



Future Outlook

New Robot Trends and the HDS Group Advantage

Advances in Robots and Their Spheres of Use

1980s—Introduced and promoted wide use in processes inside the safety fence

1: In auto manufacturing plants

1962: Commercialization of industrial robots by Unimation, Inc. (US)

1968: Japanese-made hydraulic servo robots

1973: Development of multi-joint motorized robots

2010s—Growing use in processes collaborating with humans

2: In plants producing IT equipment

- Explosive popularity of smartphones
- Rapid rise in labor costs and growth of middle class in Asia
- Growing investment not just for cost-lowering but for quality improvement

20xxs—Introduction and wide use in living spaces

3: In non-industrial fields

1996: Development of self-standing two-legged walking robots (Honda's ASIMO)

2013: Five-year Plan for Developing Nursing Care Robots (Japan Revitalization Strategy)

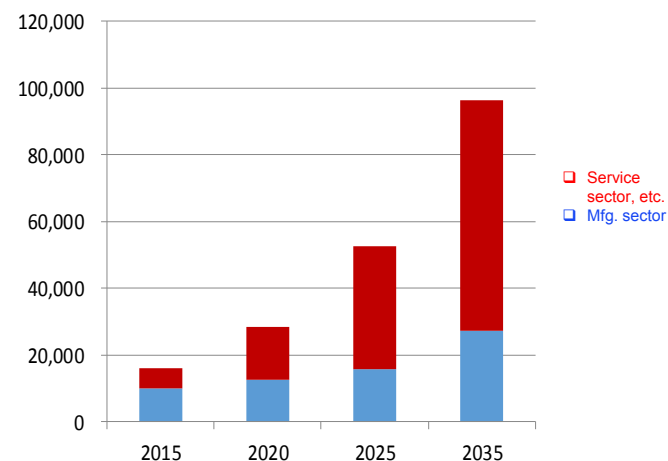
2013: Google and others enter robot business

Robot Industry Classifications

Type		Uses	Reducer demands
I. Industrial robots		Making things on the factory floor	High precision, high reliability
II. Service robots	Professional robots	Healthcare, nursing care, rehabilitation, logistics, resource extraction	Diverse needs
	Consumer robots	Consumer appliances, hobbies, and toys	Low cost

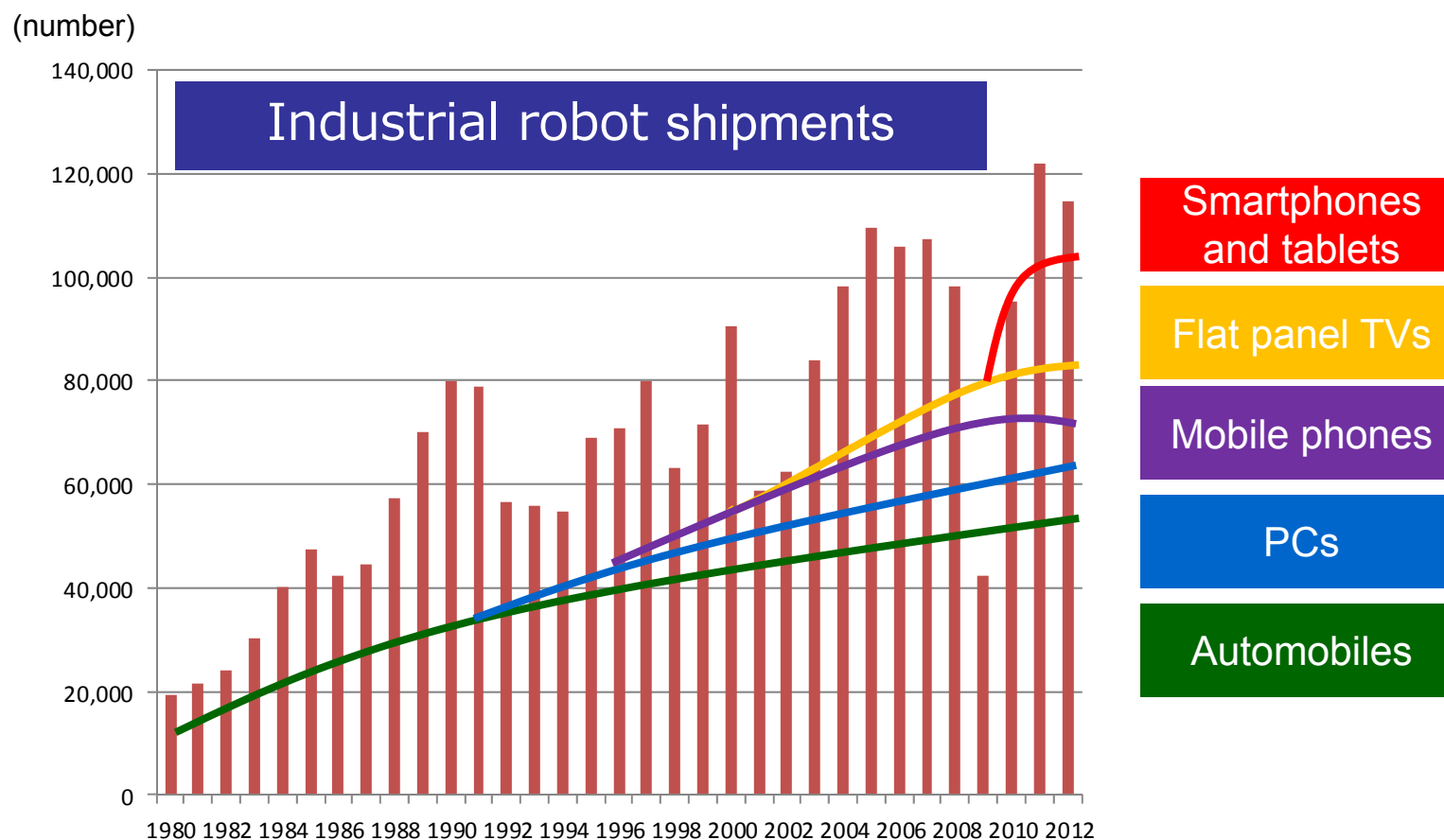
Governments, corporations, and research institutions have high hopes for the growth of the robot industry.

