

For New Technology Network

**NTN**<sup>®</sup>

# New Medium-term Management Plan

## "NTN 100"

~ NTN Transformation for Next 100 ~

March 17, 2015

**NTN Corporation**

## I. Long-term Vision: “Our Vision”

## II. New Medium-term Management Plan **“NTN 100”**

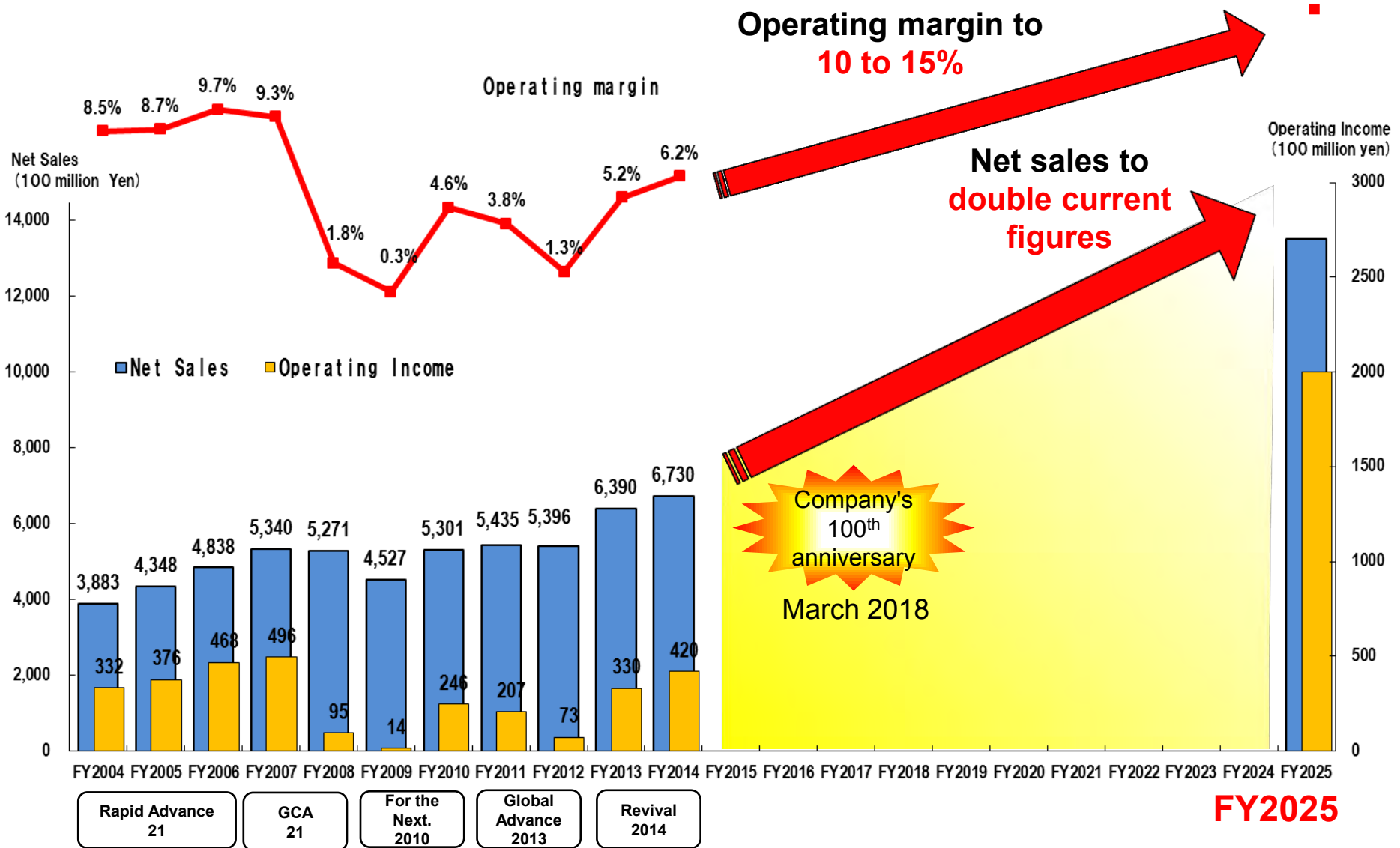
1. Basic Policy
2. Company-wide Targets
3. Main Themes
4. Plans by Business Sector
5. Plans by Region
6. Main Management Indices

- This presentation and comments made in this conference or during the following Q&A session include forward-looking statements about Management expectations for future performance and future business strategies.
- These statements represent the best judgment of the management of the company based on the information currently available. However, there can be no assurance that future results will meet any expectation, estimate or projection conveyed by these statements or comments. Actual results may differ materially from management projections depending on various factors such as changes in product demand, exchange rates and interest rates and contingent liabilities.

# I. Long-term Vision: “Our Vision”

- (1) A company where **its corporate philosophy is understood** by all employees around the world **and where all employees think and act for themselves**
  - A company where all employees take action based on the corporate philosophy by complying with the law and regulations, and contribute to society
  - A company that grows daily, and where each and every employee can think and act for themselves
- (2) A company with **original new products and services**, appreciated for its high quality and functions, **and has a global presence**
  - A company with world top-class technology, and makes use of them to conduct business around the world
  - A monozukuri company seeking high quality and technology
  - A company that keep challenging to the most advanced leading-edge research and technology
- (3) A company where everyone involved with NTN **be able to be proud of the “NTN” brand**

# Long-term Objectives



### ➤ "NTN 100" - NTN Transformation for Next 100-

(1) Company's 100th anniversary in FY2017

(2) "Our Vision" to continue growing for the next 100 years

Three years for **transformation** and **a building foundation** to achieve these

➤ Period: April 2015 to March 2018

#### Our Vision

- (1) A company where its corporate philosophy is understood by all employees around the world and where all employees think and act for themselves
- (2) A company with original new products and services, appreciated for its high quality and functions, and has a global presence
- (3) A company where everyone involved with NTN is able to be proud of the "NTN" brand

#### "Revival 2014"

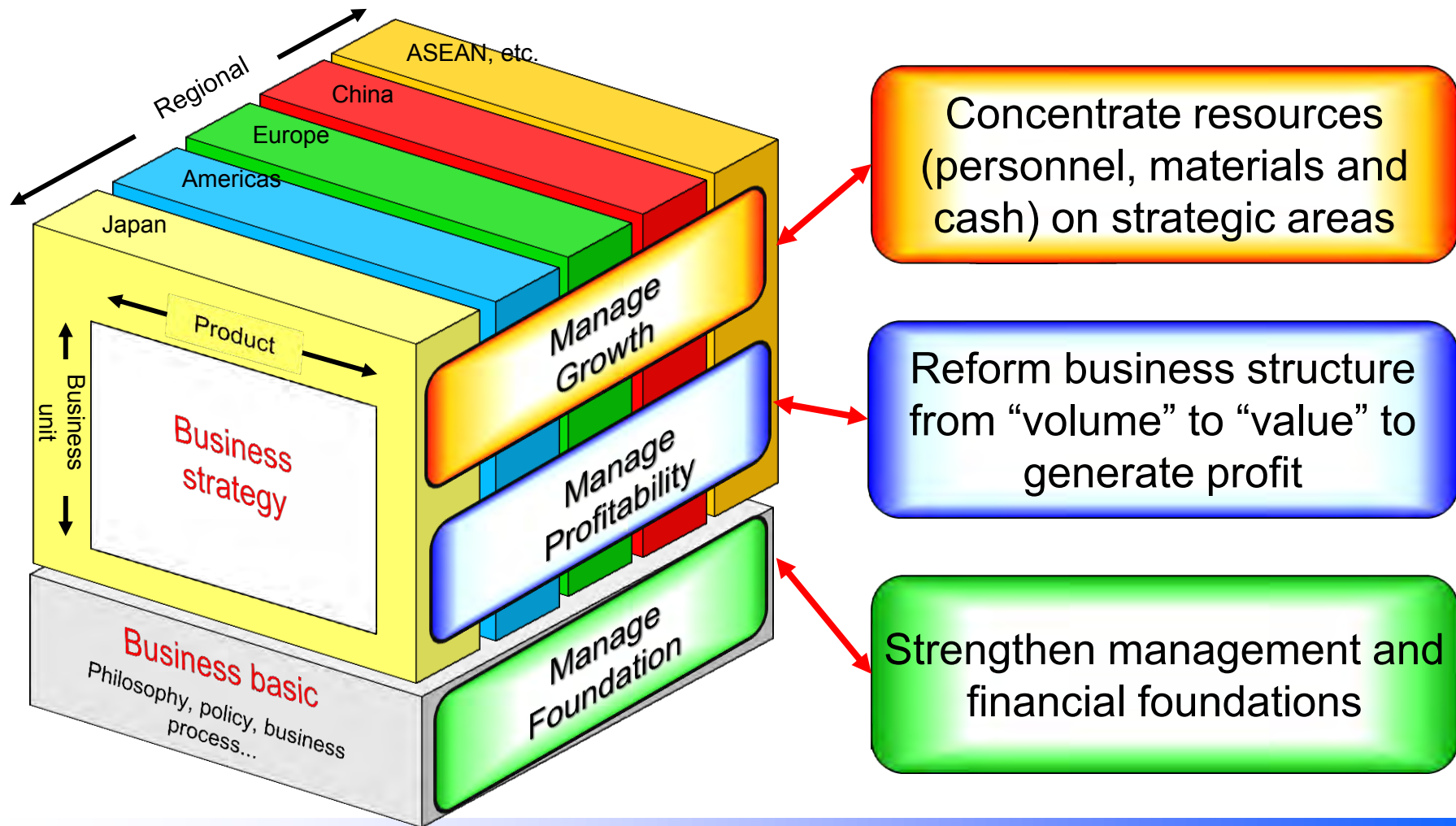
FY2013 to FY2014  
"Reform Business  
Structure to Generate  
Profit"

