

# ***Harmonic Drive Systems Inc.***

## Presentation on Business Results for the Fiscal Year Ended March 31, 2016

May 20, 2016

This presentation contains forward-looking statements relating to expected future performance as of May 20, 2016. Such statements are based on the views and assumptions of company management and involve risks and uncertainties such as changes in the business environment that may cause the actual results to differ materially from expectations.

The title is centered and surrounded by several decorative, flowing blue lines that swirl around the text, creating a dynamic and artistic frame.

# *Performance Summary for FY 2016/3*

# Consolidated results for FY 2016/3 (versus original forecasts)

(millions of yen)

	Forecast (announced Nov. 11, 2015)		FY2016/3 (actual)		Vs. original forecasts	
	Amount	Percent (%)	Amount	Percent (%)	Change	Rate (%)
Net sales	27,200	100.0	28,278	100.0	1,078	4.0
Operating income	7,100	26.1	7,618	26.9	518	7.3
Ordinary income	7,400	27.2	7,829	27.7	429	5.8
Net income	4,700	17.3	5,001	17.7	301	6.4
EPS (yen)	51.31	—	54.60	—	3.29	6.4

Net income for FY16/3 refers to net income attributable to owners of parent.

EPS has been adjusted for the 3-for-1 stock split carried out on October 1, 2014 retroactively.

# Consolidated results for FY 2016/3 (year-on-year change)

(millions of yen)

	FY2015/3		FY2016/3		Year-on-year change	
	Amount	Percent (%)	Amount	Percent (%)	Change	Rate (%)
Net sales	25,951	100.0	28,278	100.0	2,327	9.0
Operating income	7,066	27.2	7,618	26.9	551	7.8
Ordinary income	7,525	29.0	7,829	27.7	304	4.0
Net income	4,833	18.6	5,001	17.7	168	3.5
EPS (yen)	52.77	—	54.06	—	1.83	3.5
Capital investment	2,475	—	4,296	—	1,821	73.6
Depreciation costs	1,305	—	1,524	—	219	16.8
R&D costs	1,309	—	1,404	—	95	7.3

Net income for FY16/3 refers to net income attributable to owners of parent.

EPS has been adjusted for the 3-for-1 stock split carried out on October 1, 2014 retroactively.

# Performance of main group companies in FY2016/3

(millions of yen)

		Equity stake	Net sales		Net income	
			Amount	Year-on-year change (%)	Amount	Year-on-year change (%)
	Harmonic Drive Systems Inc.	—	23,740	3.1	4,608	13.4
*2	HD Systems, Inc. (Harmonic Drive L.L.C.) (U.S.A)	100% (51%)	4,850	41.9	269	109.7
	Harmonic AD, Inc.	100%	2,241	6.6	141	45.2
*3	Harmonic Drive Systems (Shanghai) Co., Ltd.	100%	2,582	61.8	306	24.9
*4	Harmonic Drive AG (Germany)	36.8%	9,933	▲1.0	761	▲47.0

\*1 For overseas subsidiaries and affiliates, the fiscal year ends December 31.

\*2 Exchange rates: FY14/12 1USD = 105.85yen, FY15/12 1USD = 121.05yen

\*3 Exchange rates: FY14/12 1CNY = 17.19yen, FY15/12 1CNY = 19.22yen

\*4 Exchange rates: FY14/12 1EUR = 140.42yen, FY15/12 1EUR = 134.31yen

\*5 Net income of US subsidiaries (consolidated) is after excluding minority interests.

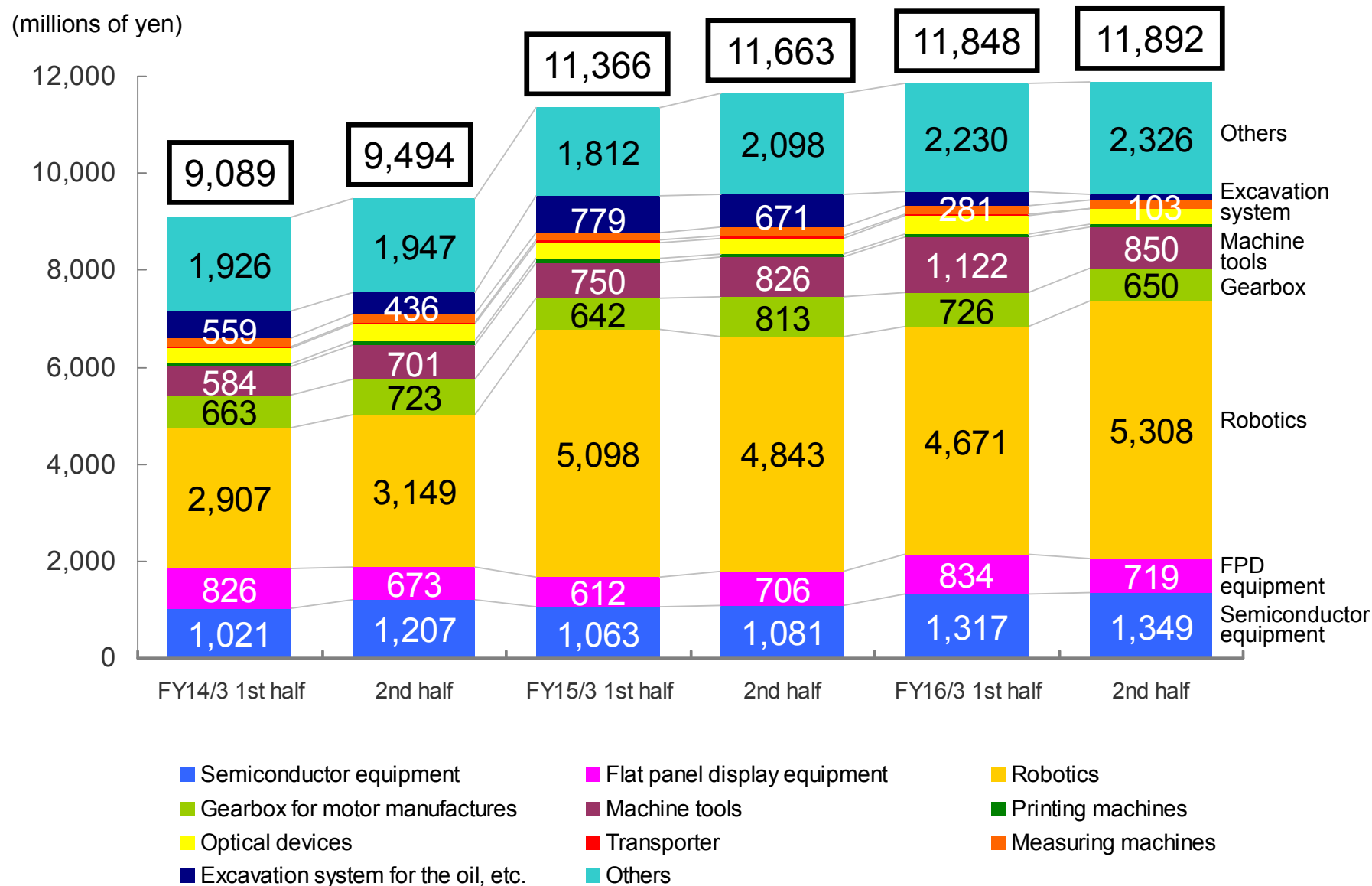
# Non-consolidated results for FY2016/3 (year-on-year change)

(millions of yen)