(100 mil. yen) Source: IFR, KDDI Research Institute



Growth Trends in Industrial Robot Market

The emergence and growth of devices with major impact on life style are driving demand for industrial robots

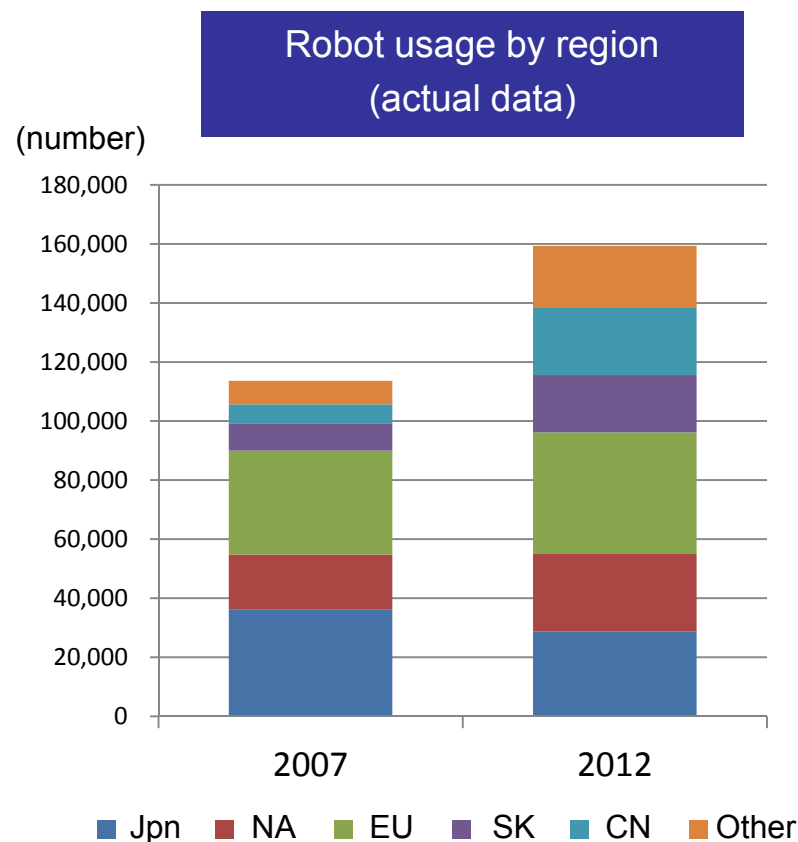


Source: Japan Robot Association

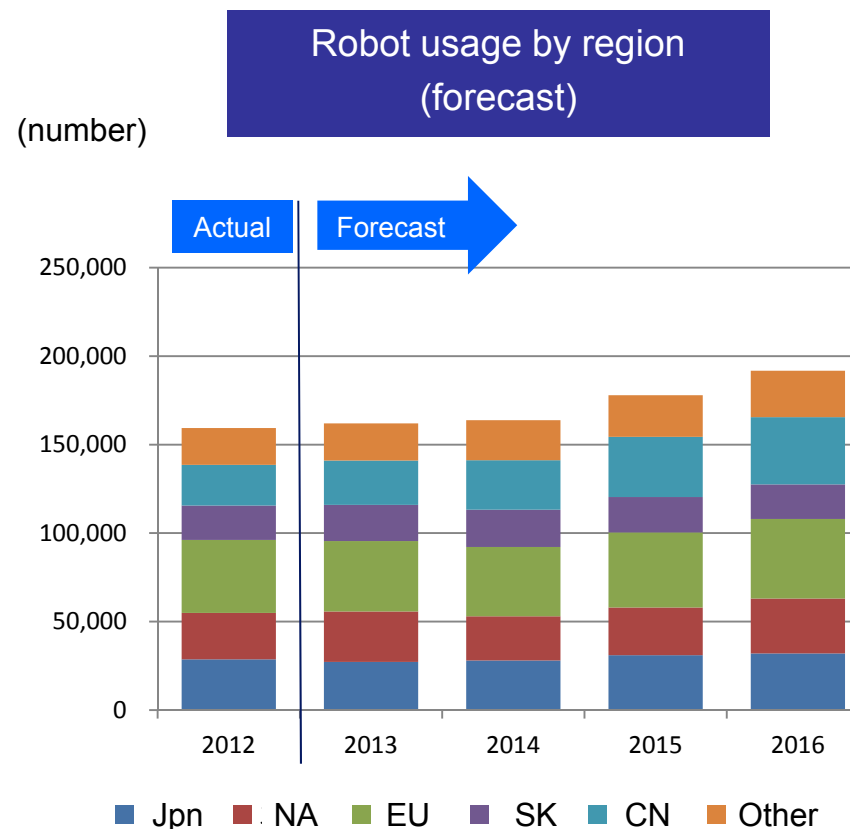
Growth of Industrial Robot Market

Robot introduction accelerating in China,
South Korea, and other regions

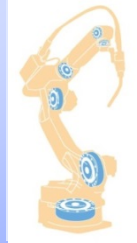
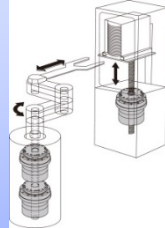
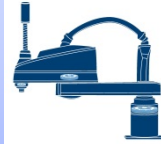
~Aimed at raising quality, reducing labor costs and labor management costs~



Source: IFR



Uses of Industrial Robots

Industry	Main processes	Robot features	Illustration
Automobiles	Welding Painting Transfer	With increasing needs for wider range of movement and carrying heavy items, mid-sized to large robots are common	
Semiconductors	Transfer	As many transferred items are light in weight (wafers), compact robots are common	