New Medium-term  
Management Plan  
"NTN100"  
FY2015 to FY2017  
"Base period for Our Vision"

Company's  
100th  
anniversary

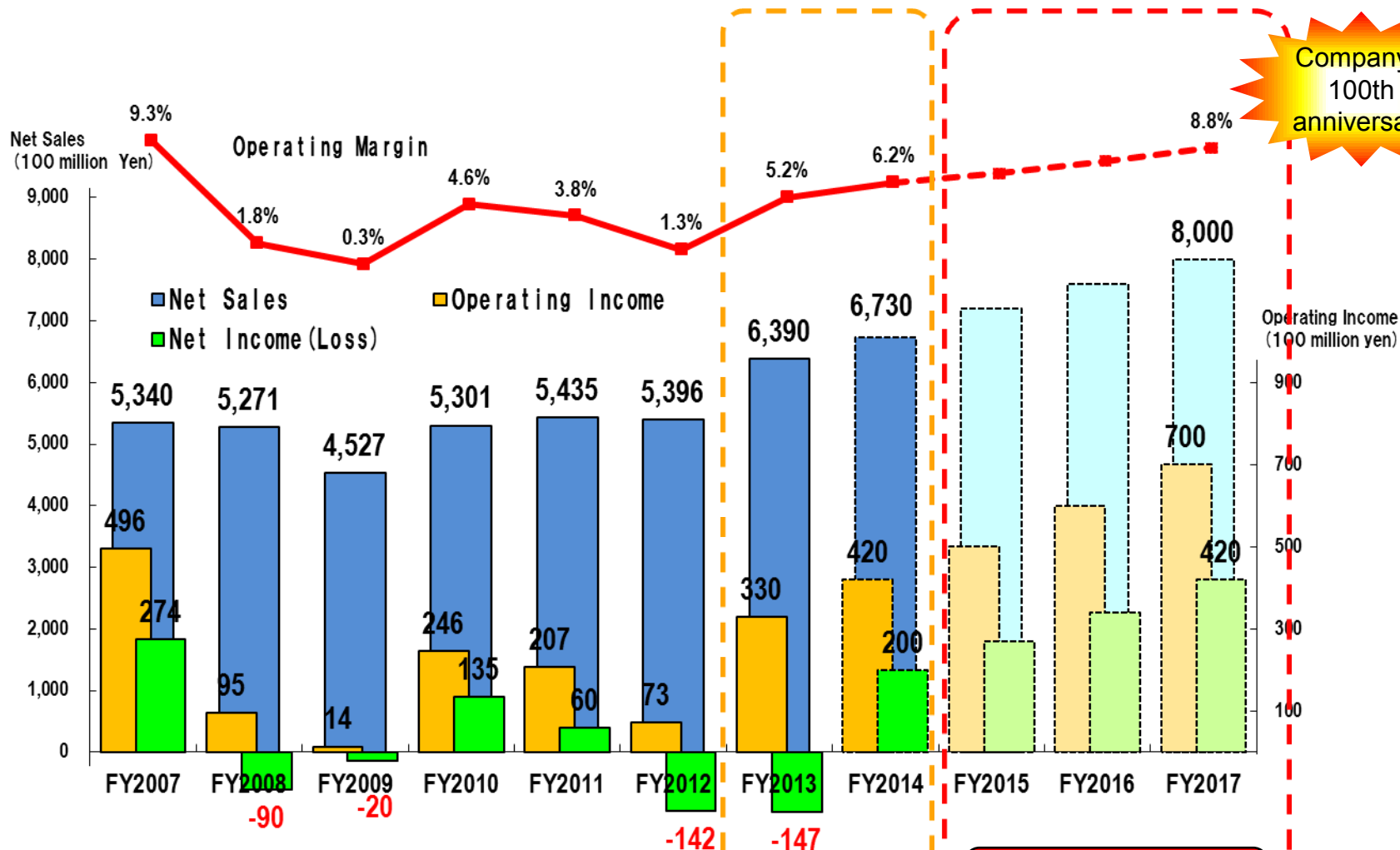
# 1. Basic Policies of "NTN 100"

Implement main policies based on 3 Basic Policies to become a co-creative partner company for customers



# 2. Company-wide Targets of "NTN 100"

For New Technology Network



**NTN100**

Medium-term Management Plan

GCA 21

For the Next 2010

GA 2013

Revival 2014

# Review of "Revival 2014"

- Issues remain with "Reform Business Structure to Generate profit"
- Also clarify the issues toward the next 100 years

## Review of "Revival 2014"

- The aftermarket business system was strengthened and the target amount achieved, however the volume was insufficient
- Operating margins for the automotive business exceeded plans, however the effects of exchange rates was significant
- Continued growth requires not only existing products and businesses, but urgently requires the creation of new business

## Future Major Issues

- Expand the highly profitable **aftermarket business** even further
- Automotive products, in particular **improvements to profits for CVJ**
- Urgent need to **develop new business areas** following on from bearings and CVJs



# 3. Main Themes of "NTN 100"

## Major Themes

Growth



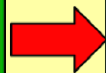
- (1) Develop Businesses in New Areas
- (2) Expand Aftermarket Business

Profitability



- (3) Structural Reform of the Driveshaft business
- (4) "Monozukuri" with Next-generation Technology

Foundation



- (5) Strengthen the Management Foundation
- (6) Strengthen the Financial Foundation

Strategies by business

Strategy by function

# (1) Develop Businesses in New Areas

"Develop business in new areas fusing NTN's technology and knowhow"

## Current Status and Issues

- Hub bearings for automobiles:  
World's No. 1 share
  - CVJ for automobiles:  
World's No. 2 share
  - Strength in large and precision bearings for aircraft, rolling stock and wind turbines, and composite material products
- 
- Existing products and businesses, as well as new products and businesses are required

## Target

- Search for ideas for new businesses **instead of being limited to existing areas**
- Utilize accumulated technology and knowhow, as well as strengthen external links to **fuse technology with ideas**
- Target **new markets expected to grow** in the future with unique technology

## Four new business areas

Develop business in new areas **fusing** NTN's technology and knowhow

**Energy Business**

“Using Natural Energy”

**EV Business**

“Electrifying Automobiles,  
Revolutionizing Safety”

Universities

Other companies



Research institutions

Government agencies

**Robot-related Business**

“Working and Living with People”

**Service, Solution Business**

“Utilizing Big Data”

Government-industry-academia  
collaboration  
Tier 1 supplier collaboration

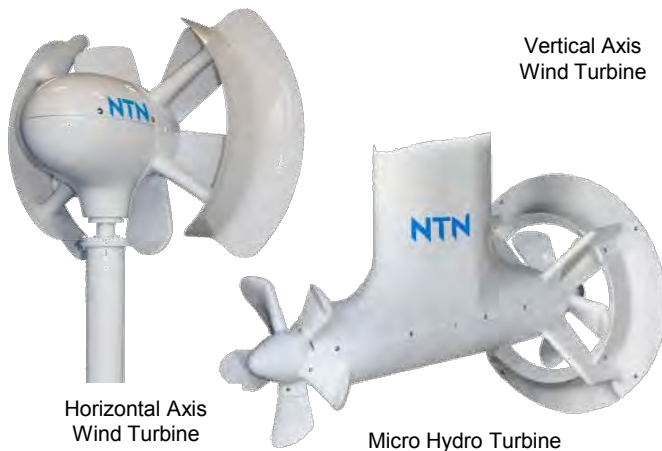
# Energy Business: "Using Natural Energy"

## Main strategies

Roll-out of business utilizing innovative technology  
 Developing markets for the natural energy field  
 Covers wind and hydroelectric power generation,  
 and storage device businesses