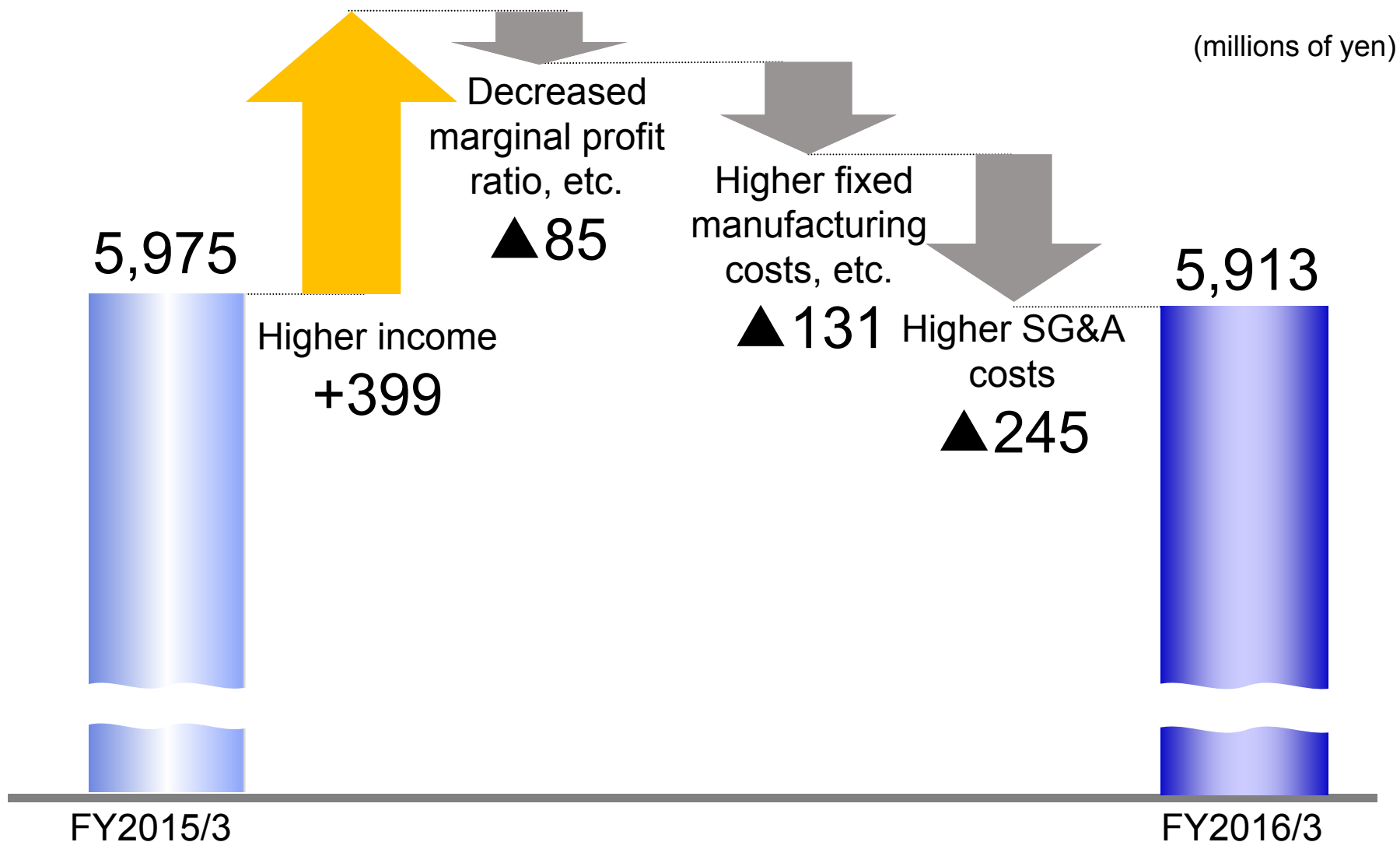
	FY2015/3		FY2016/3		Year-on-year change	
	Amount	Percent (%)	Amount	Percent (%)	Change	Rate (%)
Net sales	23,029	100.0	23,740	100.0	710	3.1
Operating income	5,975	25.9	5,913	24.9	▲61	▲1.0
Ordinary income	6,340	27.5	6,625	27.9	285	4.5
Net income	4,063	17.6	4,608	19.4	544	13.4
EPS (yen)	44.37	—	50.31	—	5.94	13.4
Capital investment	1,456	—	3,462	—	2,005	137.7
Depreciation costs	756	—	898	—	141	18.8
R&D costs	1,296	—	1,395	—	98	7.6

EPS has been adjusted for the 3-for-1 stock split carried out on October 1, 2014 retroactively.

# Net sales by application (non-consolidated)

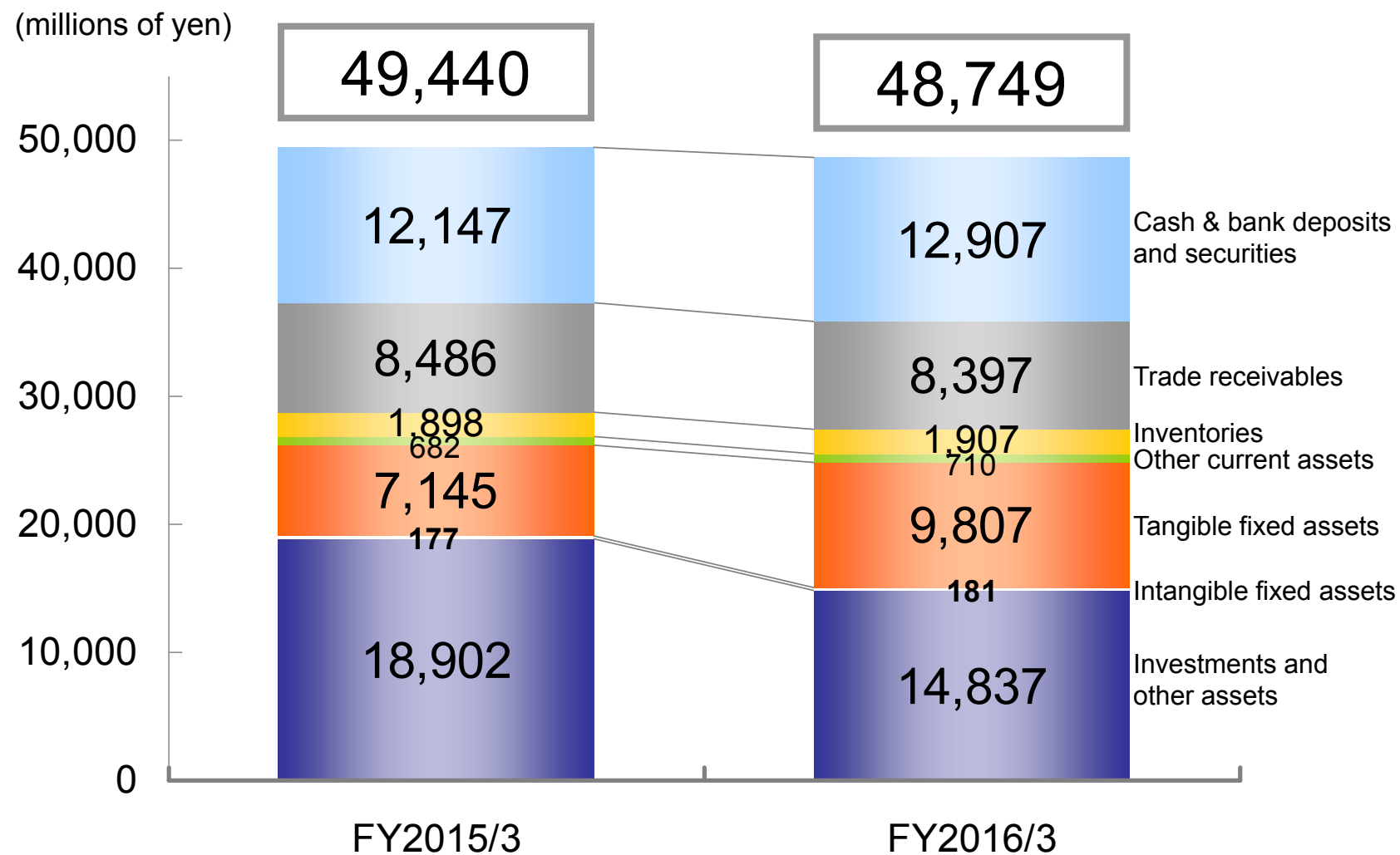


# Factors in year-on-year change in non-consolidated operating income (FY2016/3)

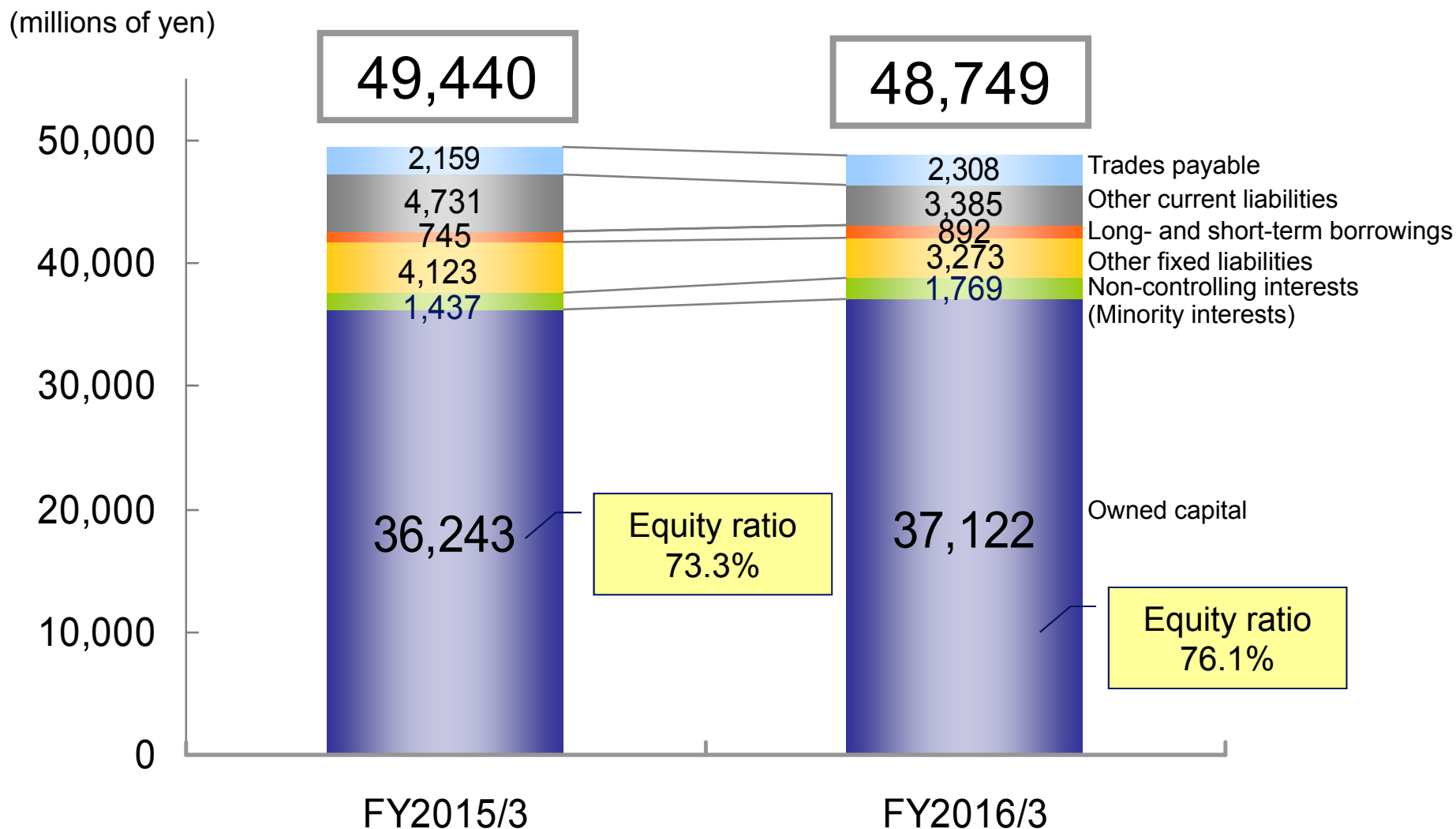




# Status of consolidated assets



# Status of consolidated liabilities and net assets



# Status of consolidated cash flows

(millions of yen)	FY2015/3	FY2016/3
Cash flow from operating activities	5,494	6,499
Cash flow from investing activities	▲2,103	▲4,394
Cash flow from financing activities	▲737	▲1,384
Effect of exchange rate changes on cash and cash equivalents	193	▲11
Net increase (decrease) in cash and cash equivalents	2,846	708
Cash and cash equivalents at end of year	9,730	10,439

