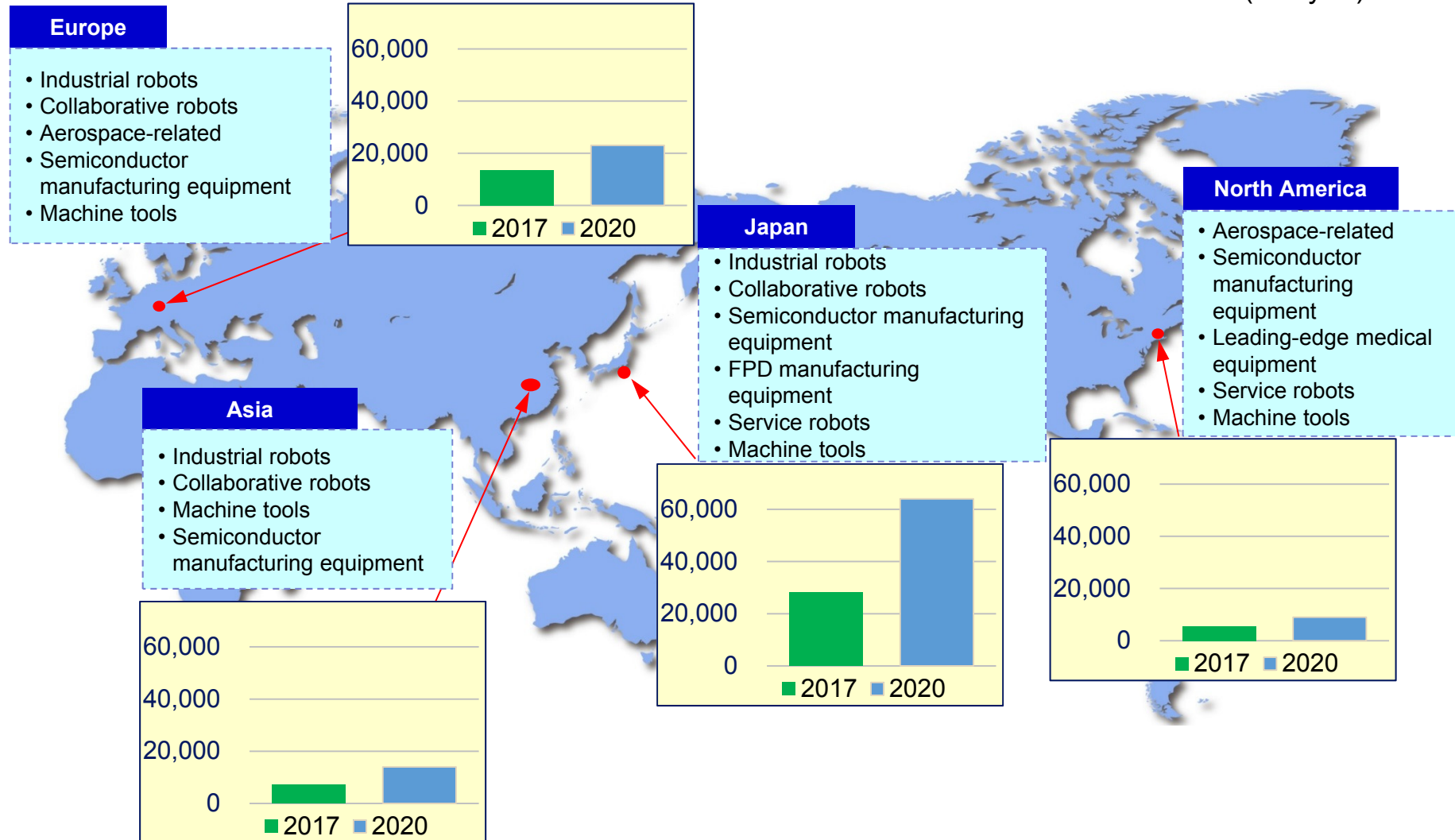
2. New Mid-term Management Plan (fiscal years 2018-2020)

Target net sales (consolidated)



Net sales targets and main applications in each region

(mil. yen)



Revenue targets (consolidated)

(mil. yen)

	Fiscal 2017 (actual)		Fiscal 2018 (forecast)		Fiscal 2020 (planned)	
	Amount	Percent (%)	Amount	Percent (%)	Amount	Percent (%)
Net sales	54,360	100.0	70,000	100.0	100,000	100.0
Operating income	12,598	23.2	17,500	25.0	26,000	26.0
Current net income	8,059	14.8	11,500	16.4	17,000	17.0

	Cumulative total for three years of previous Mid-term Plan (Results for fiscal years 2015-2017)	Cumulative total for three years of new Mid-term Plan (Planned for fiscal years 2018-2020)
Capital investment amount	17,630	71,000
Depreciation and amortization costs	9,150	25,500
R&D costs	4,902	9,450