Digital devices Smartphones Tablets	Jig replacement Assembly Inspection Transfer	As many transferred items are light in weight (smartphones, tablets), mid-sized to compact robots are common	

- Need for quality improvement and stability, rise in labor costs
Demand growing in factories of newly emerging nations
- Advance of robot technology and revisions to safety standards
As they become skilled at assembly work only humans could perform, robots are expected to work side-by-side with human workers

Service Robots

Type	Uses	Reducer demands
II. Service robots	Professional robots	Healthcare, nursing care, rehabilitation, logistics, resource extraction
	Consumer robots	Consumer appliances, hobbies, and toys
		Diverse needs
		Low cost

Source: IFR, KDDI Research Institute

University of Tokyo
Ultra-high-speed multifingered hand system

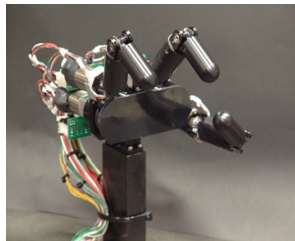
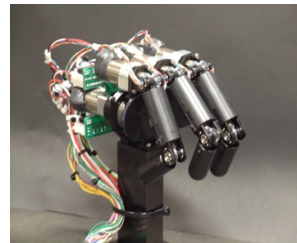
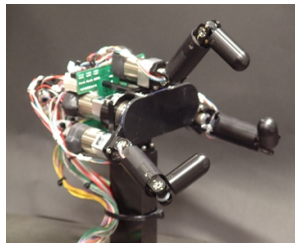