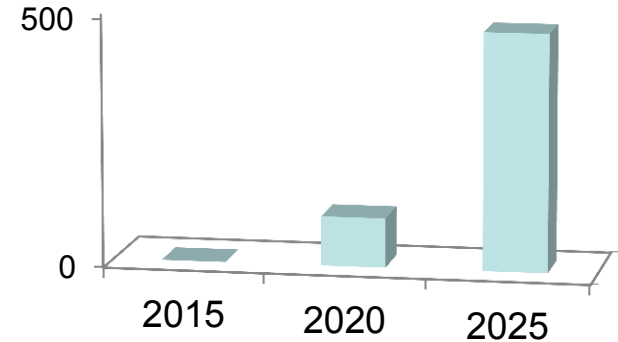
## Utilized technology

- High-efficiency blade technology
- Rolling bearing technology
- Magnetic materials technology



## Sales targets

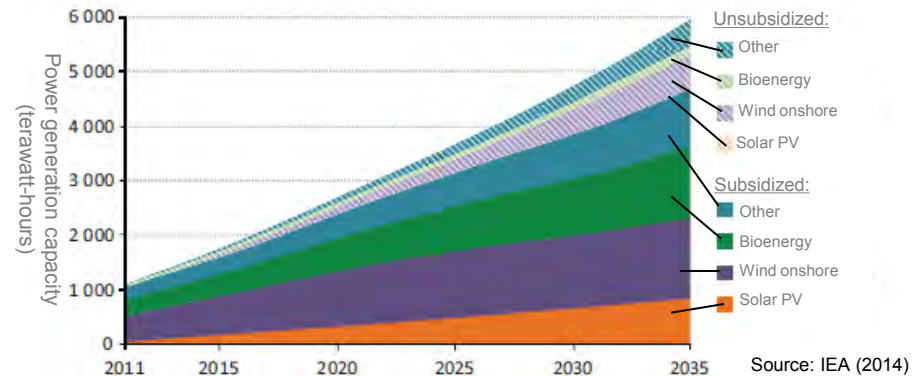
100 million yen



## Market potential

- Replace existing energy sources
- Increased uptake of micro-grid
- Increased uptake of zero energy houses

Changes in power generation capacity with natural energy



## "Electrifying Automobiles, Revolutionizing Safety"

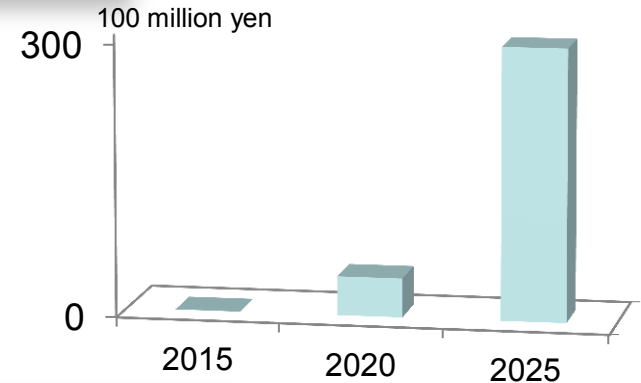
### Main strategies

Develop and propose system products for "driving," "turning" and "stopping" functions

### Utilized technology

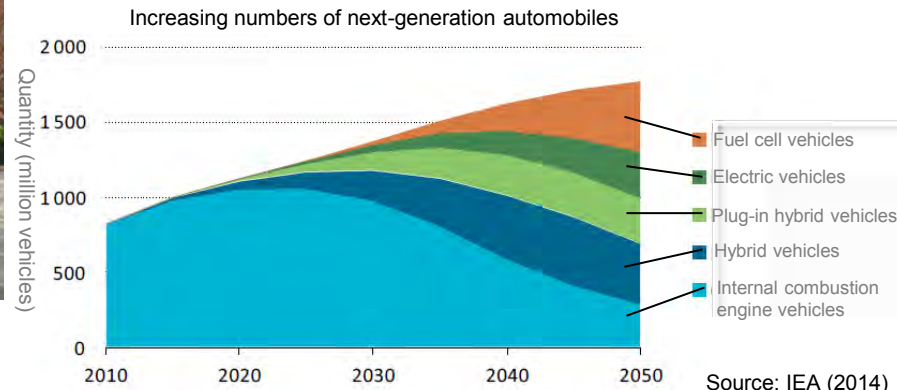
- Unique machinery elemental technology that contributes to more compact and lightweight advantages (In-wheel Motor, Electric Braking System, Steer-by-wire)
- Control technology that includes motors and inverters

### Sales targets

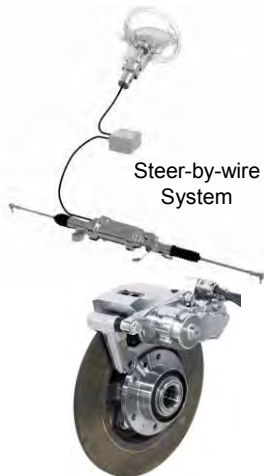


### Market potential

- Better CO<sub>2</sub> emission controls
- Increased uptake of automated driving



In-wheel motor system



Steer-by-wire System

Electromechanical brake system



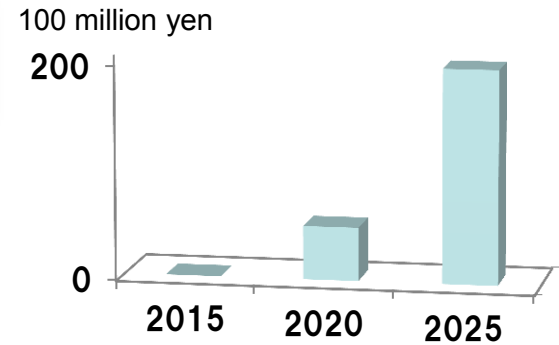
Electric commuter "Q'mo"

# Robot-related Business: "Working and Living with People"

## Main strategies

- Adapt seeds unique technology to suit new needs, and develop business
- Roll out products developed within the group globally
- Pro-active collaboration with external companies, including manufacturing/sales

## Sales targets



## Utilized technology

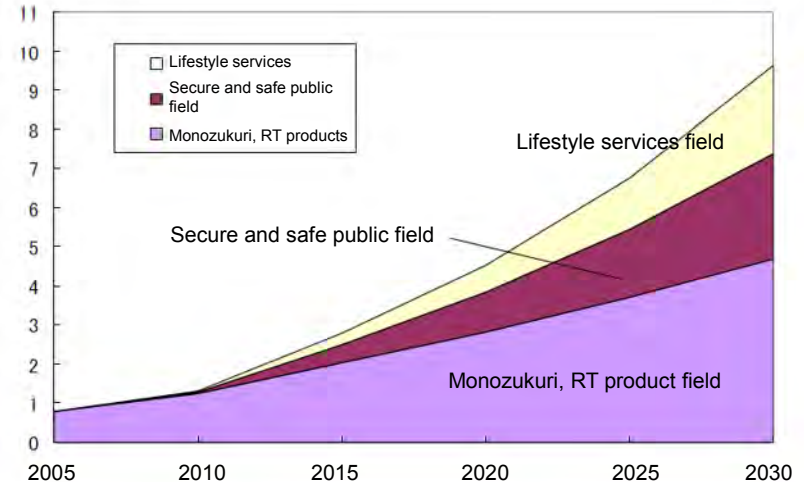
- Precision positioning technology such as the linear module
- Compact actuator technology
- Unique, high-precision and high-speed parallel link mechanism

## Market potential

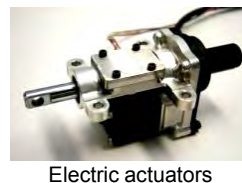
- Working and living with people with "monozukuri" and the "service field"
- For growth areas such as edical, welfare and nursing

( Trillion yen)

Future markets for robotics technologies



Source: Japan Society for the Promotion of Machine Industry (2007)



# Service, Solution Business: "Utilizing Big Data"

## Main strategies

Shift from providing products, to providing services and solutions

## Utilized technology

- Bearing condition monitoring technology CMS
- Bearing diagnostics technology
- Structural degradation sensing technology

## Market potential

- Better infrastructure maintenance
- Shift from regular maintenance to constant monitoring
- Utilize Big Data

Wireless measurement unit

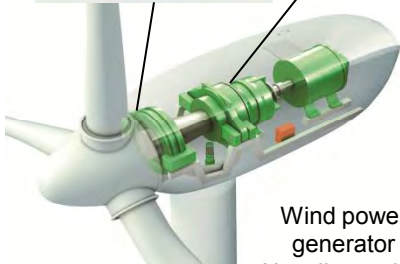


Condition monitoring system

Handheld diagnostic device



Infrastructure and structures



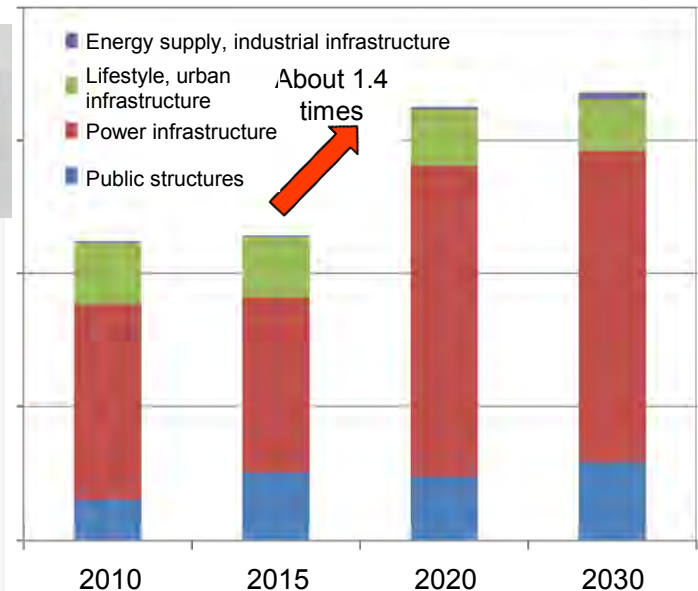
Wind power generator Nacelle section



Monitoring service



Change in size of the maintenance management market



Source: Fuji-Keizai (2014)