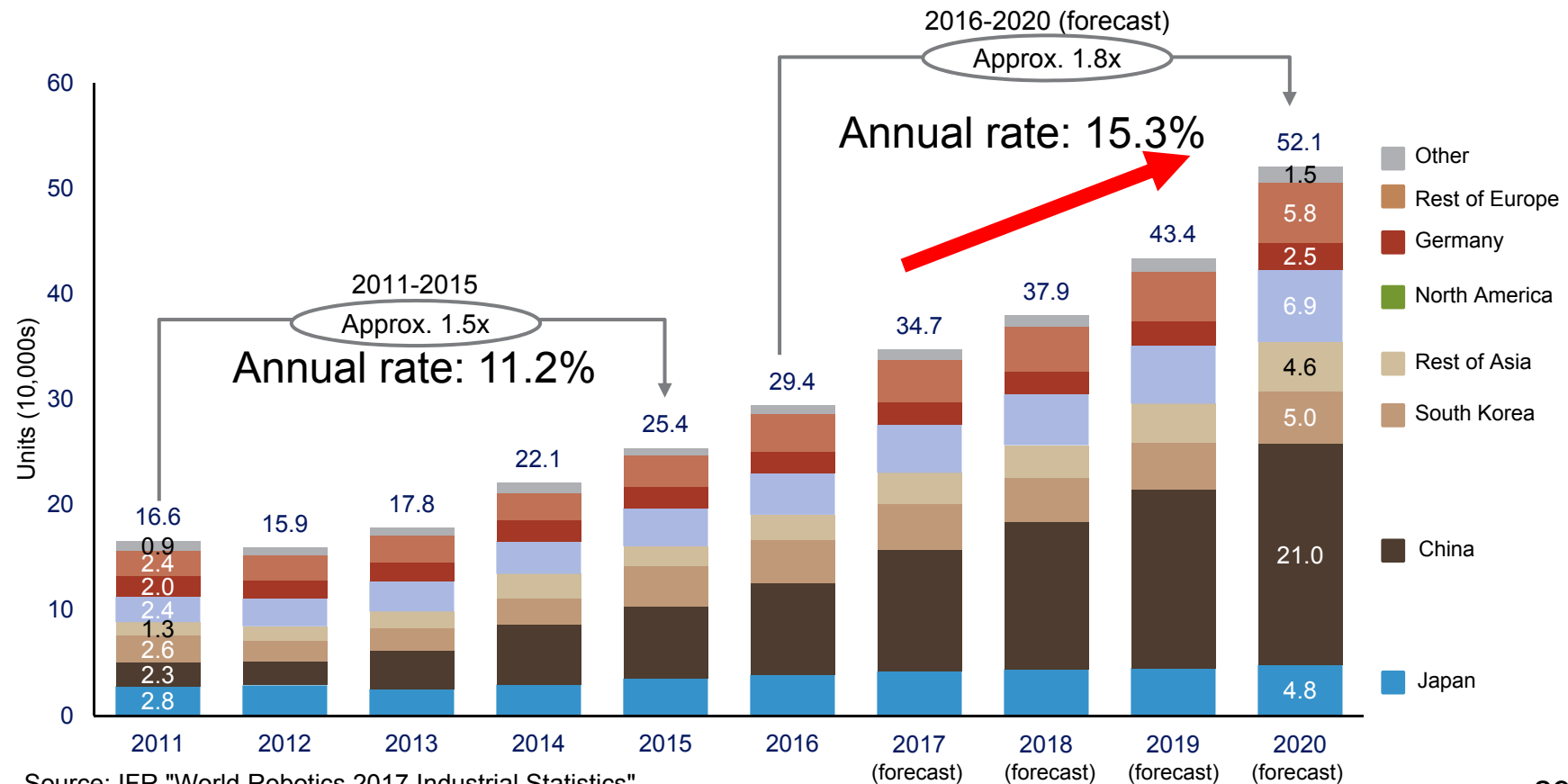
The slide features several decorative, hand-drawn style blue lines that swirl and loop around the central text. These lines are light blue and have a fluid, organic appearance, framing the title and adding a dynamic feel to the presentation.

Trends in main application fields

1. Industrial robots

- Market expected to expand 15% annually even after 2018 (IFR forecast)
- Changes in China's industrial structure with Made in China 2025

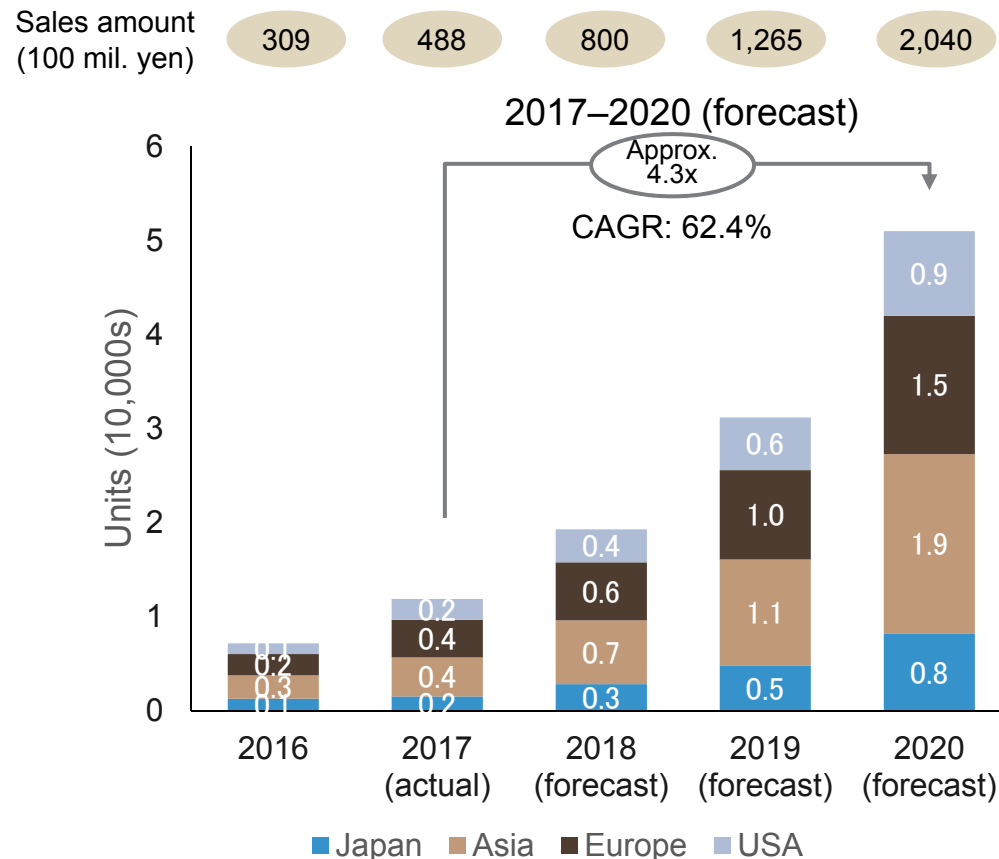
Worldwide outlook for number of industrial robots sold



2. Collaborative robots (co-bots)

- Examples of expanding adoption in manufacturing and service industries
- Becoming drivers of further growth

Co-bots market size outlook (sales amount, units)