Photo: Ishikawa Oku Laboratory, University of Tokyo

Shinshu University
Robotic suit to assist with walking

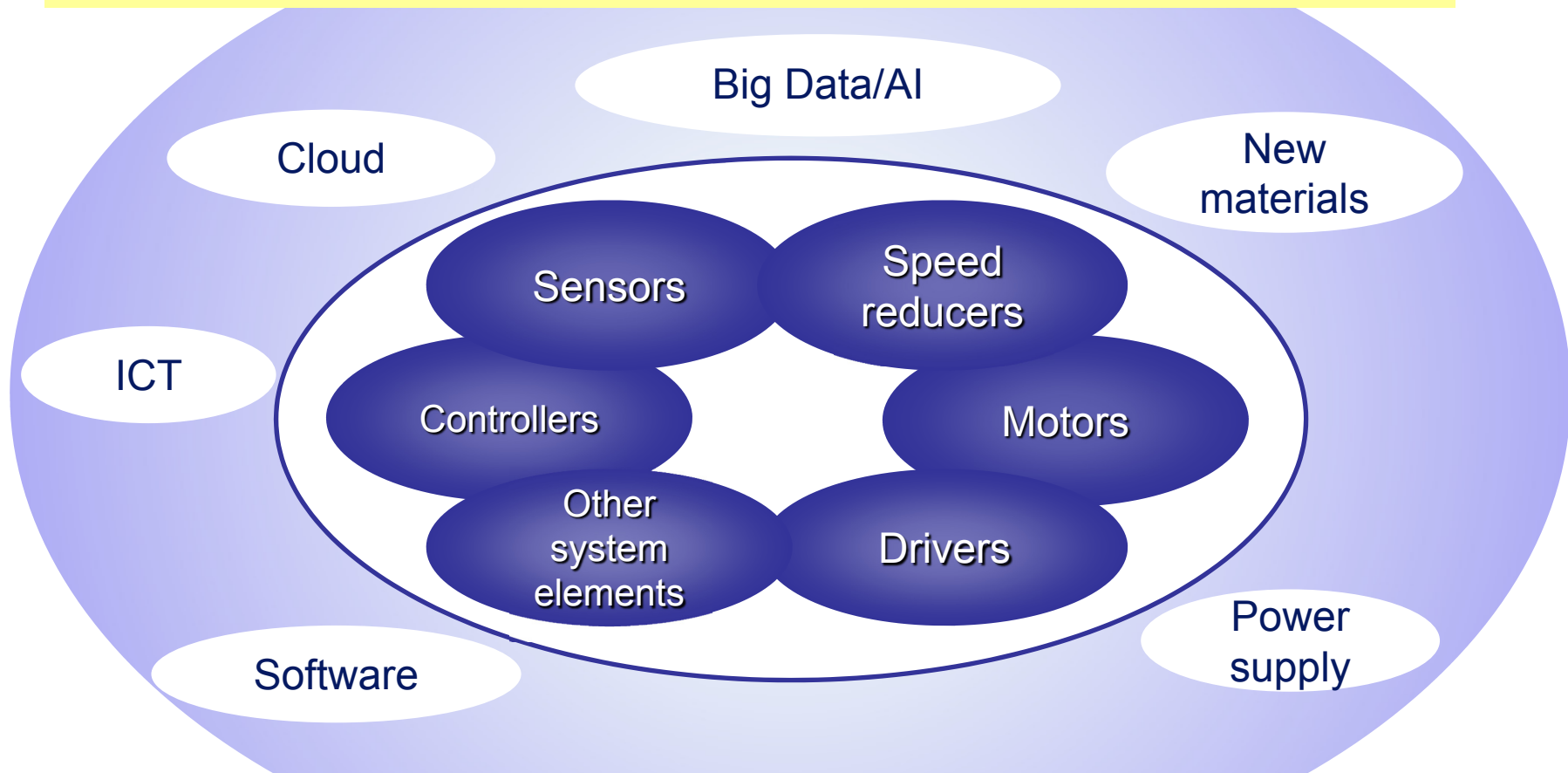


September 21, 2013 Shinano Mainichi Shimbun

Total Motion Control

Business domain of
our Group

Providing the value of Total Motion Control



On to the world of smart robots?