# (2) Expand Aftermarket Business

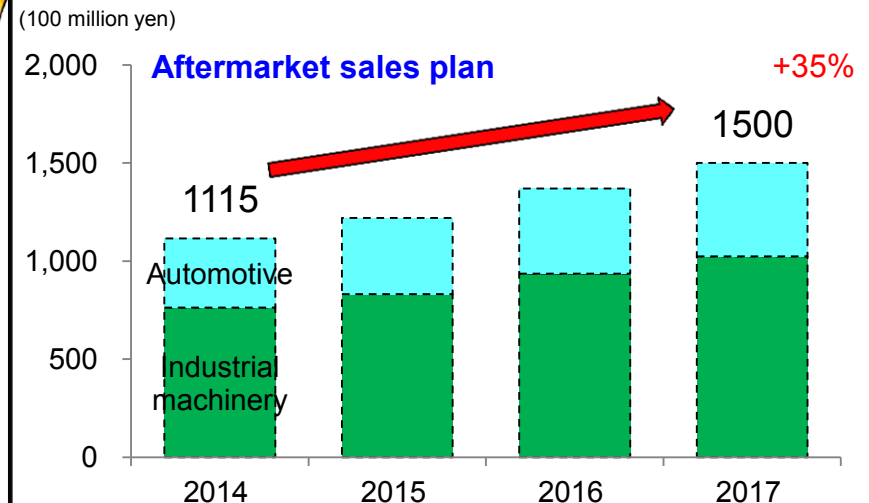
"World's No. 1 customer satisfaction level with product lineup and engineering services"

## Current Status and Issues

- Establish Aftermarket Business Headquarters and strengthen system (October 2013)
  - Engineering services at customer's actual field of operations
  - Automotive aftermarket product (auto parts) business in Europe
- 
- Insufficient presence in emerging markets
  - Strong and weak businesses exist depending on industry

## Target

- Excellent **product lineup** and shorter **lead-time** from ordering to delivery
- Expand engineering **services**
- Approach **growth markets** and **specific industries**





## Important measures-1

### 1. Enhance product lineup and shorten lead-time

- Roll out Japan's No. 1 product lineup globally
  - Establish **central warehouse dedicated to the aftermarket**
- **Shorten the lead-time** from ordering to shipment
- Develop global system **capable of deliveries within 24 hours**



Warehouse dedicated to aftermarket in Europe



Technical service unit

### 2. Strengthen MRO activities

- Expand the **technical service units** that are running in Japan, Europe, Americas and China, to emerging countries
- Develop the **aftermarket academy**
  - Upgrading and expanding bearing technical training, bearing diagnosis, aftermarket database



Aftermarket academy

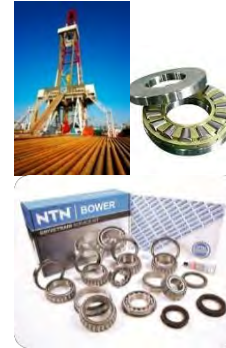


## Important measures-2

### 3. Strengthen approaches to target markets

#### North American market

- Growth in **MRO** target industries
- Expand **part kits** for trucks and passenger vehicles
- Strengthen relationship with **major distributors**



#### Chinese market

- Concentrate on MRO **target industry**
- Expand **distributor network**

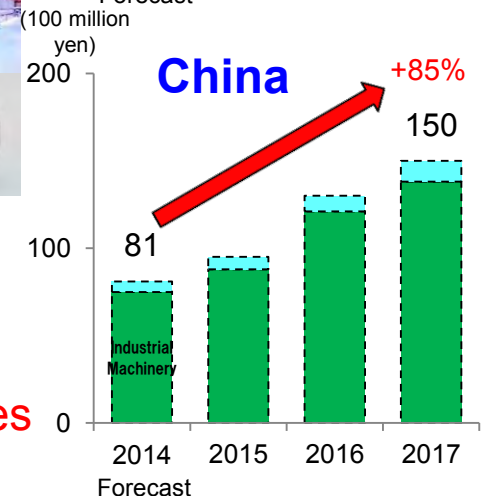
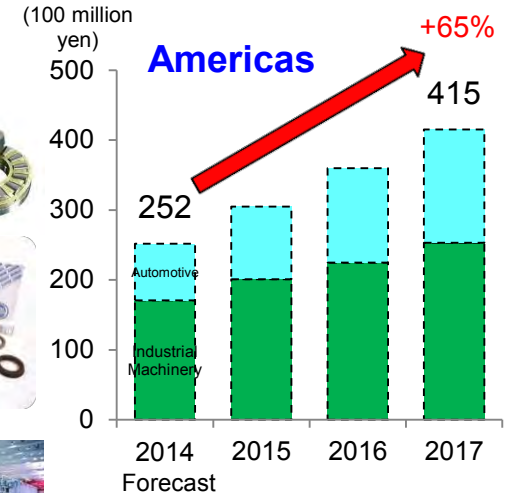


#### Russia market

- Full-scale operation of **new sales company**, net sales **2-fold**

#### Central and South American market

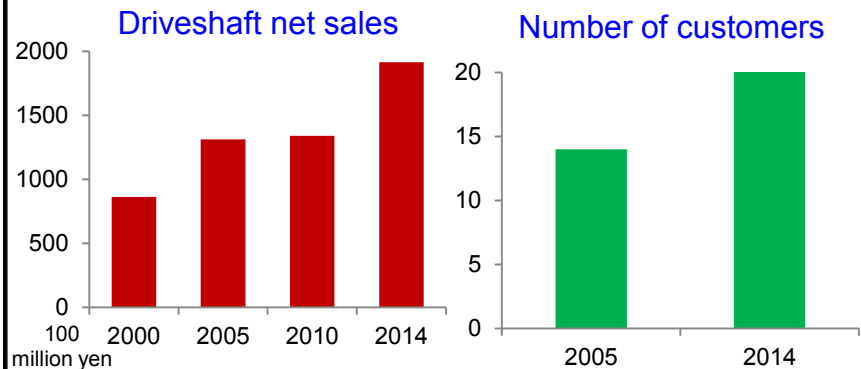
- Strengthen organizational system and **engineering services**



## "NTN driveshafts achieving World's No.1 customer satisfaction level"

### Current Status and Issues

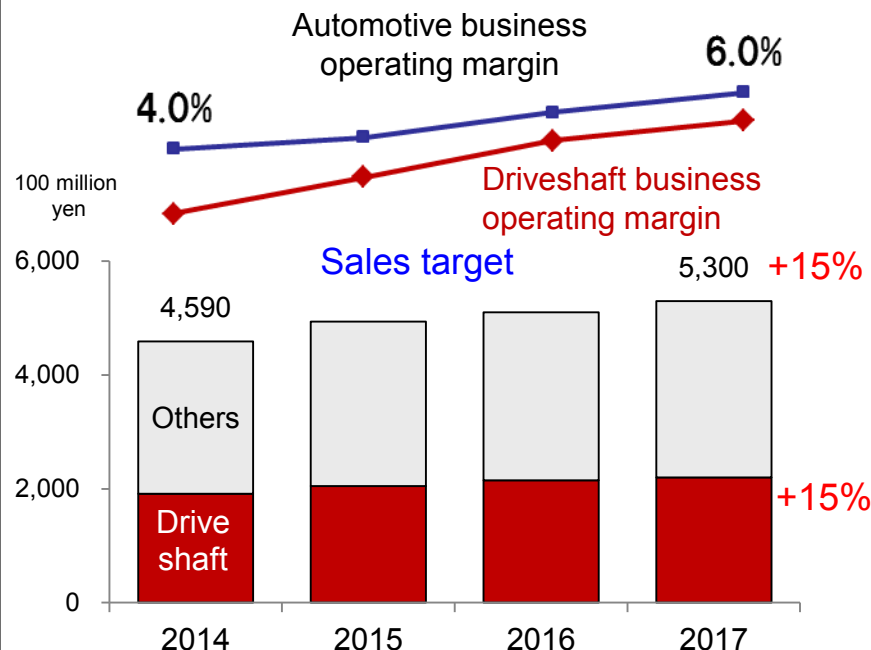
- Expand sales to aim for greater share
- Increase number of car makers supplied
- Global system for production in customer regions