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# *Performance Forecasts for FY 2017/3*

# Consolidated performance forecasts for FY 2017/3

(millions of yen)

	FY2016/3		FY2017/3 forecasts		Year-on-year change	
	Amount	Percent (%)	Amount	Percent (%)	Change	Rate (%)
Net sales	28,278	100.0	30,000	100.0	1,721	6.1
Operating income	7,618	26.9	8,200	27.3	581	7.6
Ordinary income	7,829	27.7	8,900	29.7	1,070	13.7
Net income	5,001	17.7	6,000	20.0	998	20.0
EPS (yen)	54.60	—	65.50	—	10.90	20.0
Capital investment	4,296	—	3,600	—	▲696	▲16.2
Depreciation costs	1,524	—	1,850	—	325	21.4
R&D costs	1,404	—	1,520	—	115	8.2

Assumed exchange rate for FY17/3 forecasts 1USD = ¥110.00 1EUR = ¥120.00 1CNY=¥17.00

Net income refers to net income attributable to owners of parent.

# FY 2017/3 forecasts for main group firms

(millions of yen)						
		Equity stake	Net sales		Net income	
			Amount	Year-on-year change (%)	Amount	Year-on-year change (%)
Harmonic Drive Systems Inc.		—	25,500	7.4	4,700	2.0
※2	HD Systems, Inc. (Harmonic Drive L.L.C.) (U.S.A)	100% (51%)	4,510	▲7.2	260	▲3.4
Harmonic AD, Inc.		100%	2,350	4.8	150	6.2
※3	Harmonic Drive Systems (Shanghai) Co., Ltd.	100%	3,500	35.5	480	56.8
※4	Harmonic Drive AG (Germany)	36.8%	11,000	10.7	2,100	175.8

\*1 For overseas subsidiaries and affiliates, the fiscal year ends December 31.

\*2 Exchange rates: FY15/12 1USD = 121.05yen, FY16/12 (forecast) 1USD = 110.00yen

\*3 Exchange rates: FY15/12 1CNY = 19.22yen, FY16/12 (forecast) 1CNY = 17.00yen

\*4 Exchange rates: FY15/12 1EUR = 134.31yen, FY16/12 (forecast) 1EUR = 120.00yen

\*5 Net income of US subsidiaries (consolidated) is after excluding minority interests.

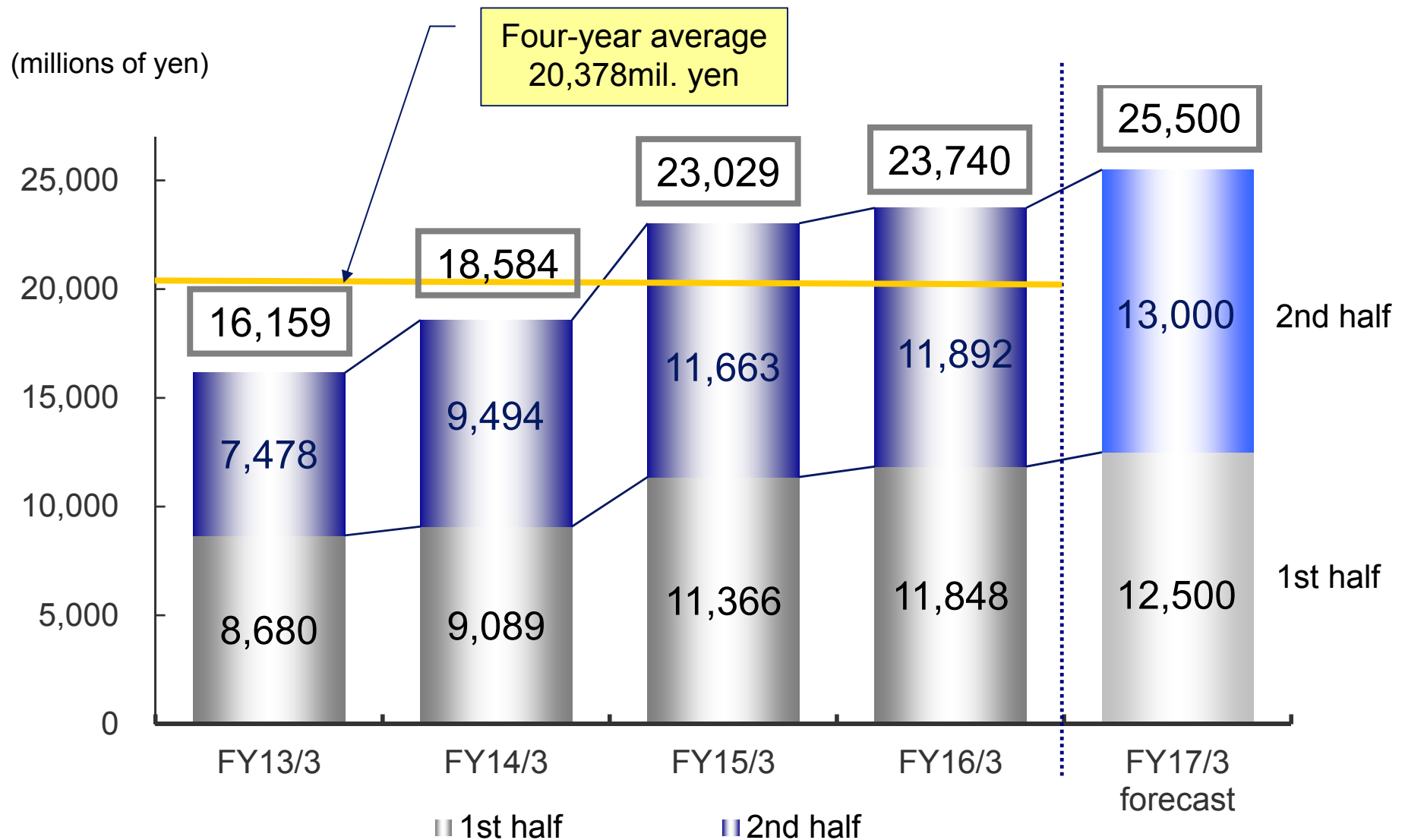
# Non-consolidated performance forecasts for FY 2017/3

(millions of yen)

	FY2016/3		FY2017/3 forecasts		Year-on-year change	
	Amount	Percent (%)	Amount	Percent (%)	Change	Rate (%)
Net sales	23,740	100.0	25,500	100.0	1,759	7.4
Operating income	5,913	24.9	6,200	24.3	286	4.8
Ordinary income	6,625	27.9	6,650	26.1	24	0.4
Net income	4,608	19.4	4,700	18.4	91	2.0
EPS (yen)	50.31	—	51.31	—	1.00	2.0
Capital investment	3,462	—	2,800	—	▲662	▲19.1
Depreciation costs	898	—	1,200	—	301	33.5
R&D costs	1,395	—	1,500	—	104	7.5