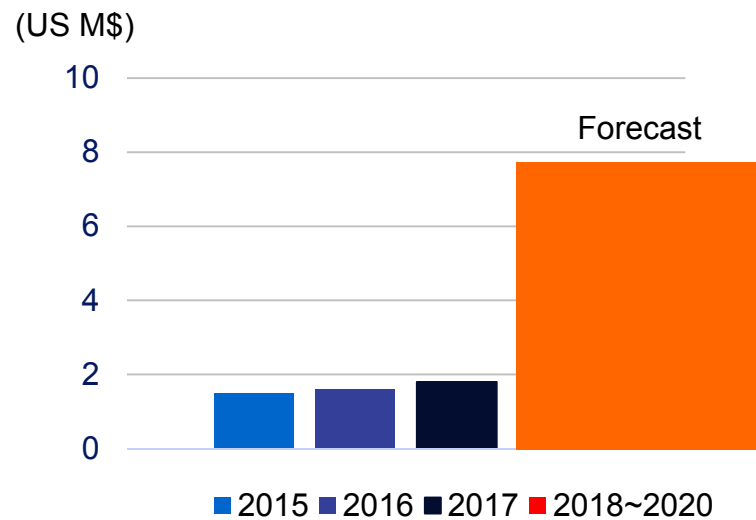


Source: Fuji Keizai Group, Reality and Outlook of Worldwide Robot-related Markets 2018: No.1 Factory Automation Robots Market

3. Service robots

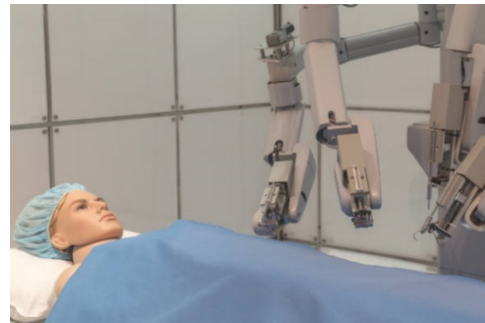
- Robotics technology is playing an active role in medical practice
- Use of power assistance is expanding in physical therapy clinics and for easing the burden of carrying heavy objects
- Health insurance applicability to surgery assistance robots is growing

Market forecast for surgical robots



Source: IFR "World Robotics 2017 Industrial Statistics"

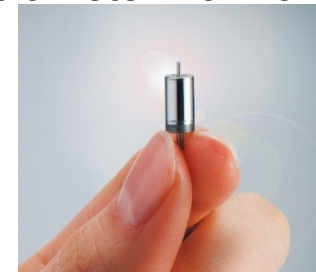
Surgical robots



Power assist suits

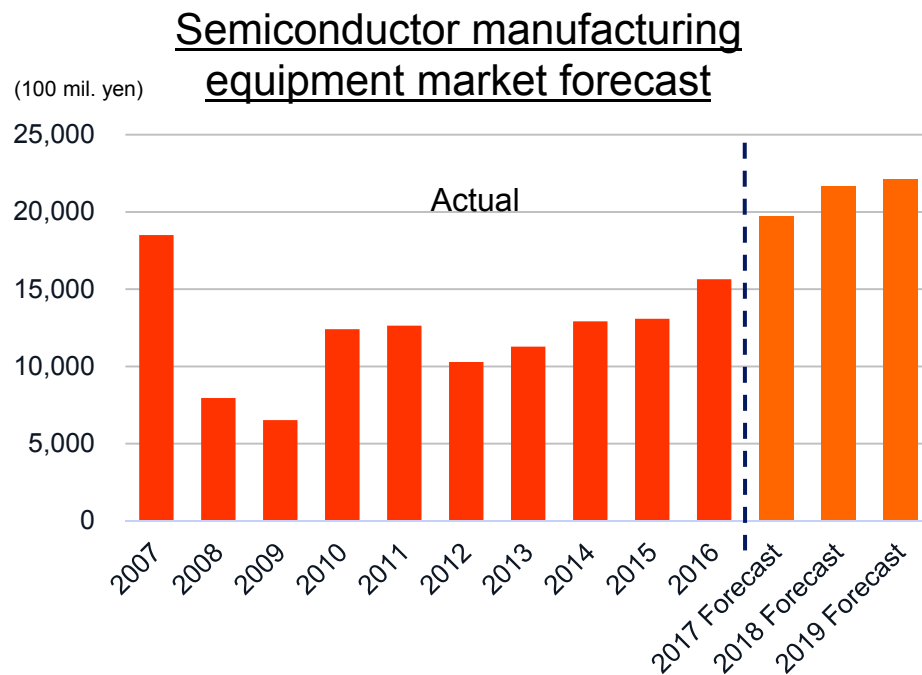


5mm diameter HarmonicDrive®

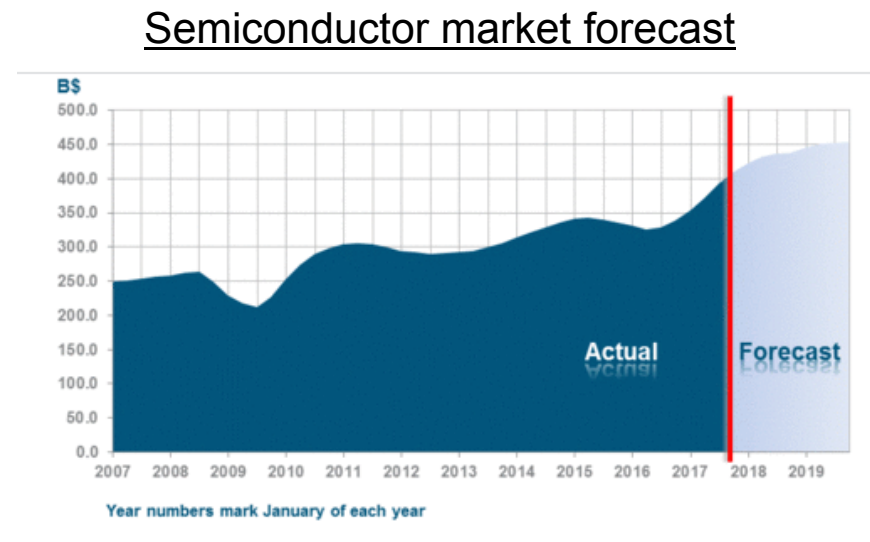


4. Semiconductor manufacturing equipment

- Investment in layering and miniaturization through capacity increases and high quality
- Growing demand for semiconductors used in artificial intelligence (AI) and virtual reality (VR)
- Full-scale investment in 5G-related technology
- Increase in server demand due to data explosion, and switch from HDD to SSD