- Operating margins have dropped due to falling sales prices and soaring costs

### Target

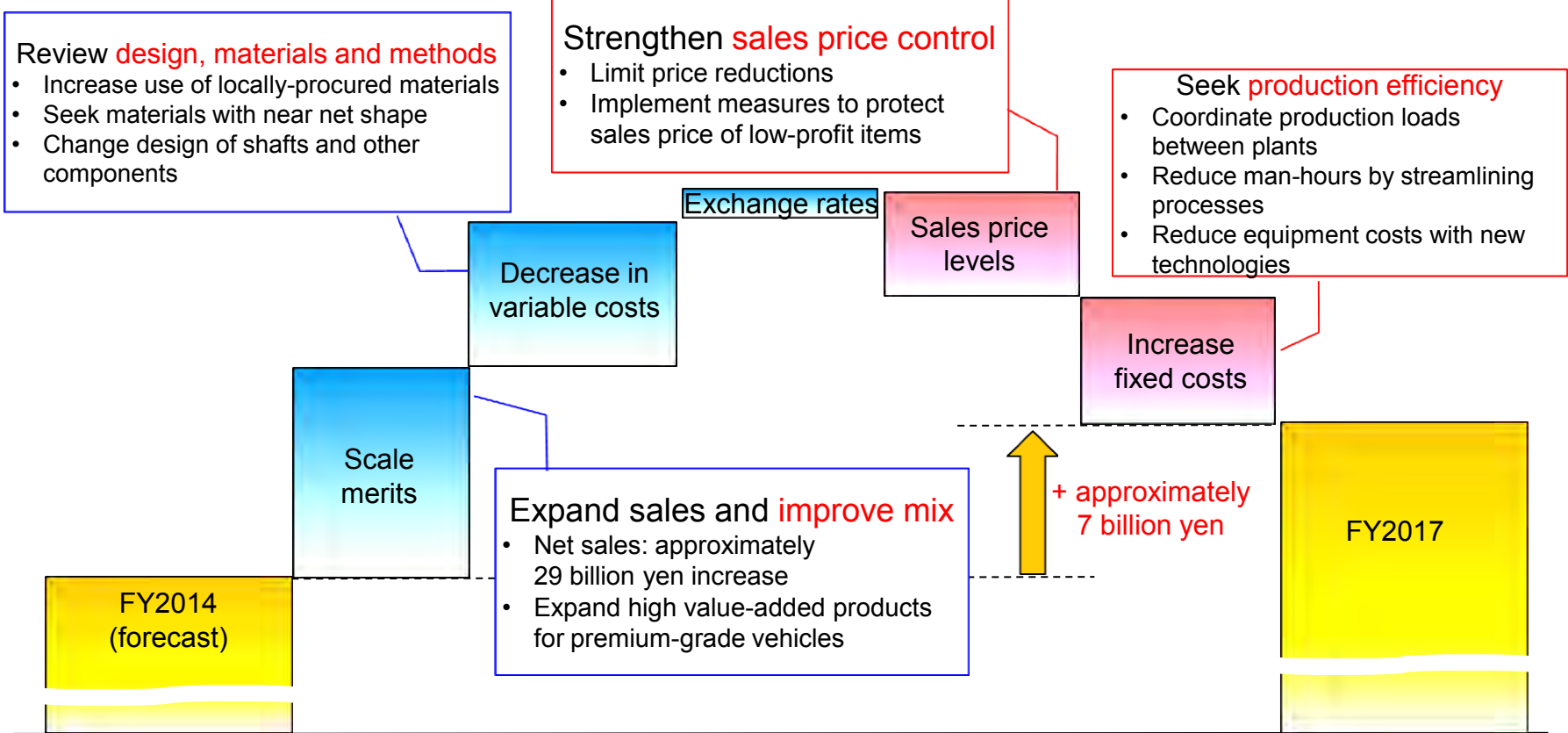
- **Expand profits** of the driveshaft business
- World's No. 1 **customer satisfaction level** for quality, cost, delivery and technical aspects



# Important measures-1

## 1. Expand profits of the drive shaft business

Improve operating margin by **3 points over 3 years**



## Important measures-2

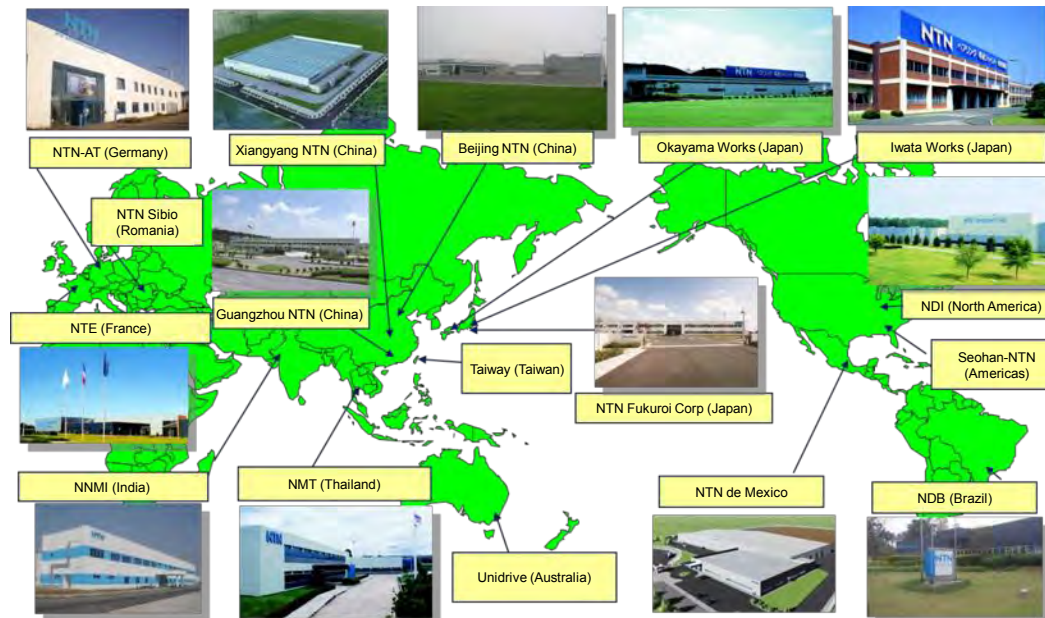
### 2. Strengthen global quality control and supply system

Globally consistent standard quality assurance with "Made by NTN"

Faster reliable operation of new plants (China, Mexico)

Increase production capacity in the U.S.

Development system in 5 regions around the world designed to meet local needs



### 3. Development and series lineup of next-generation driveshaft modules



hub bearing + drive shaft  
Utilize EBW (Electron Beam Welding)  
and PCS (Press Connect Spline)

## "Innovation with "Monozukuri" methods toward next 100 years"

### Current Status and Issues

- Change in working environment
  - Decreasing birthrate and aging population in Japan
  - Soaring personnel expenses in emerging countries
- Globally consistent standard quality
  - Increase in overseas production plants
- "Monozukuri" comes from "Hitozukuri"
  - "Hitozukuri" chiefly in Japan

### Target

- Introduce **innovative manufacturing technologies**
  - Cost-competitive capabilities, reduce equipment unit costs
  - Shorten lead-time, eliminate stock in process
  - Adopt energy and resource efficient processes
- **Global standardization** of "Monozukuri"
  - Globally consistent standard quality assurance
  - Speedy and flexible production system
- Strengthen **global "Hitozukuri"**
  - Expand business at the ideal time
  - Respond to sudden increases in demand

## Important measures-1

### 1. Develop and introduce innovative manufacturing technologies

- Development and roll out of "Grow Up line"
- New **driveshaft** machining method
  - Including streamlining with grinding-free machining and combined machining, using precision joint technology, and using near net shapes
- New mass-production technologies for **axles (hub bearings)**
  - Establish flexible lines with equipment modulization and by utilizing robots
- Construct in-line production and consistent production lines for **tapered bearings and needle roller bearings**



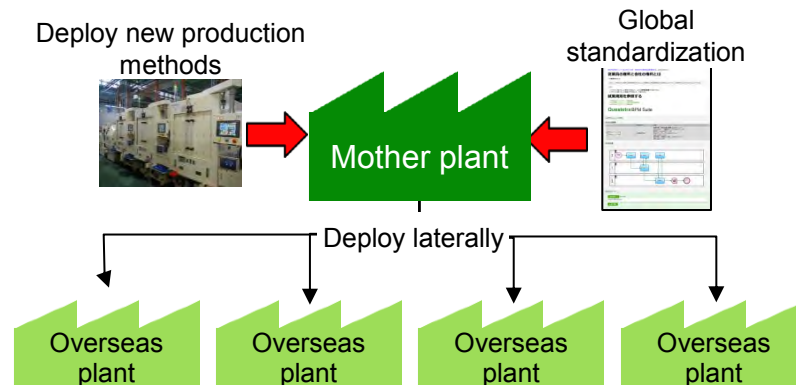
(Image)