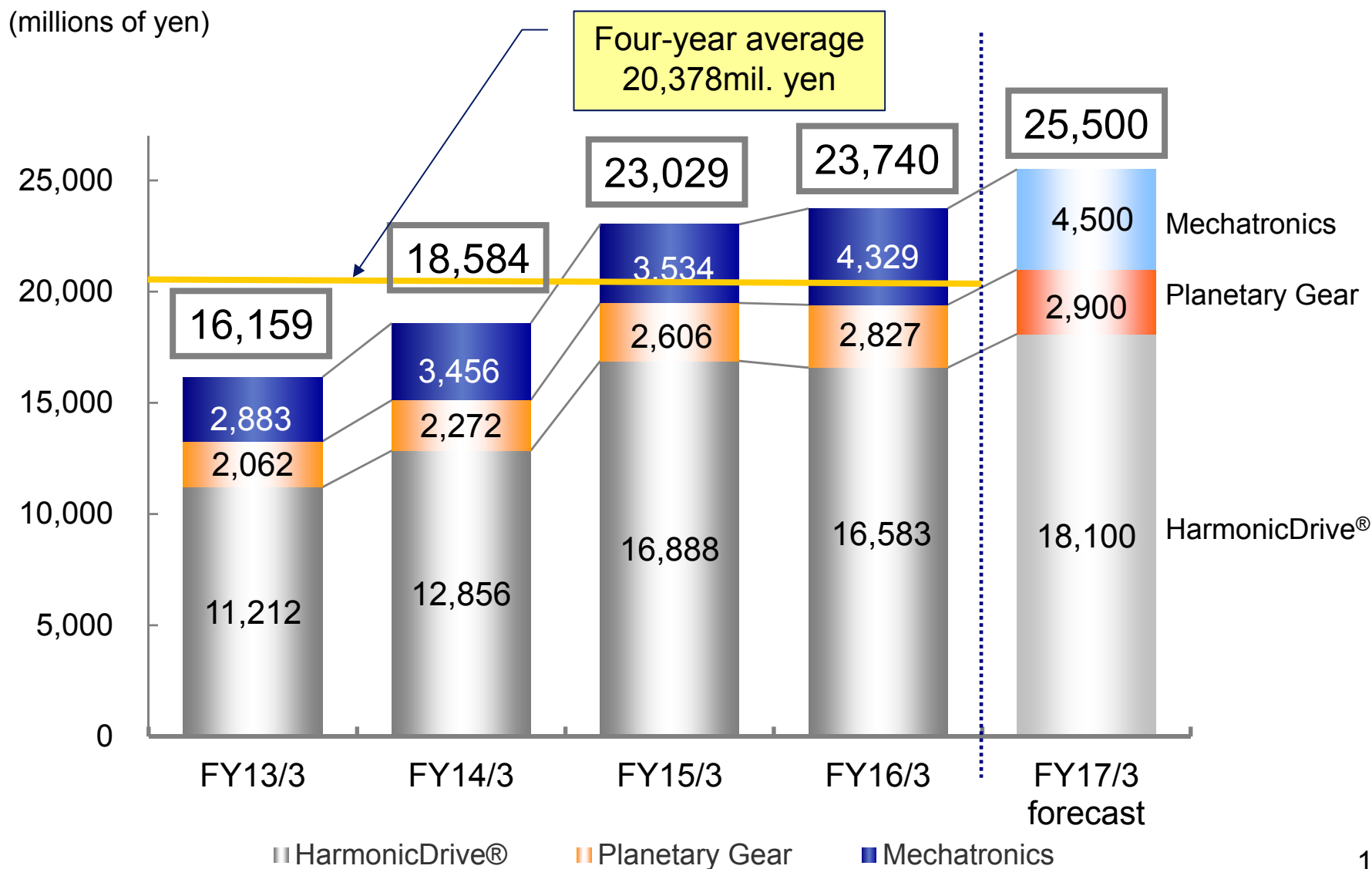
Assumed exchange rate for FY17/3 forecasts 1USD = ¥110.00 1EUR = ¥120.00 1CNY = ¥17.00