Source: Semiconductor Equipment Manufacturing Association of Japan

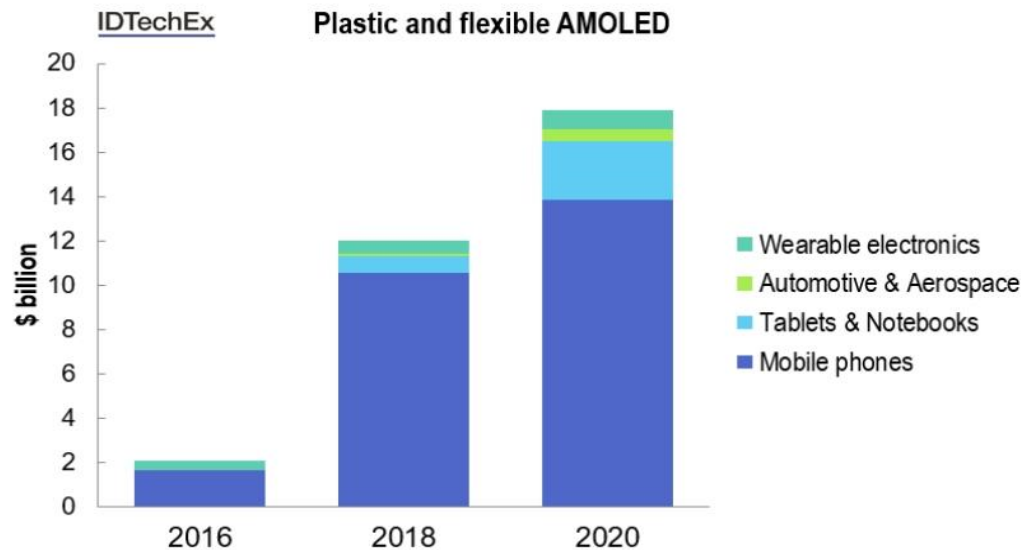


Source: WSTS

5. LED and OLED manufacturing equipment

- Slowdown in growth of small and midsize OLED panels
(lower demand for smaller OLED panels with scaling back of iPhone-X production)
- Chinese LED and OLED manufacturers continue to invest in production

OLED market forecast



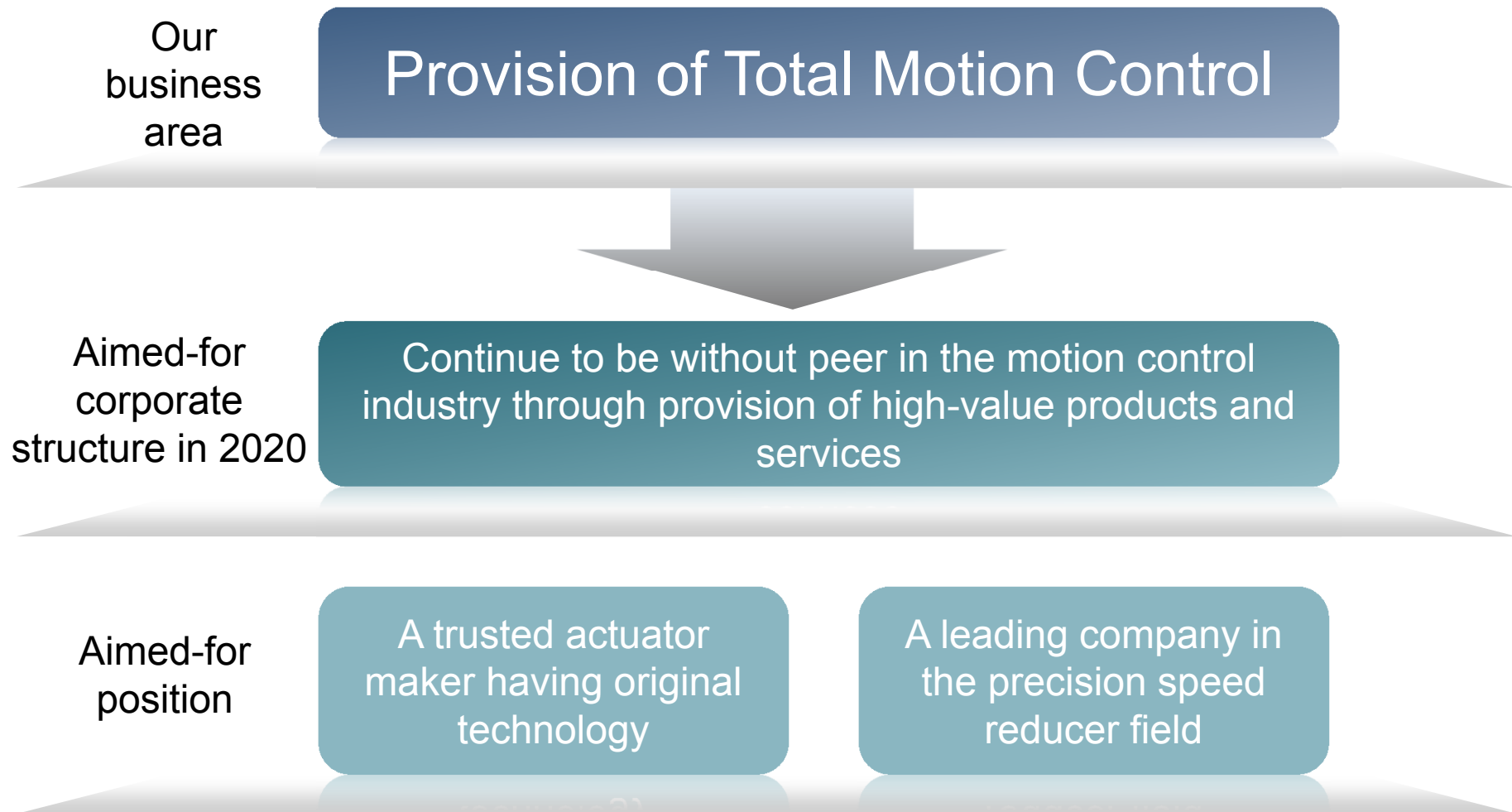
Source: IDTechEX



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New Mid-term Management Plan Basic Policies