Innovative  
manufacturing  
line

## Important measures-2

### 2. Promote global standardization of "Monozukuri"

- Development of "Monozukuri" standards
- Roll out to the "mother plant" and provide training
- Deploy laterally to overseas plants
- Globally consistent standard **quality assurance** with "Made by NTN"



### 3. Continual "Hitozukuri" to increase worksite capabilities

- Expand system for **training of technicians from outside Japan** at the "mother plant"
- "Global QC Circle Convention" and "NTN Technical Skills Competition"
- Open "Monozukuri school"
- Improve technicians for special processes





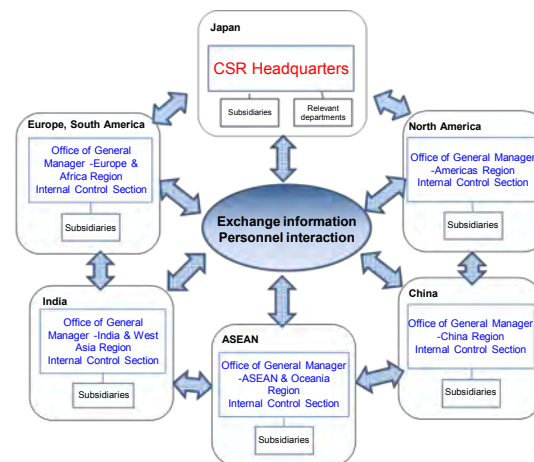
## "Establish management foundation as a truly global company"

Current Status and Issues	Target
<ul style="list-style-type: none"> <li>• Progress of globalization               <ul style="list-style-type: none"> <li>– Ratio of overseas sales: approximately 70%</li> <li>– Ratio of overseas production: approximately 50%</li> <li>– Development system in 4 regions around the world</li> <li>– Ratio of overseas employees: approximately 65%</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• Ensure all NTN Group employees are aware of the "<b>Corporate philosophy</b>" as a globally common code of conduct</li> <li>• Ensure <b>compliance</b> and strengthen efforts for <b>governance</b> and <b>diversity</b> as a global company</li> <li>• <b>Contribute to local communities and environment conservation</b> to become a company admired throughout the region</li> <li>• Establish "<b>on local site with local materials by local personnel</b>" system</li> </ul>
<ul style="list-style-type: none"> <li>• Instill the "corporate philosophy"</li> <li>• Strengthen compliance globally</li> <li>• Train global personnel</li> <li>• Encourage the roles of women (in Japan)</li> </ul>	

## Important measures-1

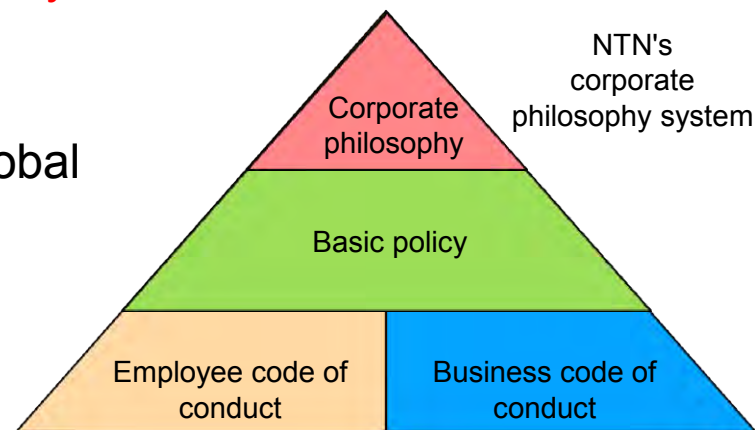
### 1. Strengthen control of NTN Group companies

- Instill **the corporate philosophy** globally
- Global training and follow-ups by the **CSR Headquarters**
- Strengthen the **internal control system** overseas
- Ensure that **information is disclosed** appropriately and at the ideal time, **and with transparency**



### 2. Strengthen risk management

- Create **disaster mitigation plan** for the global supply chain



## Important measures-2

### 3. Conserve the global environment and promote social contribution activities

- Promote “**using natural energy**” at plants and business
- **Reduce environmental impact** throughout the supply chain
- Strengthen **links with local communities** for business plants

Wind power generation



Regional planting activities

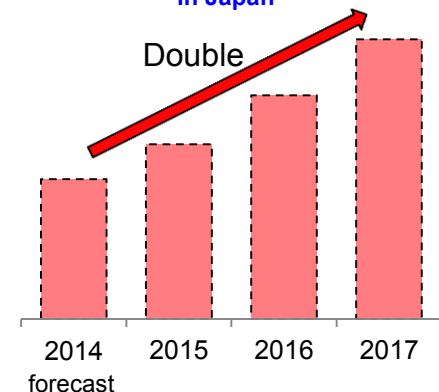


Sunlight power generation

### 4. Train global personnel

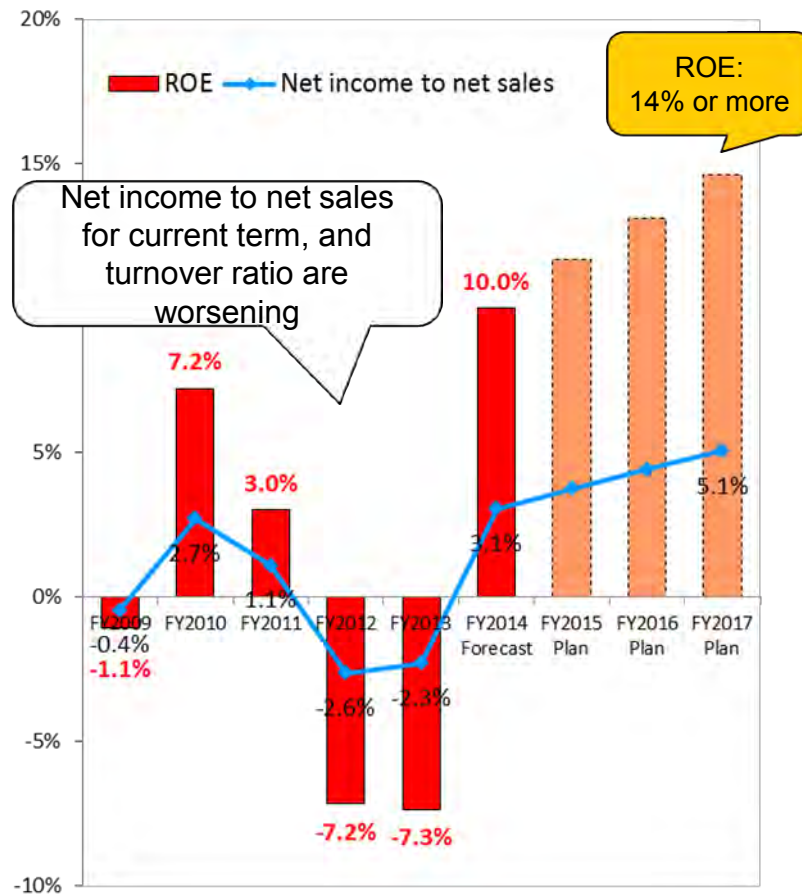
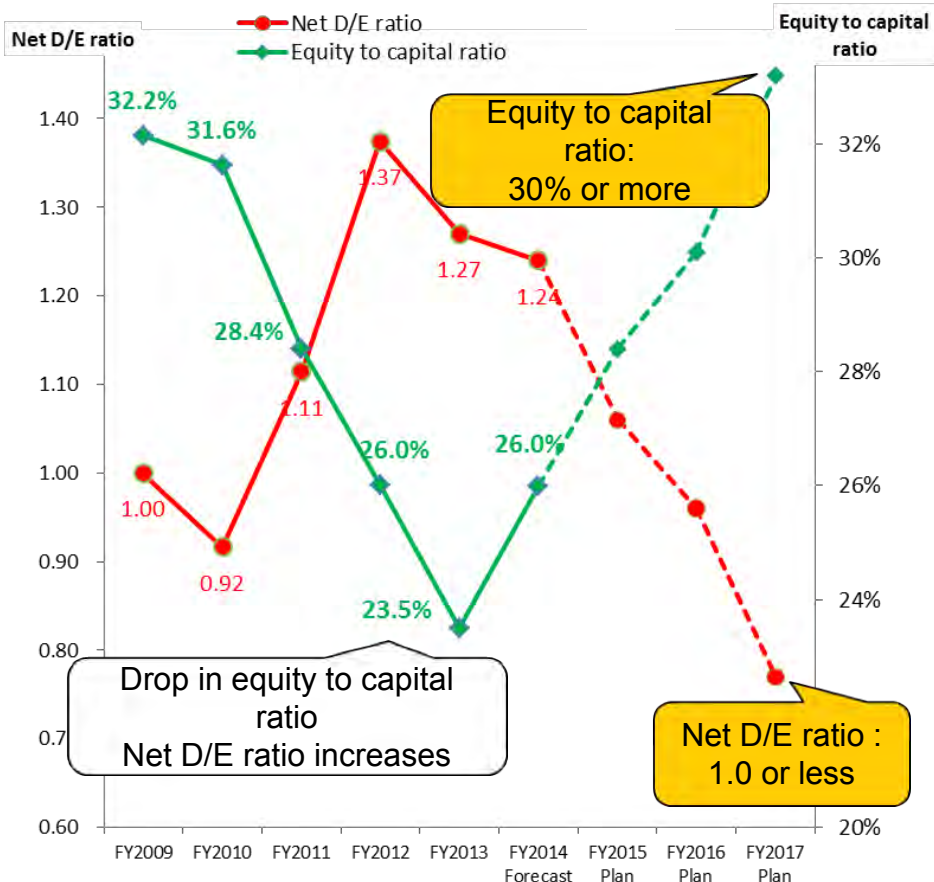
- **Mutual interaction between personnel from Japan** → overseas, overseas → overseas
- Improve training of **young personnel** and **management personnel**
- Double the number of **female managers** (in Japan)
- Promote employment of **diverse personnel**