The Next Mid-term Management Plan and Long-term Vision

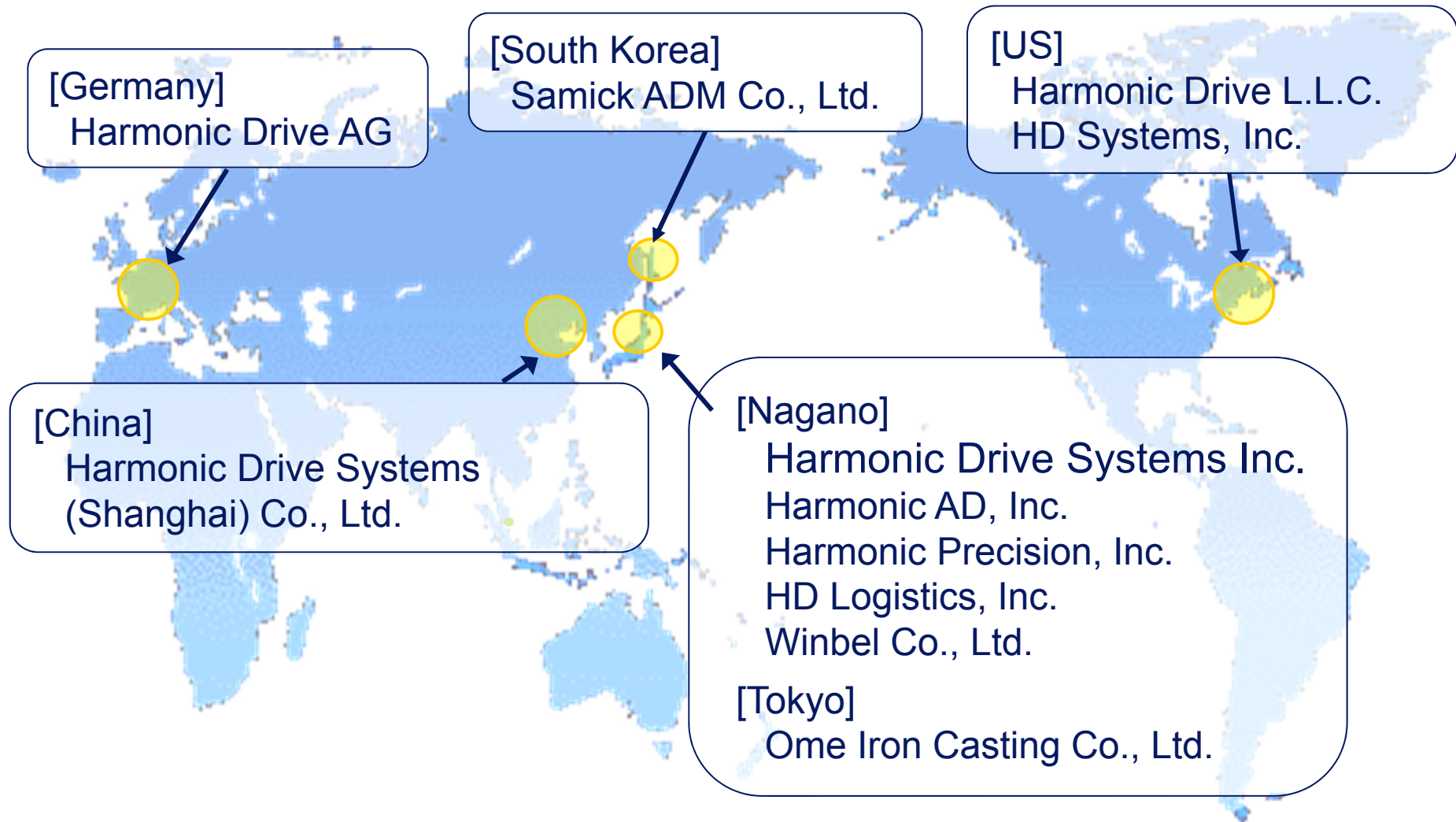
~Looking ahead to our 50th anniversary~

Strengthening our ability to meet future expansion of innovative applications

Pursuing advances in
Total Motion Control

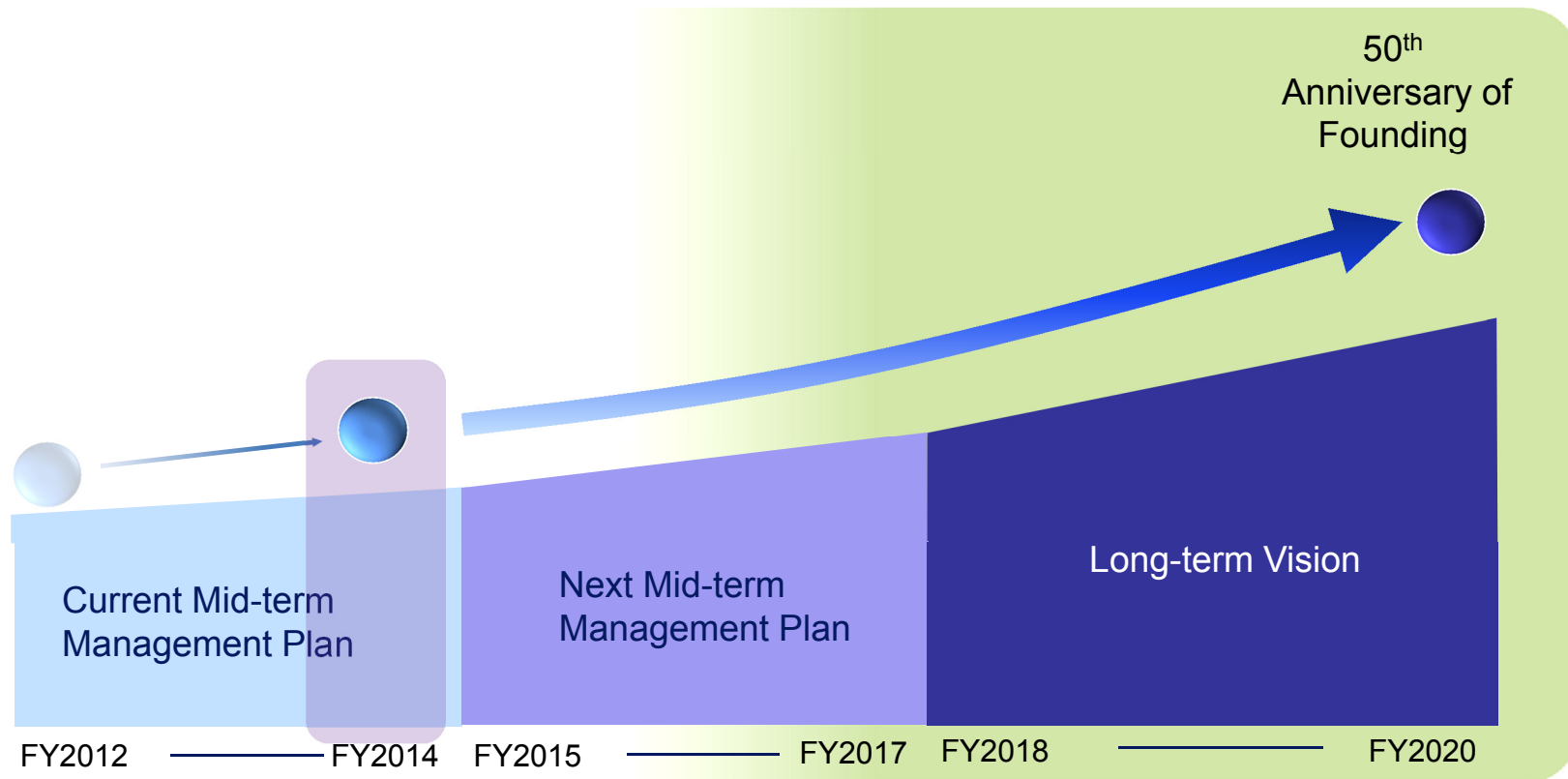
1. Raising overall competitiveness of precision speed reducers
2. Boosting marketing for next-generation robots, vehicles, and other innovative fields
3. Raising manufacturing ability through the upward spiral of technology and skills
4. Fostering an R&D climate for boldly challenging new technology
5. Promoting globalization

Promoting Globalization



Envisioning Growth

On to a new growth stage



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:

Please contact us as follows for material contents and investor information of all kinds.

Corporate Planning and Finance Department, Harmonic Drive Systems Inc.

Believe Omori 7F, 6-25-3 Minami-Oi, Shinagawa-ku, Tokyo 140-0013 Japan

Email: ir@hds.co.jp

Website: <https://www.hds.co.jp/>