Aimed-for corporate structure and industry position in 2020



Basic Policies of New Mid-term Management Plan

50th anniversary of founding

Seizing the rapidly expanding growth opportunities, advance to the next stage

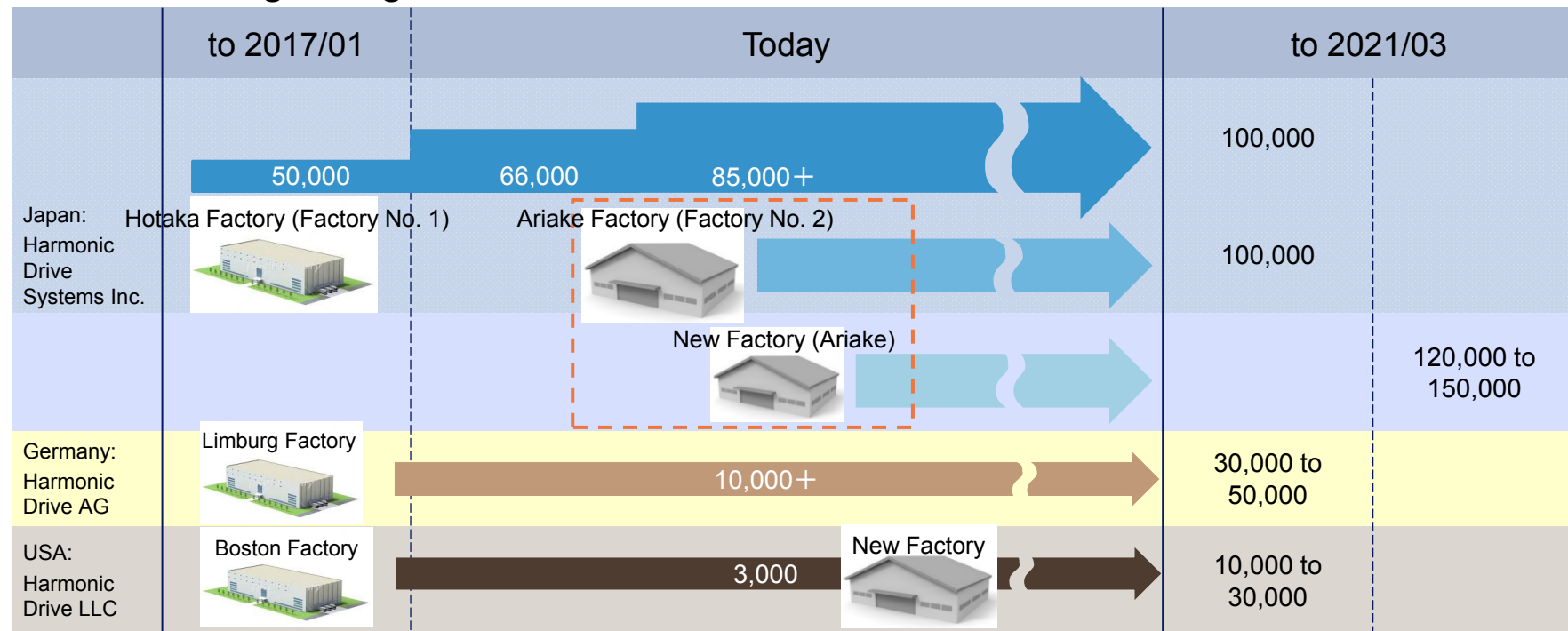


1 Major increase in global production capacity

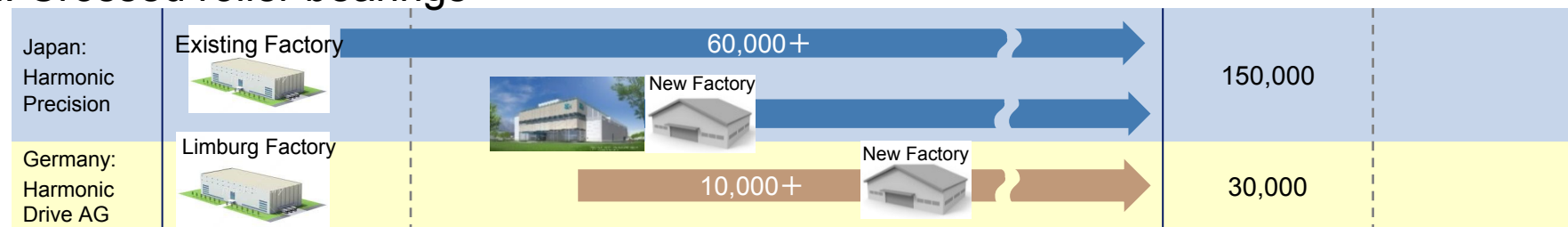
1. Roadmap to raising production capacity

1. Strain wave gearing devices

(numeric data is monthly units produced)