# Sales trend line (non-consolidated)

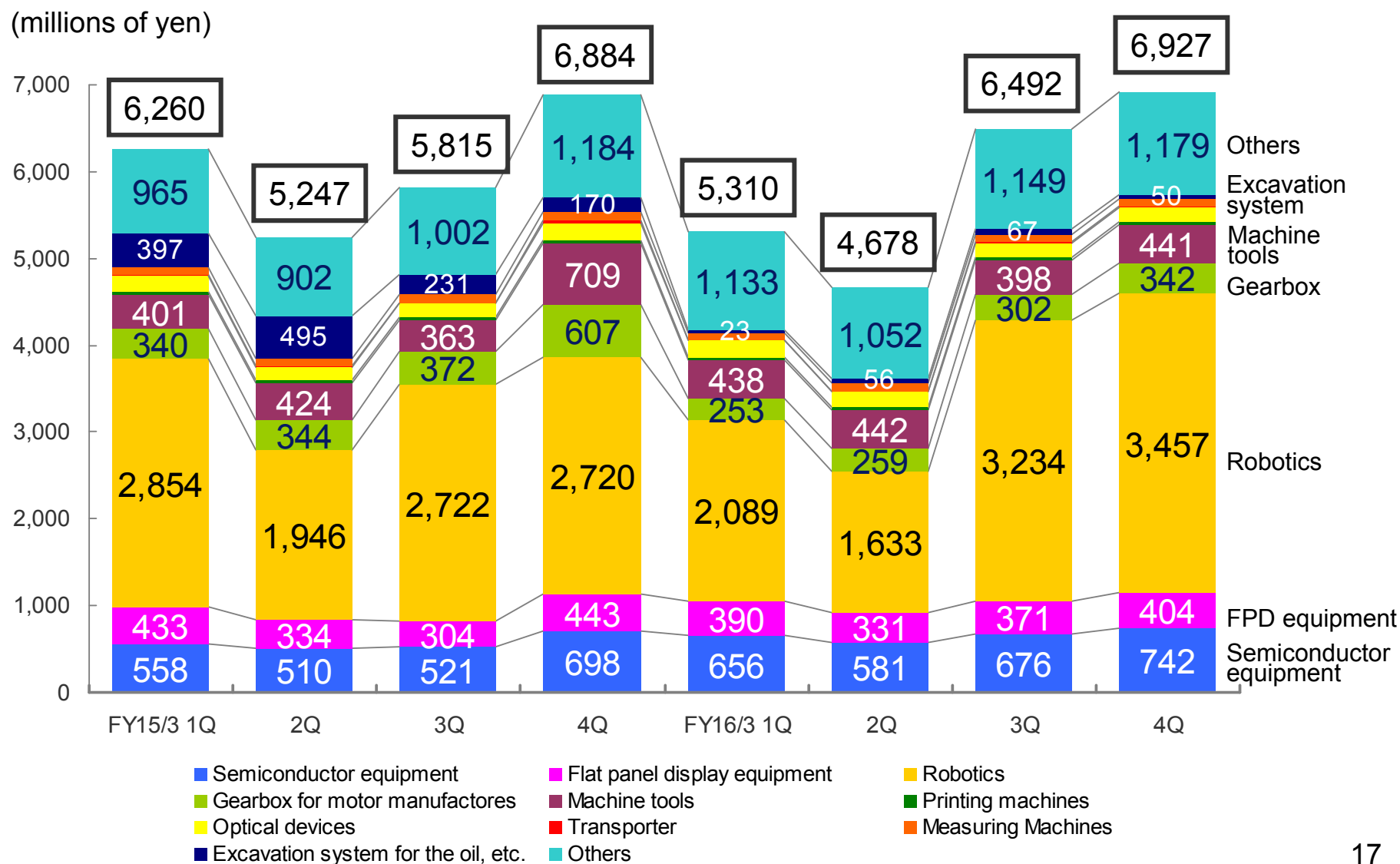




# Sales trend line by product (non-consolidated)

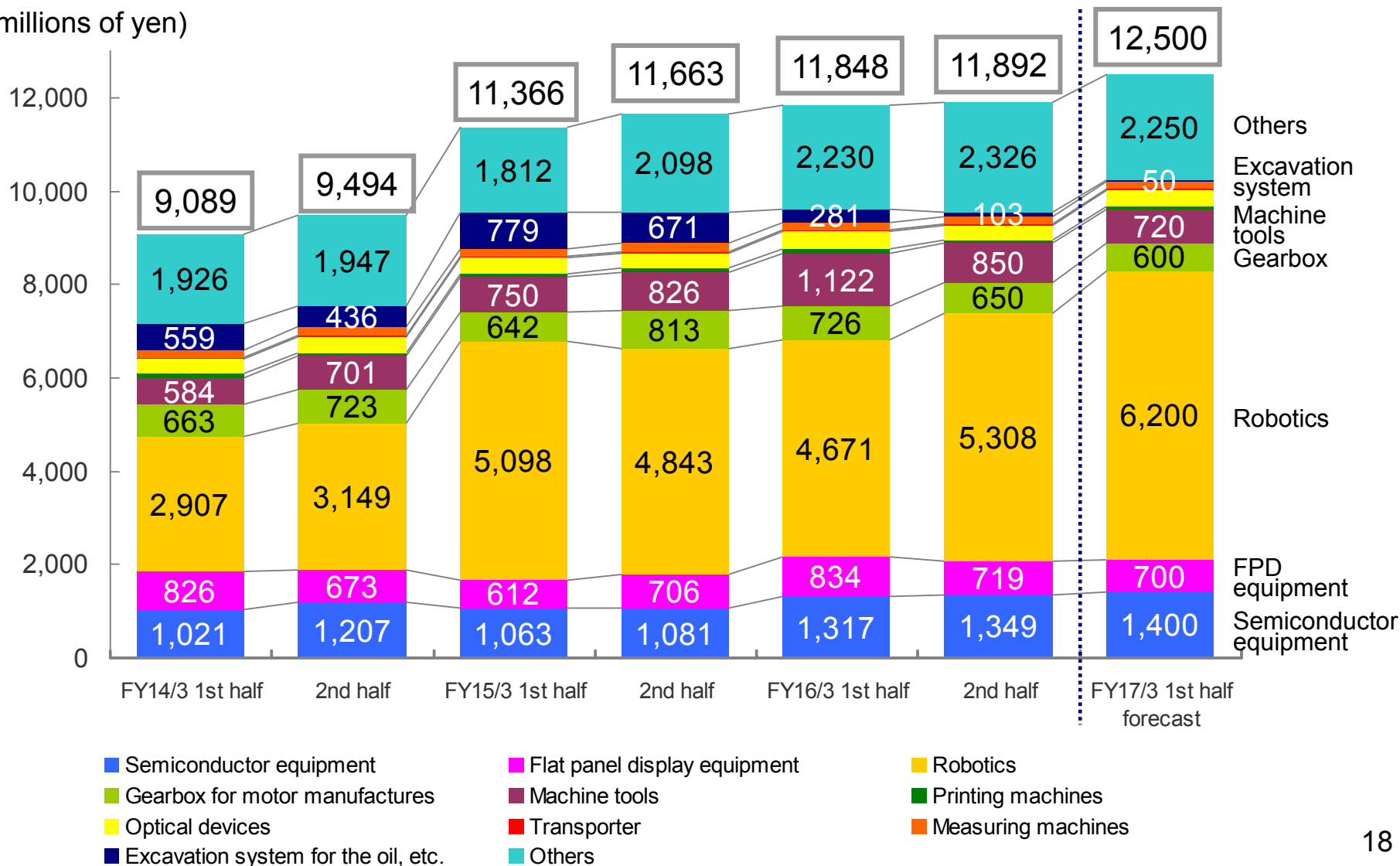


# Non-consolidated bookings by application (quarterly)

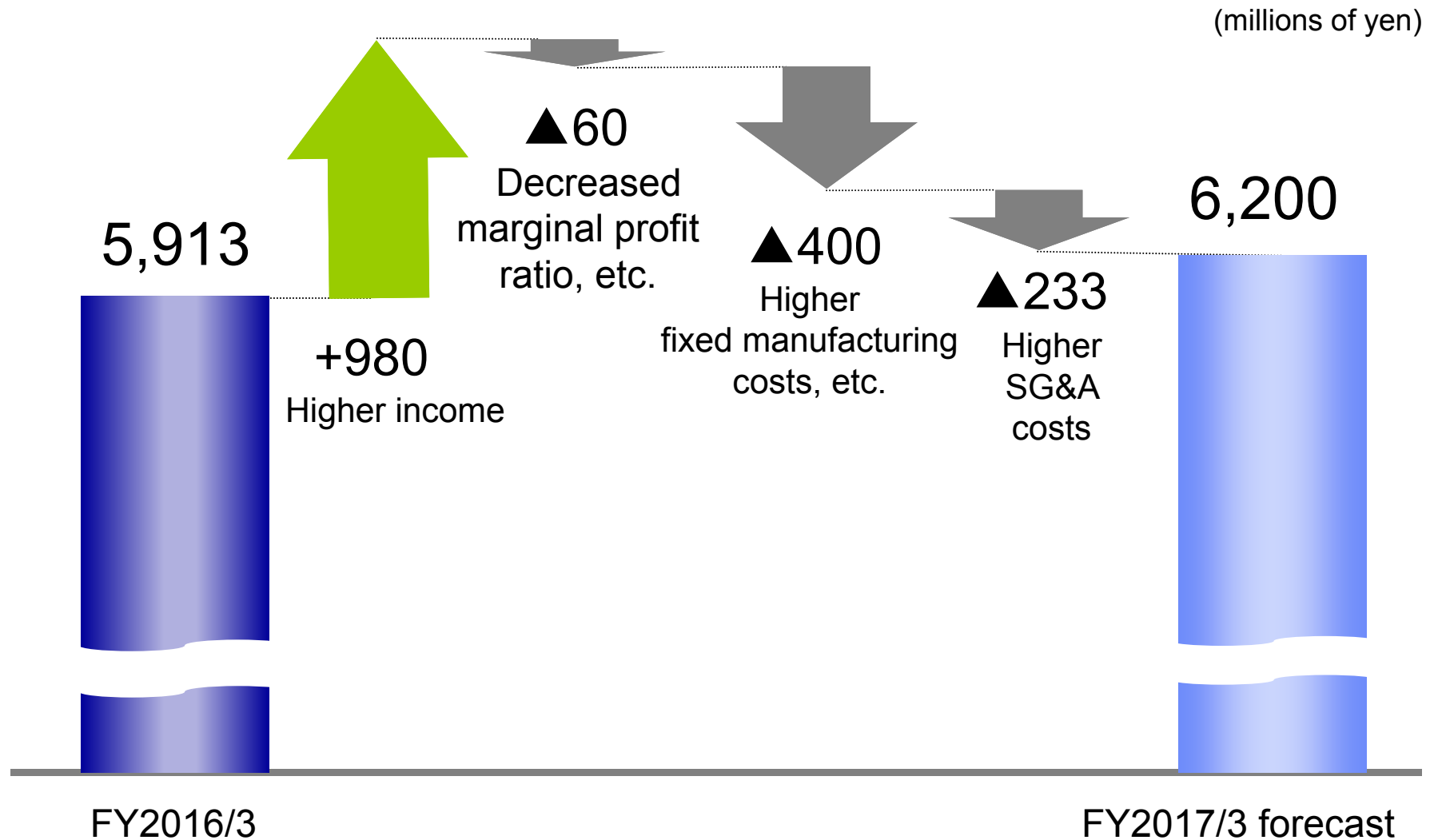


# Non-consolidated Sales by application (by half-year)

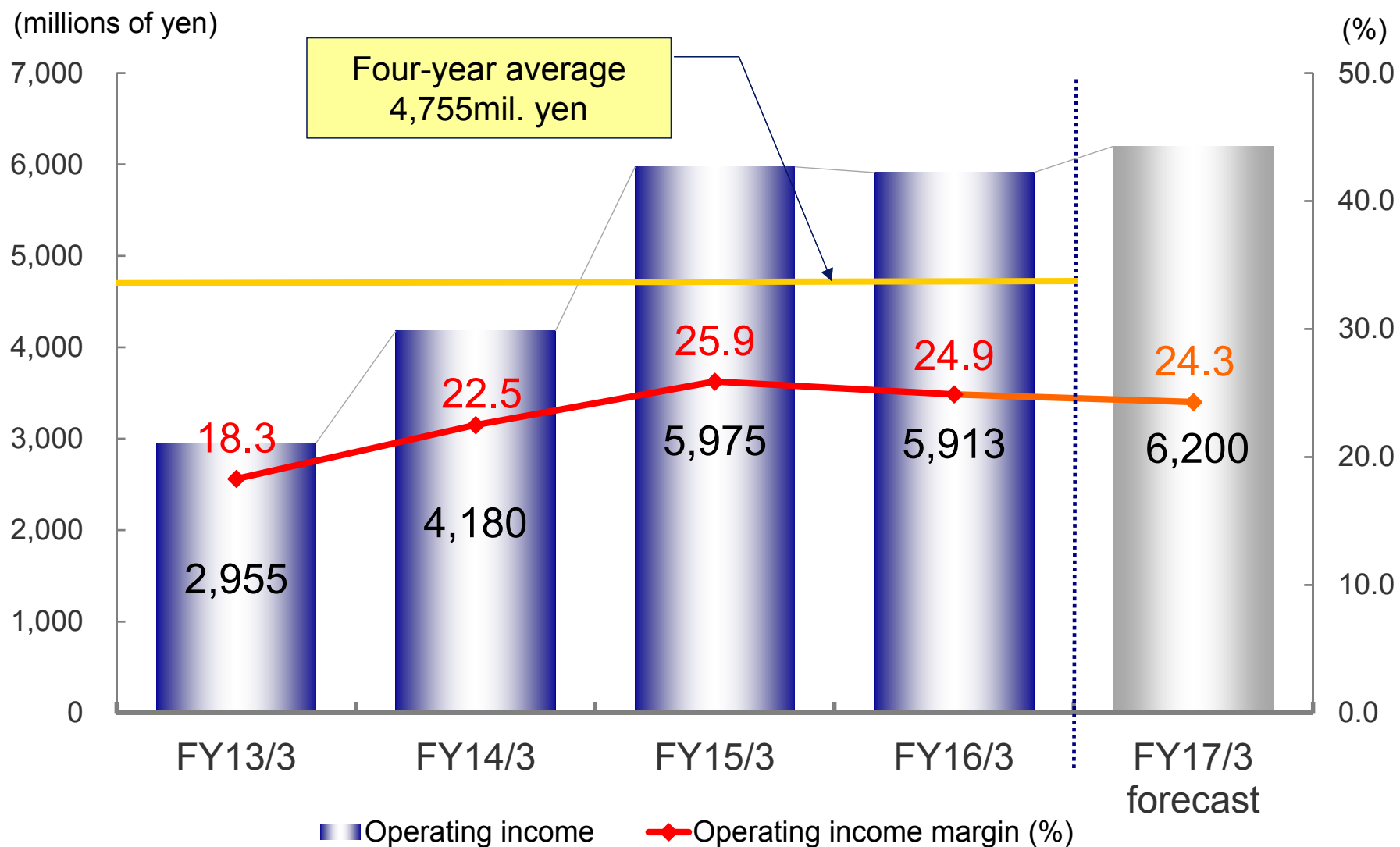
(millions of yen)