Number of female managers in Japan



"Strengthen profit control and improve asset efficiency"

## Current Issues and Target Values



## Important measures-1

### 1. Financial actions to improve asset efficiency

#### (1) Reduce **interest-bearing debt** (-60 billion yen/3 years)

Utilize free cash flow, and cash and deposits

Expand scope of funding within regions

- Improve **inventory turnover ratio** (4.0 → 4.5)

Clarification of proper stock standards and multi-directional follow-up system

- **Sell assets**

Careful examination of held stock and other assets

#### (2) Reduce **obligations for retirement benefits**

Build up pension assets

## Important measures-2

### 2. Financial actions to improve net income to net sales

#### (1) Actions to improve operating margin for each business (6.2% → 8.8%)

- Aftermarket business...expand highly profitable businesses
- Industrial machinery business....improve plant operating ratio by expanding sales
- Automotive business...focus on improving profits of driveshafts

#### (2) Shift to investment decisions with greater focus on CF than previously

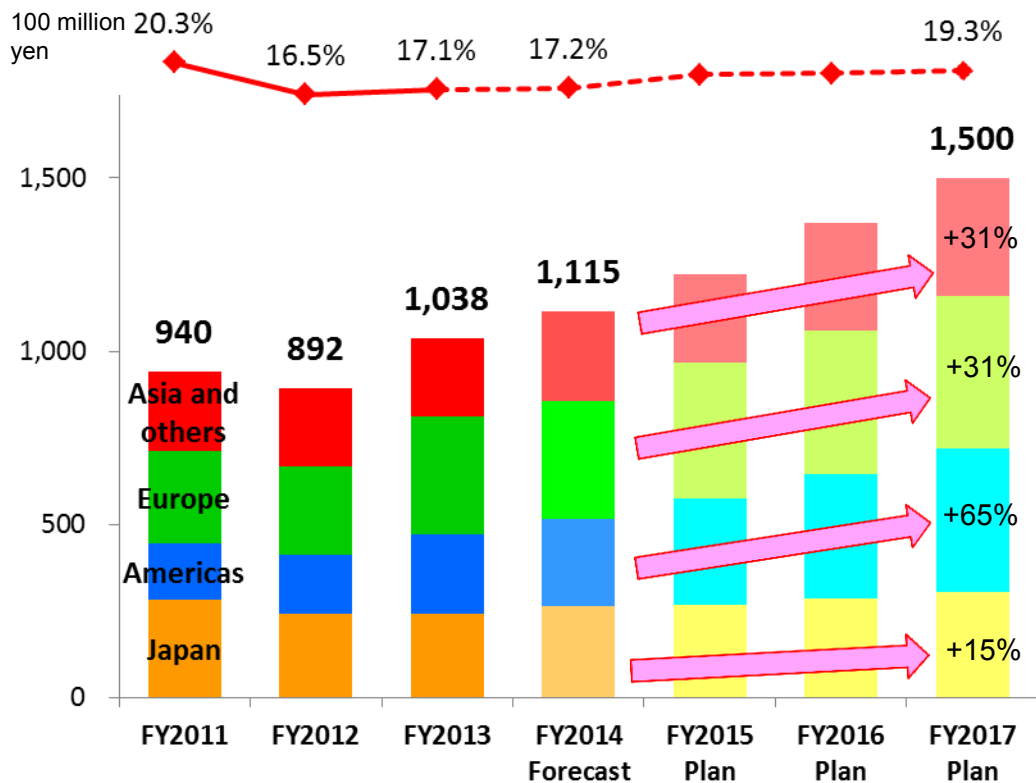
- Better balanced investment decisions by field
- Review decision standards, risk information, follow-up methods and other aspects

### 3. Returns for shareholders

- Ongoing long-term and reliable returns of profits to shareholders
- Based on 30% dividend payout ratio

# Plans by Business Sector (Aftermarket Business)

Expand global net sales **35% (10% pa)** over 3 years



**Japan:** Secure a solid 50% share in Japan with bulk equipment repair contracts (MRO) and pro-active efforts to secure new customers

**Americas:** Cooperate with major distributors to expand share  
Highlight advantages through marketing and engineering  
Greater lineup of alternative products for automobiles  
Expand auto parts for trucks

**Europe:** Expand MRO for steel/mining/paper, etc  
Expand share in emerging markets  
Extend spread of suspension auto parts

**Asia:** Conduct training and maintenance demonstrations  
Strengthen sales promotions and advertising  
Increase distributor network and expand sales to major distributors



Paper manufacturing equipment



Spherical roller bearings



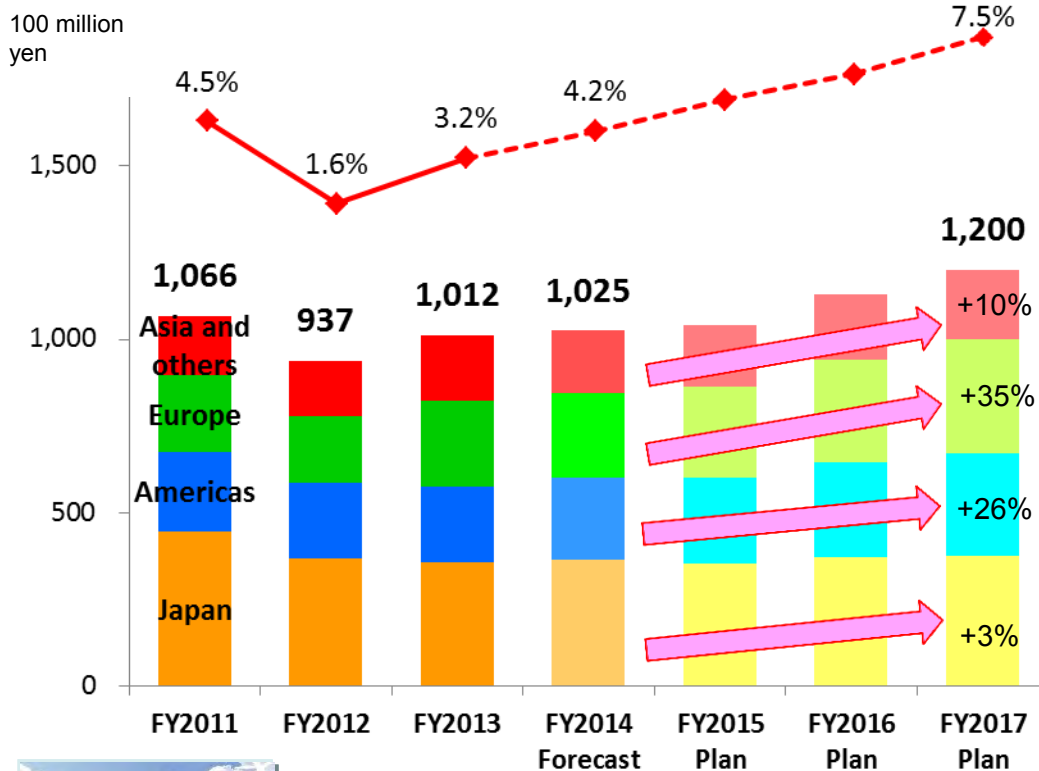
Steelworks facilities



Auto parts for trucks

# Plans by Business Sector (Industrial Machinery Business)

Expand global net sales **17%**, improve operating margin to **7.5%** over 3 years



**Japan:** Increase demand for gearboxes and reducers for robots  
Increase domestic production of machine tools  
Increase demand for exports of agricultural machinery

**Americas:** Recover demand for construction machinery  
Increase new orders for agricultural machinery  
Include orders of CVJs for industrial machinery

**Europe:** Increase new orders for aircraft  
Recover demand for agricultural machinery  
Increase new orders for rolling stock

**Asia:** Increase new orders for Chinese rolling stock  
Include orders for hydraulic pumps for construction machinery  
Increase demand for wind turbines