2. Crossed roller bearings

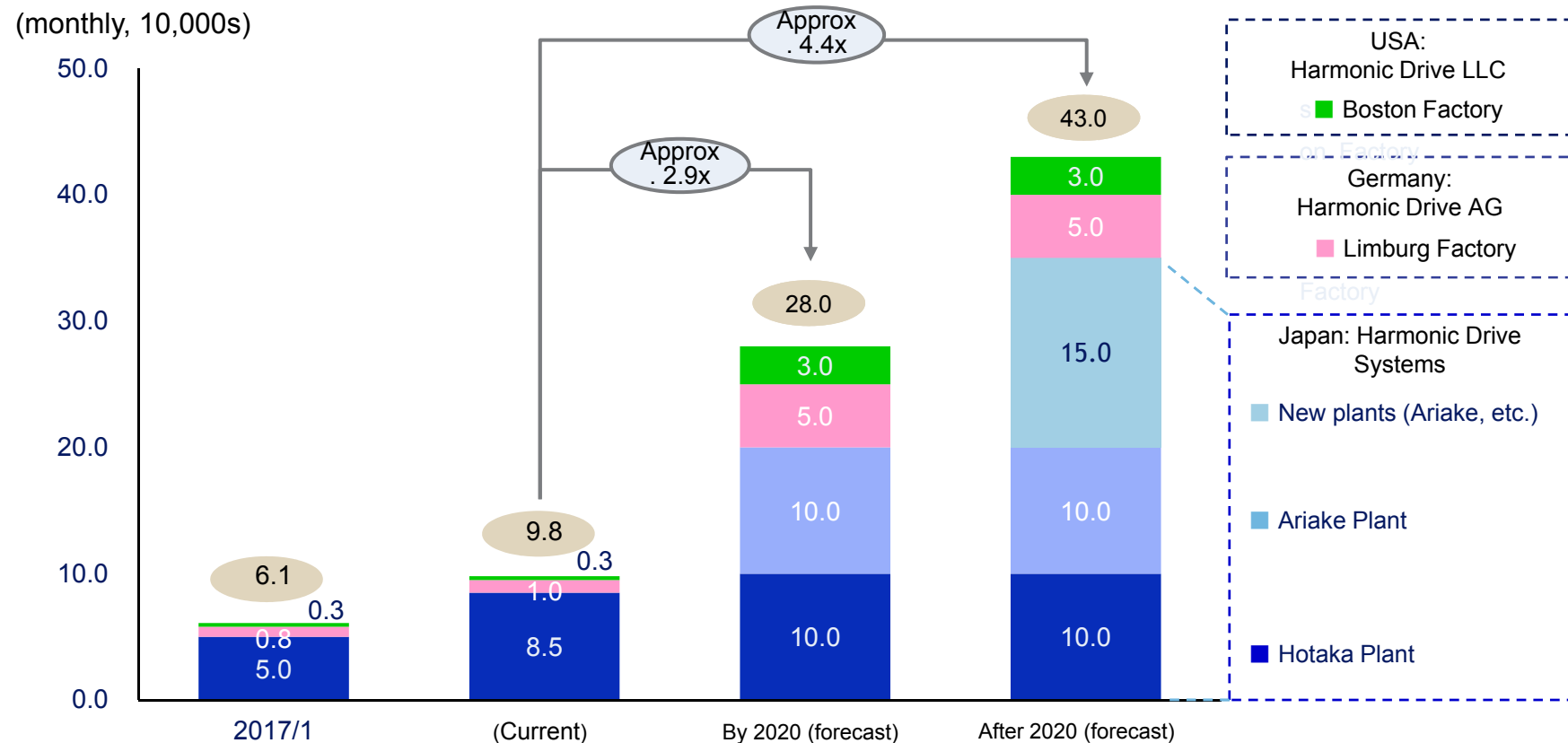


1 Major increase in global production capacity

2. Toward capacity of 280,000/month by 2020

We are aiming for higher corporate value by establishing supply capacity to meet growing demand and by further building our competitive strength

Plans for boosting production capacity of our precision speed reducers



1 Major increase in global production capacity

3. Productivity improvements

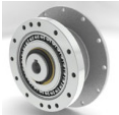


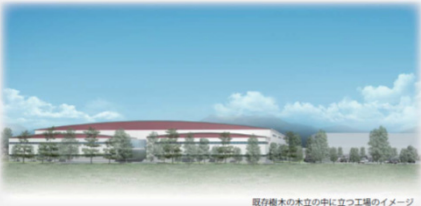












1. Enhancement of automated lines
2. Promotion of multi-skilled workers
3. Unflagging pursuit of improvements in fabrication, assembly, and inspection processes

Ariake Factory



2 Raising the capability of each Group company and building greater comprehensive strength

Main manufacturing sites

In Japan	 <p>HarmonicDrive®</p>  <p>Harmonic Drive Systems (Hotaka Factory) (Ariake Factory)</p>  <ul style="list-style-type: none"> • New line: equipment installation completed • By March 2019, monthly production of 100,000 units  <ul style="list-style-type: none"> • Production started March 2018 • By March 2021, monthly production of 100,000 units 	 <p>Crossed roller bearings</p>  <p>Harmonic Precision (Matsumoto Factory)</p>  <ul style="list-style-type: none"> • New plant building under construction • By March 2023, monthly production of 150,000 units 	 <p>HarmonicPlanetary®</p>  <p>Harmonic AD (Toyoshina Factory)</p>  <ul style="list-style-type: none"> • Planning phased investment in new production equipment in line with demand growth
Overseas	 <p>USA: Harmonic Drive LLC</p>  <ul style="list-style-type: none"> • Plan to acquire land for new plant in Beverly, Massachusetts (artist rendition of new plant) 	 <p>Germany: Harmonic Drive AG</p>  <ul style="list-style-type: none"> • Can expand to land adjoining existing plants 	 <p>South Korea: SAMICK ADM</p>  <ul style="list-style-type: none"> • Planning phased investment in new production equipment in line with demand growth

3**4** Basic Policies of Mid-term Management Plan

3

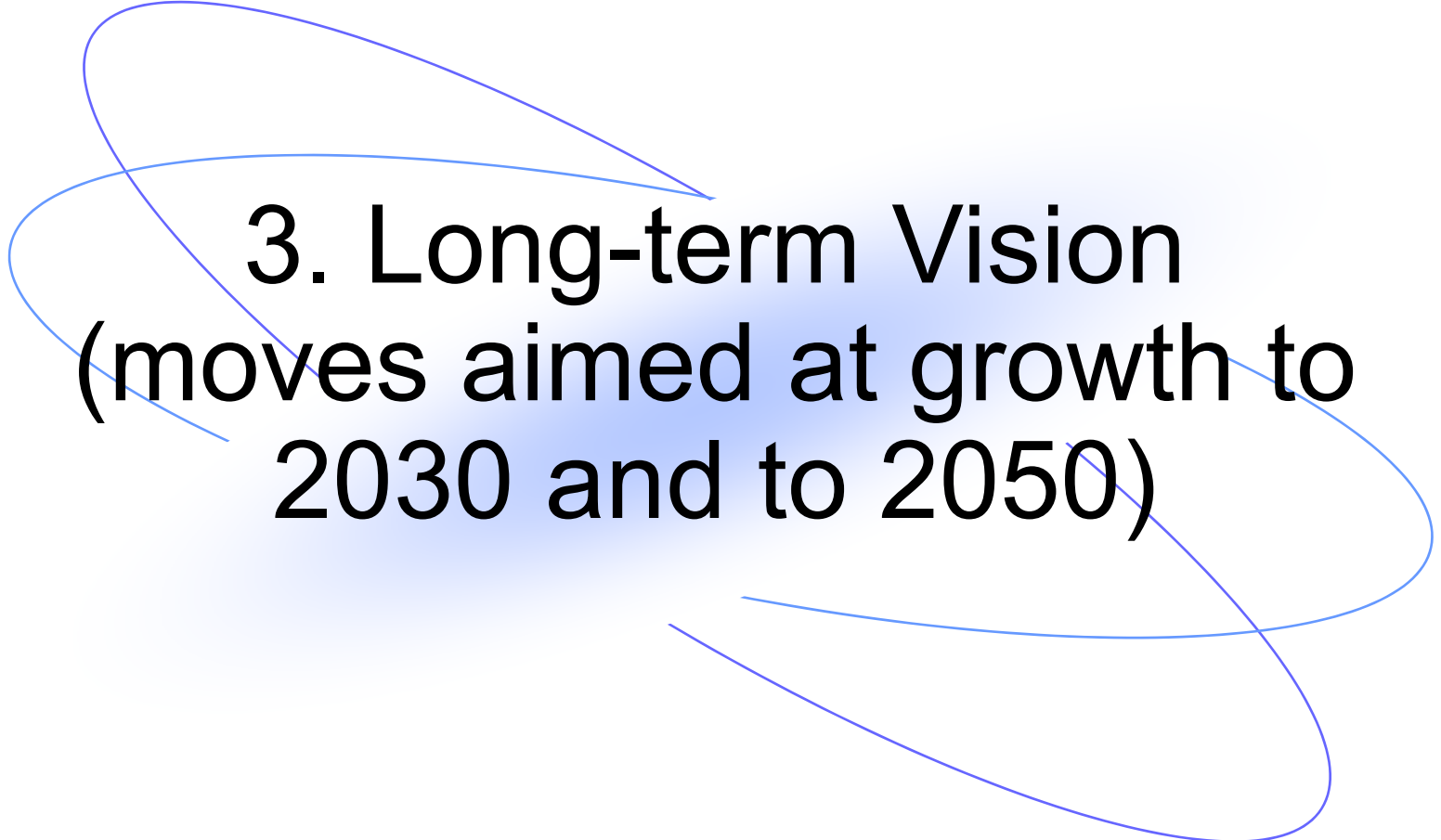
Improve customer satisfaction by raising QCDS capability