# Factors in year-on-year change in non-consolidated operating income (FY 2017/3 forecast)



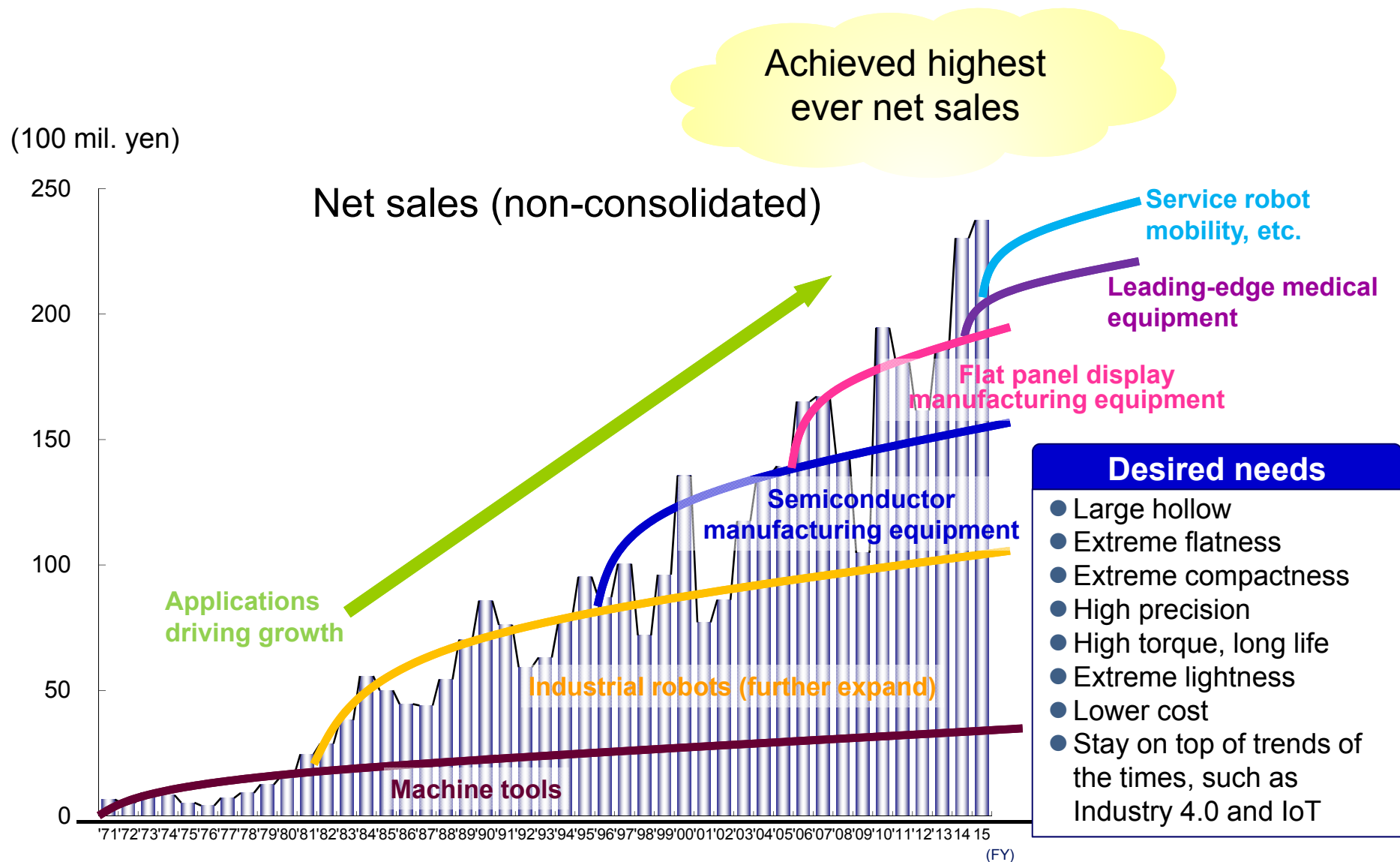
# Trends in operating income (non-consolidated)





# Long-term Vision

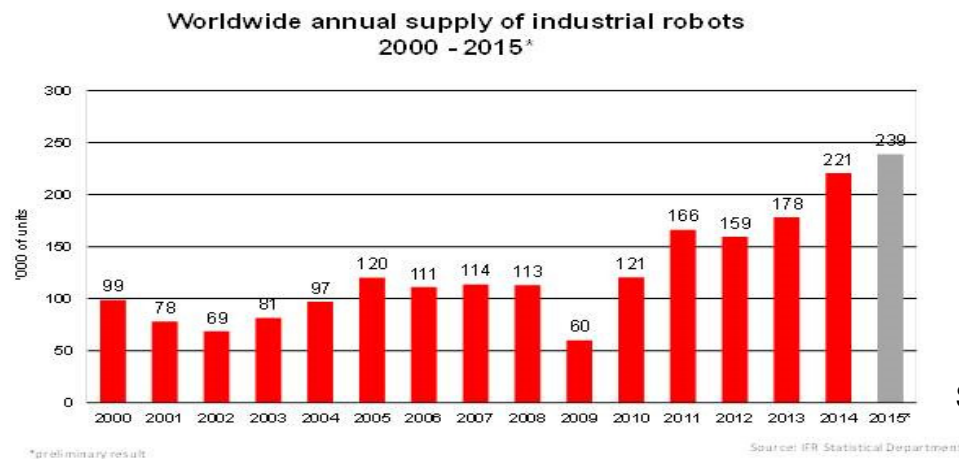
# Driving forth of our growth



# Global shipments of industrial robots

Industrial robot shipments in 2015: 239,000 (+8% YoY)

## New record sales in 2015



Source: IFR website

Main regions	Units sold in 2015	YoY change (%)
China	66,000	16
Asia (other than China)	78,000	-5
Europe	50,000	9
North America (US, Canada, Mexico)	34,000	11

Source: IFR website



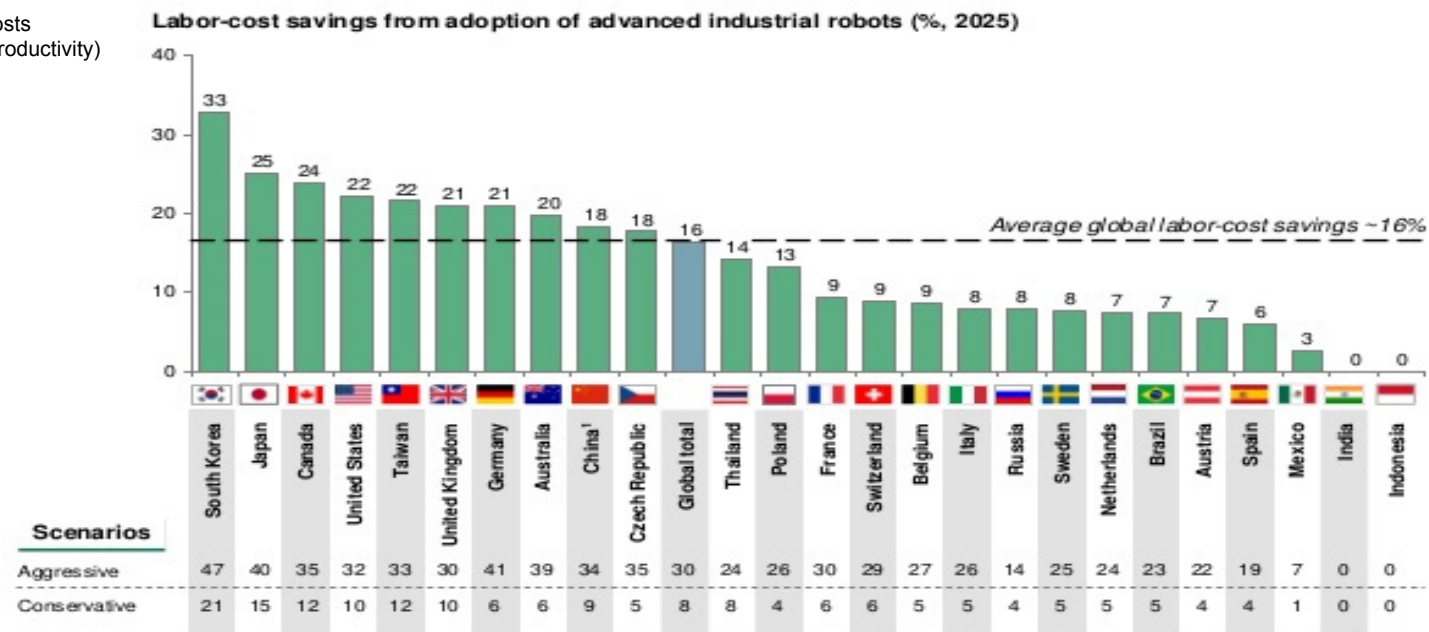
# Potential markets

- Rate of labor cost reduction due to rapid expansion of industrial robot use
- The more economically developed a country, the higher its labor costs, raising expectations for robot introduction.

» Rate of labor cost reduction due to rapid expansion of industrial robot use (2014 and 2025 compared)

**By 2025, ~25% of all tasks will be automated through robotics, driving ~16% in global labor-cost savings**

(%, based on labor costs after adjustment for productivity)



<sup>1</sup>China figures based on YRD region. Sources: STAN Bilateral Trade Database, US Bureau of Labor Statistics, BCG analysis

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Note 1: China figures based on Yangtze River Delta region.

Sources: STAN Bilateral Trade Database, US Bureau of Labor Statistics, BCG analysis

# Robot classifications

Type		Use	Requirements for speed reducers
I. Industrial robot	Industrial robot	Making things on the factory floor, separated from humans by safety fence	High precision, high reliability, with sensing functions
	Co-bot	Operating alongside human workers, assisting and collaborating	Medium-precision, safety, acceleration efficiency, impact cushioning
II. Service robot	Professional robot	Medical, nursing care, rehabilitation, logistics, resource extraction, agriculture	Compact, light weight, flat, high precision
	Consumer robot	Consumer electronics, hobbies, toys	Low cost

Source: IFR and KDDI Research Institute with our additions

# LifeRobotics

Japanese co-bot maker

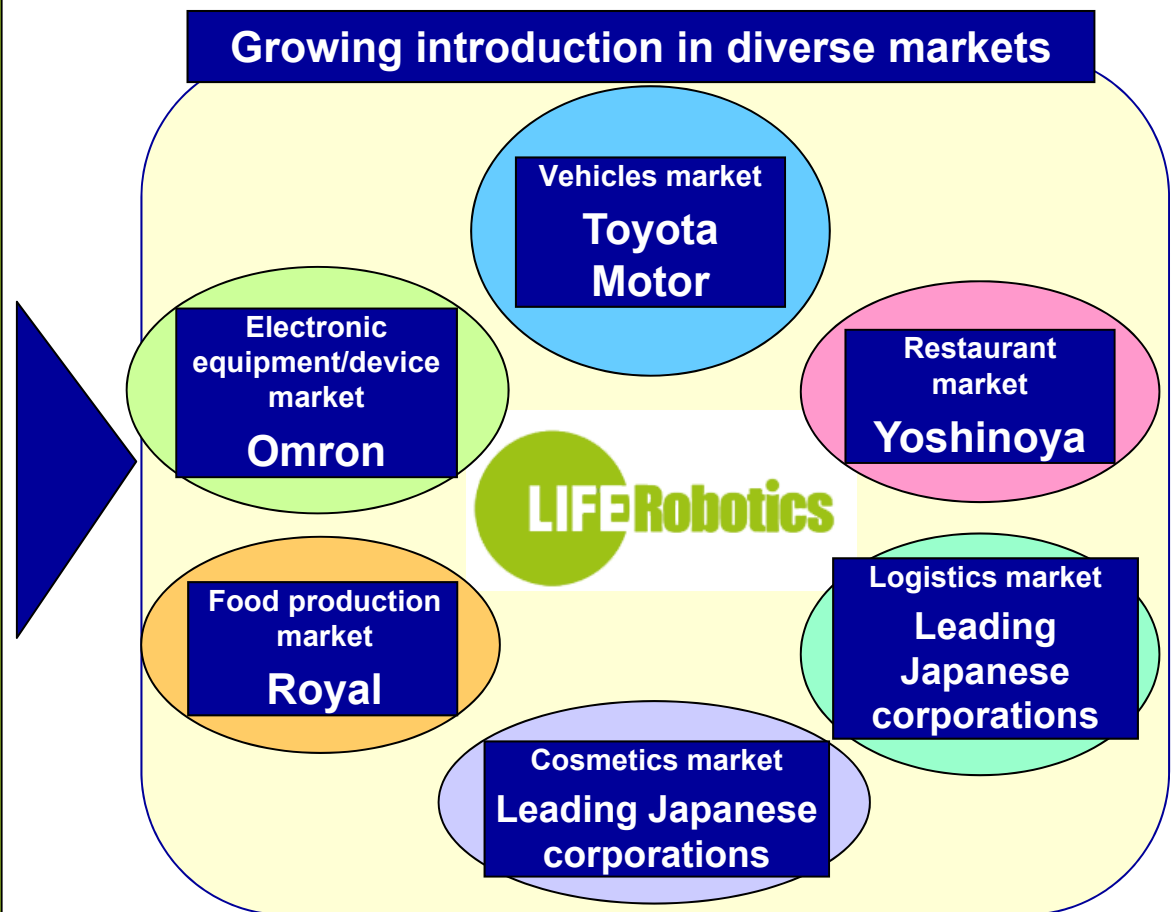
Picking co-bot with the “world’s simplest operation”



Features of CORO® co-bot

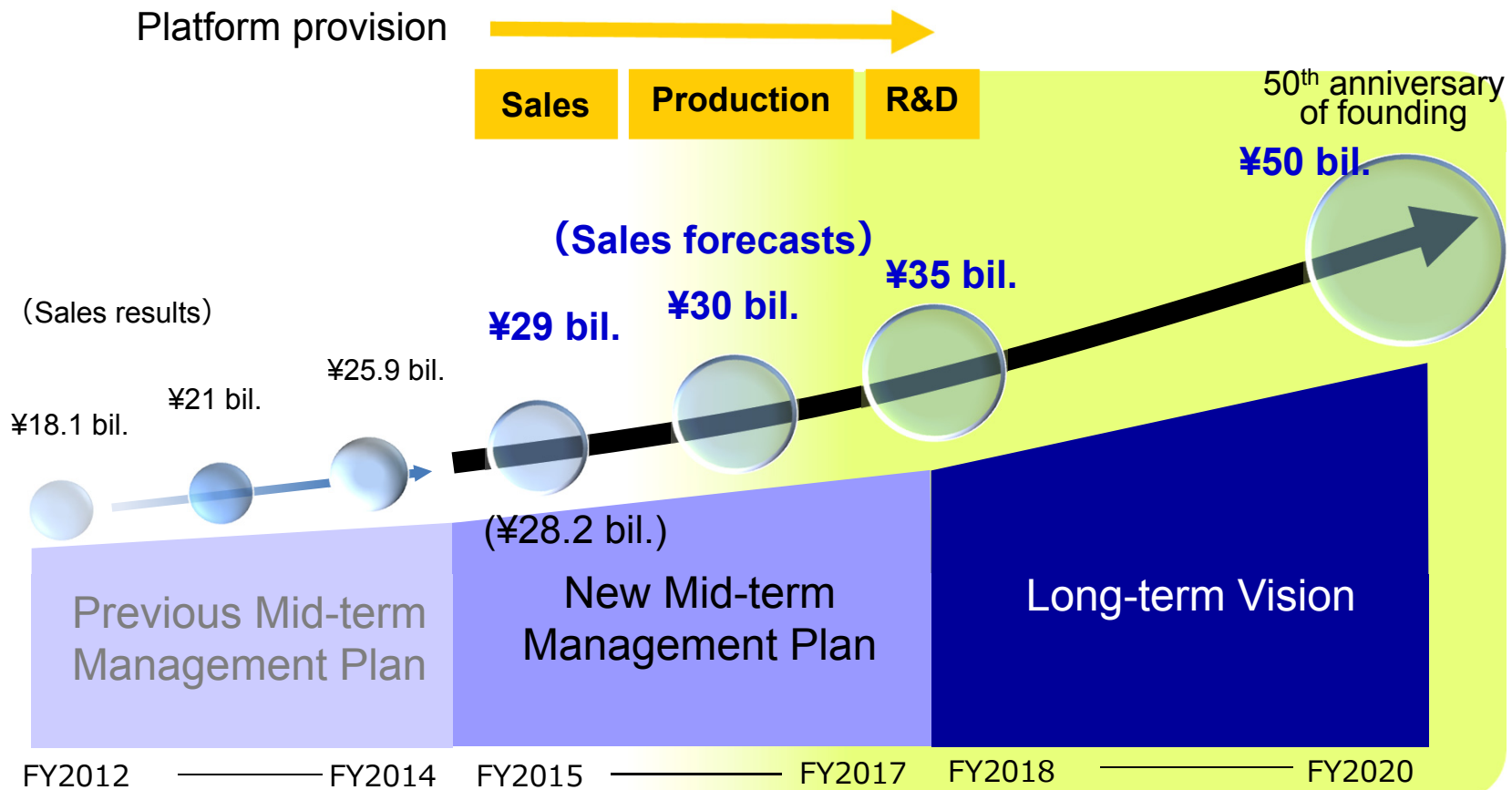
- Highly safe, using extensible arm with no elbow joints
- Simple setting of actions by teaching
- Same size operating space as humans

From LifeRobotics website



# Realizing the long-term vision

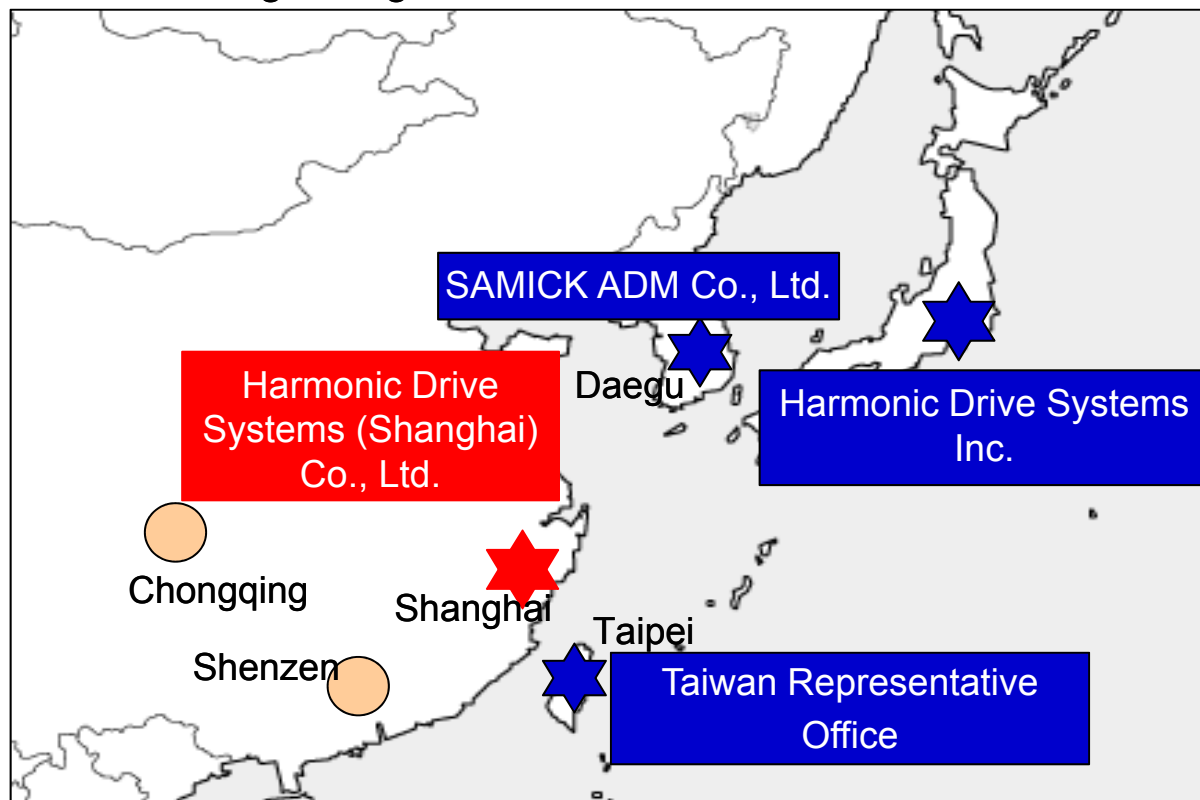
## Provision of platforms for sales, R&D, production