- Normalize and reduce lead time from order to shipment
- Actively develop and market new products
- Build technology proposal strength and support capability

4

Strengthen the business foundation underlying growth

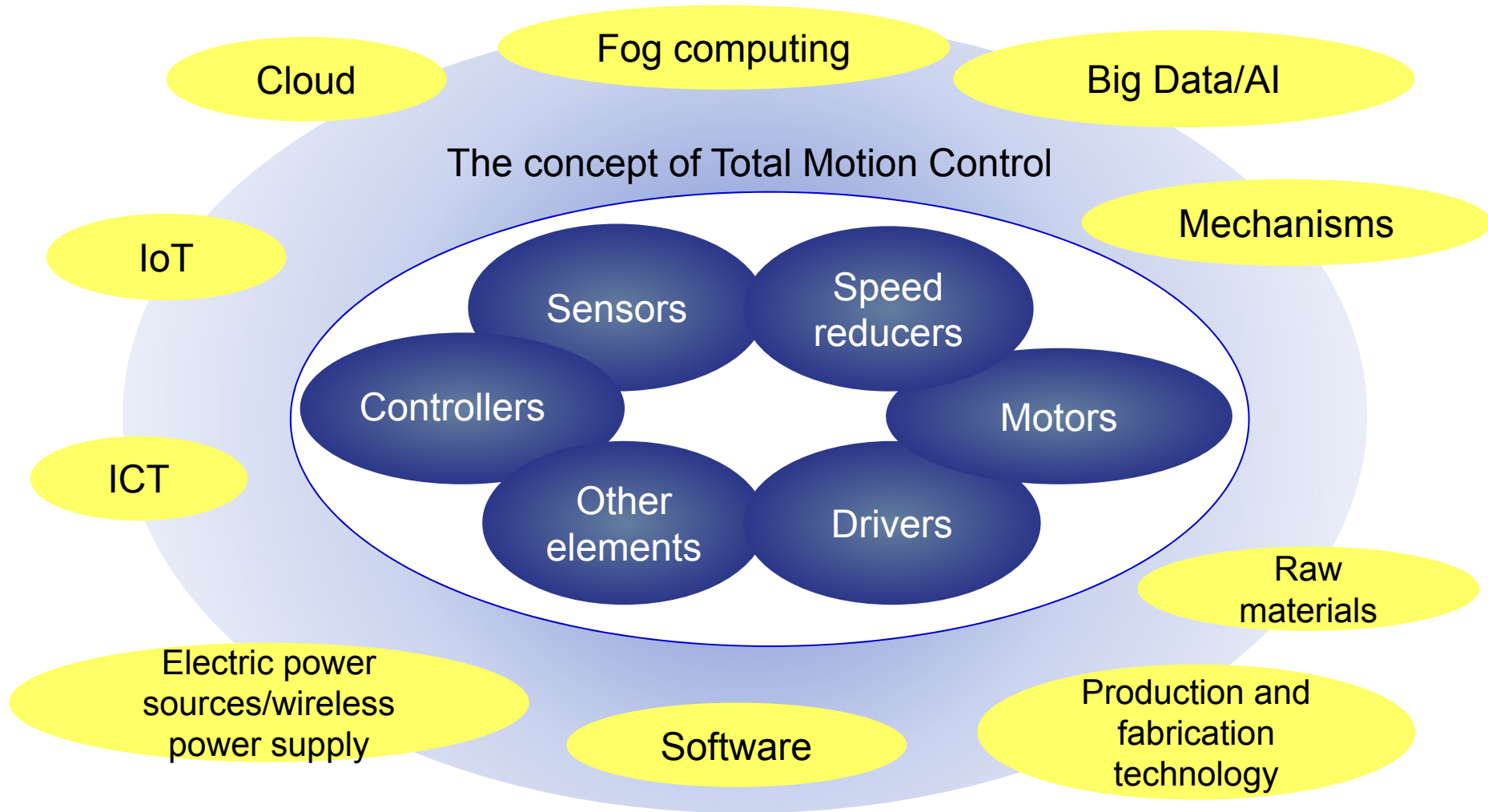
- Acquire and train human resources in line with sound growth
- Enhance business management platform drawing on IT
- Promote business management with the environment, society, and governance in mind

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3. Long-term Vision (moves aimed at growth to 2030 and to 2050)

Our business areas

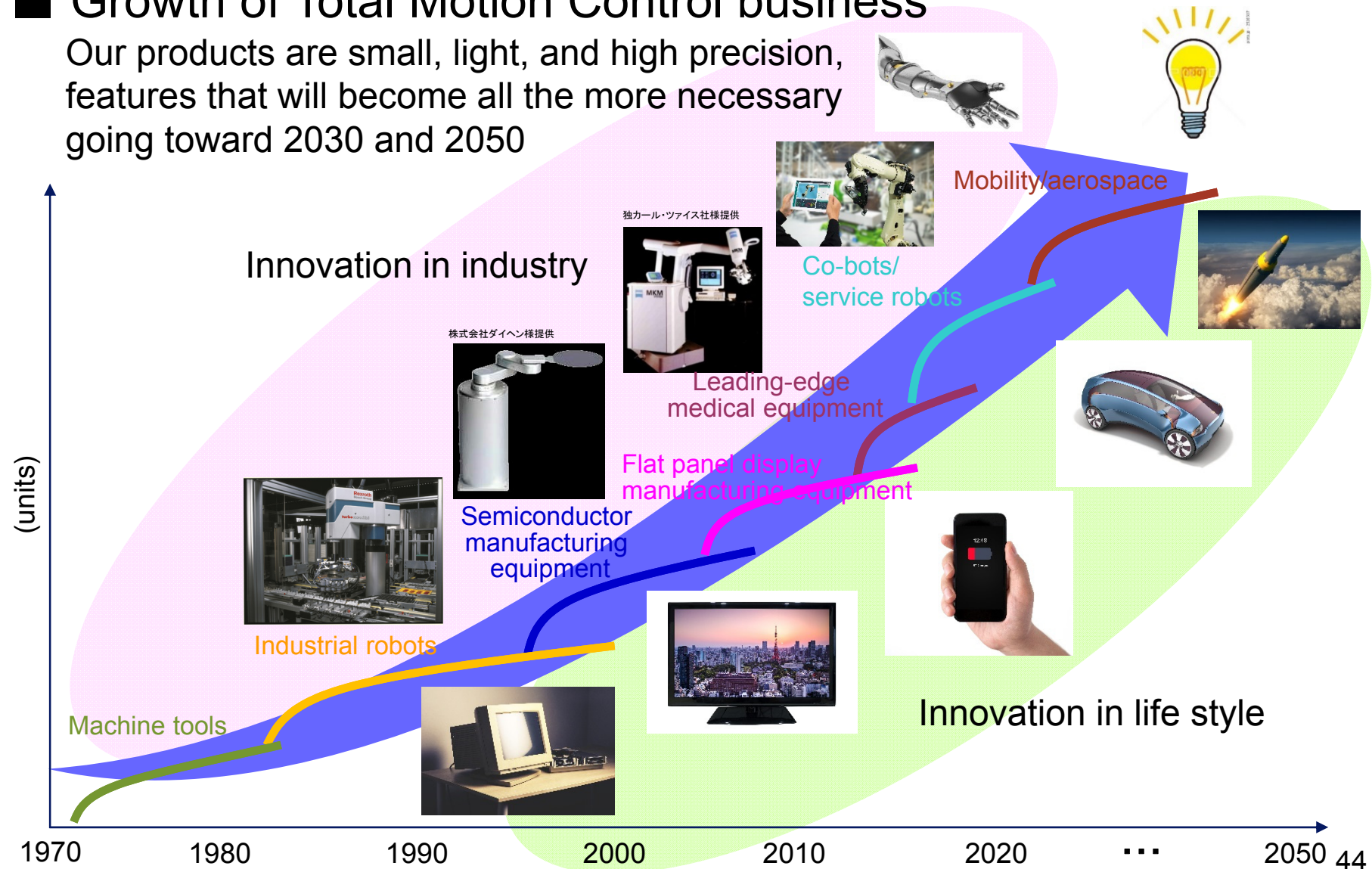
Provision of Total Motion Control



Expanding business opportunities

■ Growth of Total Motion Control business

Our products are small, light, and high precision, features that will become all the more necessary going toward 2030 and 2050



Taking on the challenge of change to innovative technologies

Future-oriented moves

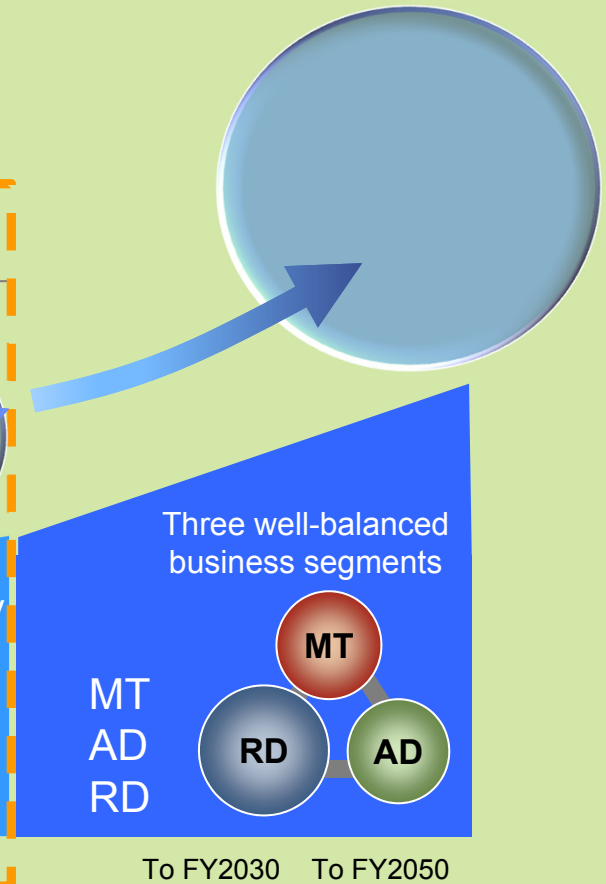
As the pace of innovation in society accelerates, we will foster an institutional climate able to meet changes, with our antenna raised high and even daring to try creative destruction

- Deepen and expand joint development activities with SRI International
 - Accelerate development of the Abacus drive and bring to market
 - Expand the scope of joint development to other transmissions
- Take on the challenge of, and keep a close eye on, new materials and new principles
- Promote active access to peripheral technologies
- Promote exchanges with research institutions and other industries

Aim for further growth toward 2030 and 2050

Consolidated sales (100 mil. yen)

Planned	204	260	290	350		
Actual	181	210	259	282	300	545



The performance targets and other numerical data presented herein are forecasts based on information available to the HDS Group at the time this material was prepared, and are subject to the influence of uncertainties including those in the economic and competitive environment. Actual performance may therefore differ materially from the forecasts given in this material.

Harmonic Drive Systems Inc.

For more information:

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