# Sales: Expanding sales to Asian markets

## Planning to establish sales agency in Taiwan

- Electronic parts, semiconductors, EMS and other industries are flourishing  
Markets for robots, semiconductor manufacturing equipment, machine tools and other factory automation products are also expanding
- New robot companies, and makers of built-in EMS robots and collaborative robots, are growing



Taiwan Representative Office



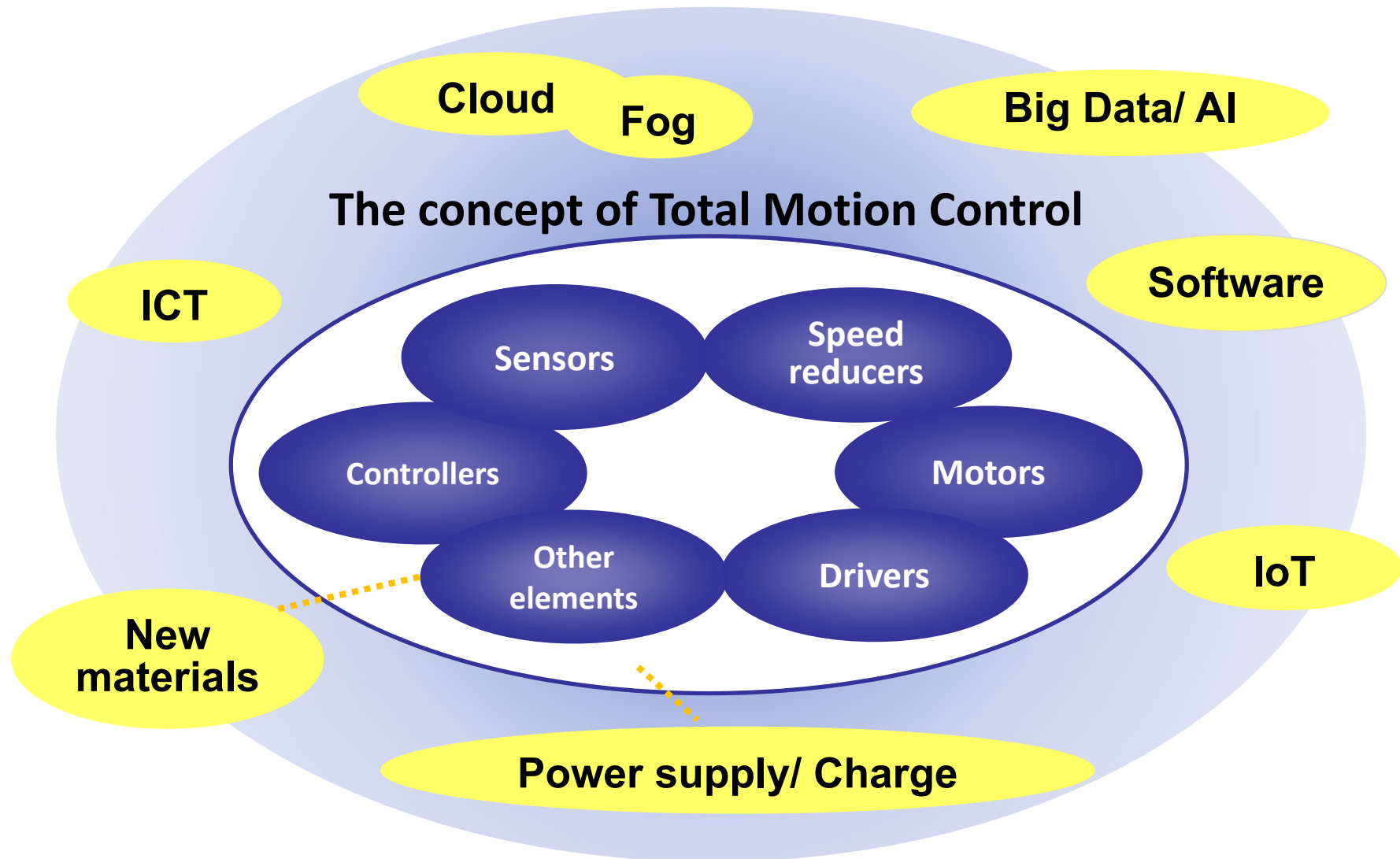
# Production capability: Expanding capacity

## Completion of new plant building

- Meet medium-term demand increases
- Raise monthly production capacity from 50,000 to 80,000 units  
(Investment in machine tools and other equipment will be carried out in phases with an eye on demand trends.)
- Introduce new production engineering to boost efficiency and quality



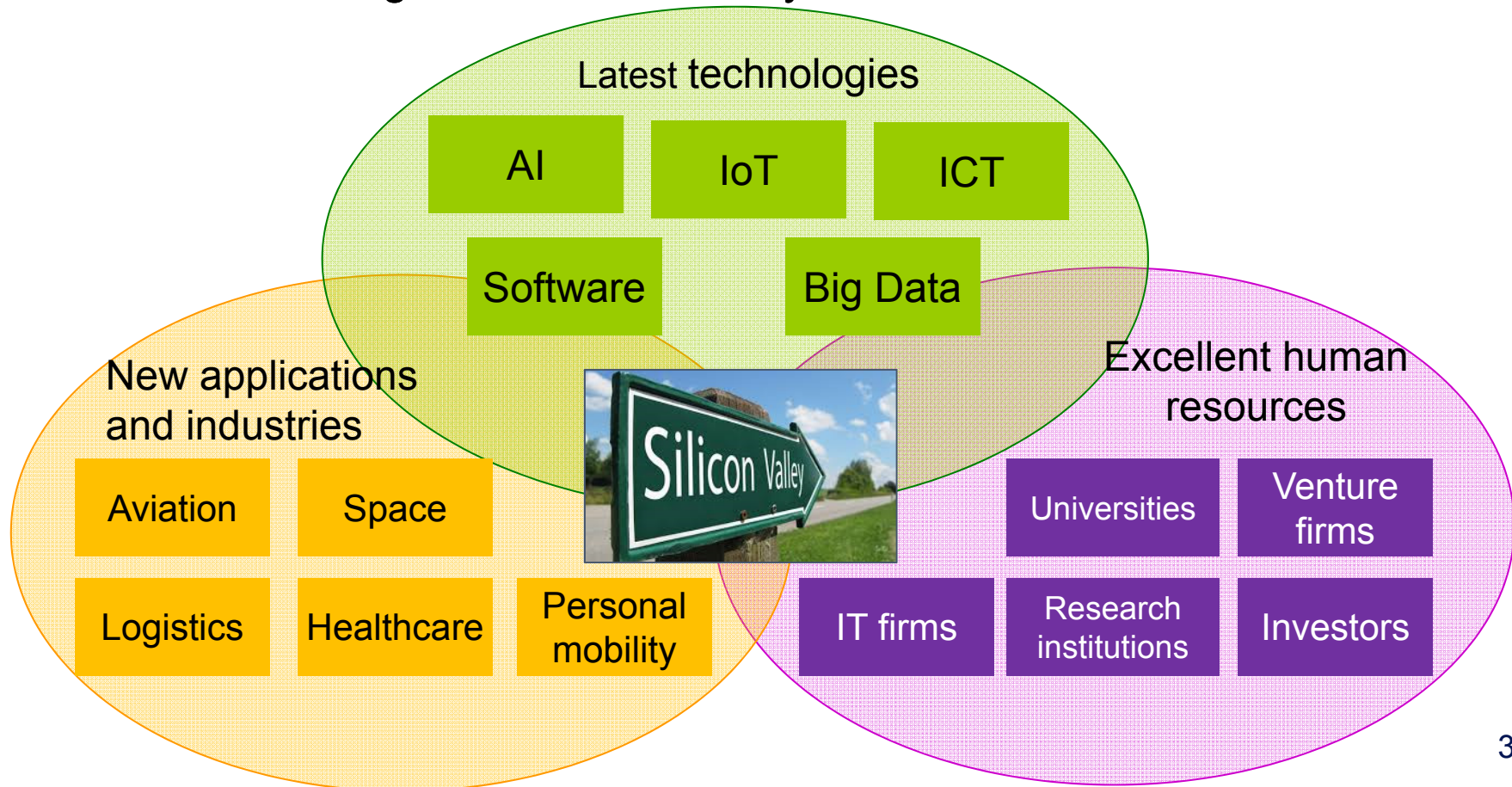
# Research and Development: Total Motion Control and Relation to New Core Technologies



# Research and Development: Searching for new technologies and preparing for expansion of applications

## New research site planned for Silicon Valley

- Search for new technologies, develop applications, gather information, and build relations with partners
- Take advantage of U.S. subsidiary to station our staff





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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