Bearings for wind turbines



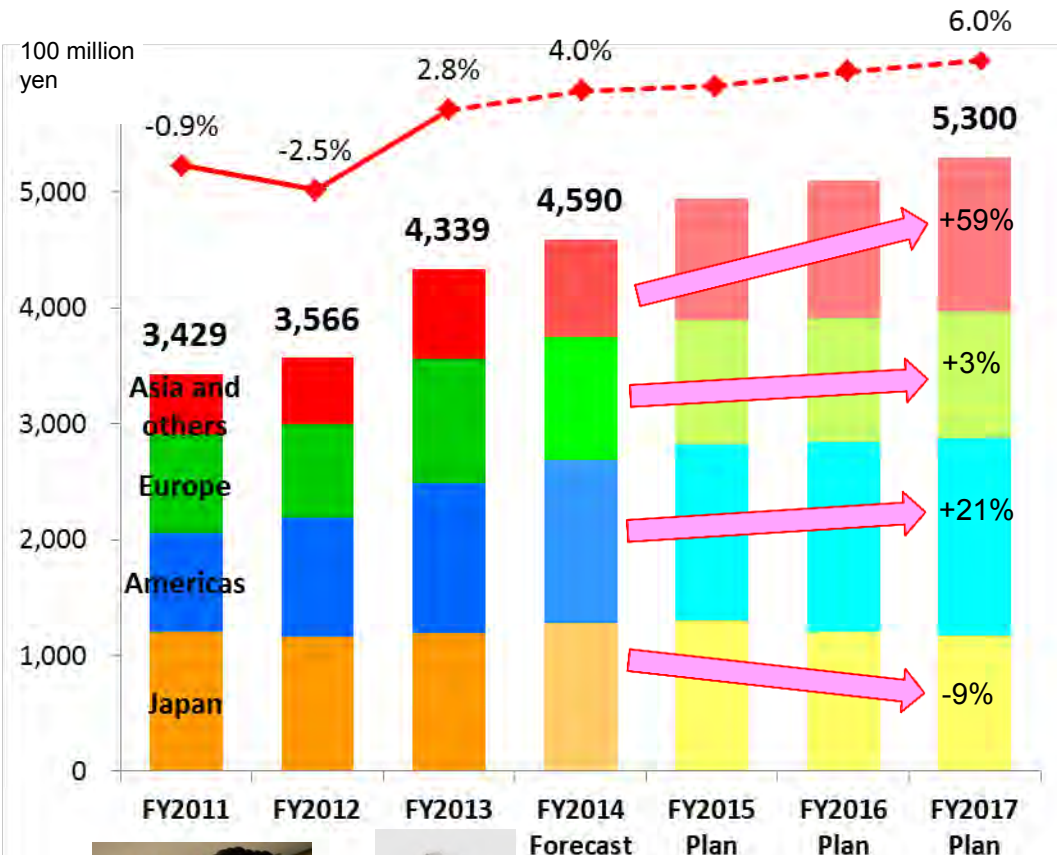
Bearings for jet engines





# Plans by Business Sector (Automotive Business)

Expand global net sales **15%**, improve operating margin to **6%** over 3 years



**Japan:** Reduce domestic market (-12%)  
Reduce sales by developing local procurement for customers

**Americas:** Increase production quantity (+7%)  
Expand market to increase sales  
Expand sales by launching the Mexico plant

**Europe:** Recovery mainly in western Europe  
Increase sales of 3rd generation hub bearings

**Asia:** China leads the way as the largest market  
Stable supply system in Nanjing and Xiangyang  
Recovery/growth in ASEAN and Indian markets



Press connect hub joint



Ball screw linear module



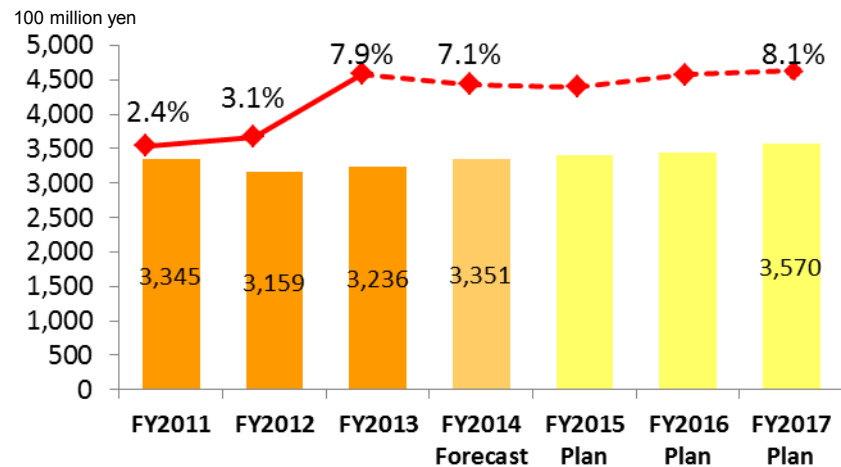
Hub bearings with sensor



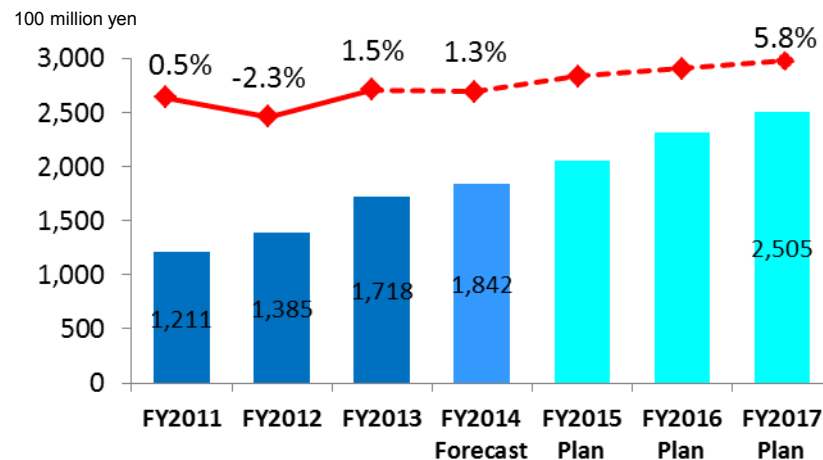
Mechanical clutch unit

# Plan by Region (Net Sales and Operating Margin)

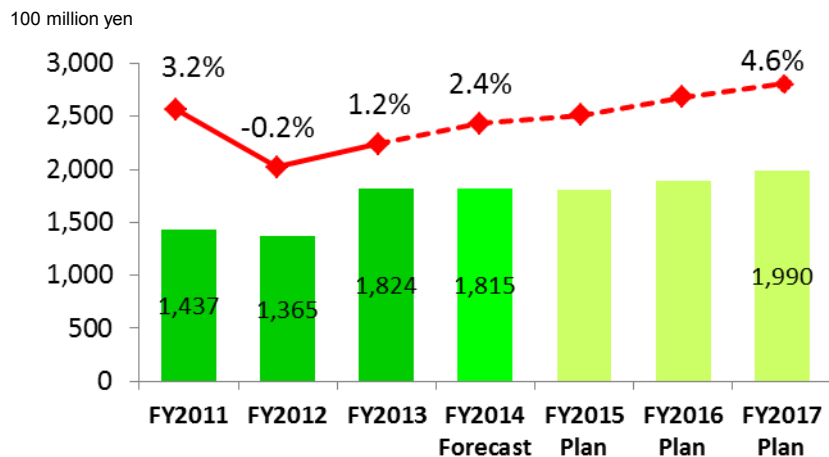
## Japan: Expand aftermarket business



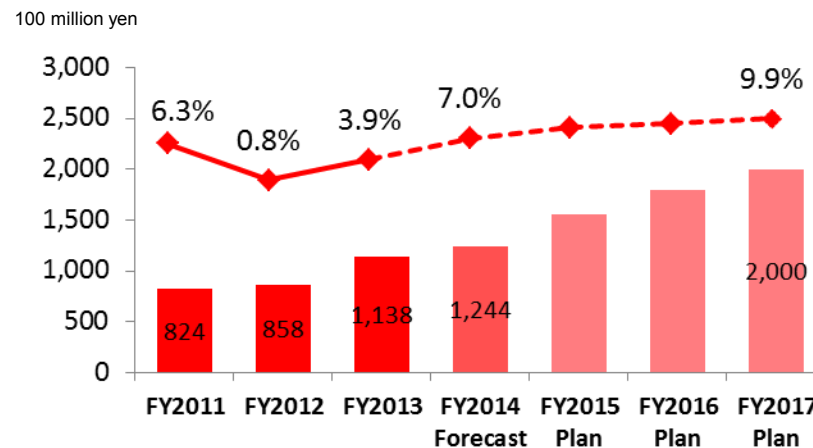
## Americas: Continued growth with firm market environment



## Europe: Increase for industrial machinery



## Asia: Automotive and aftermarket business lead the way

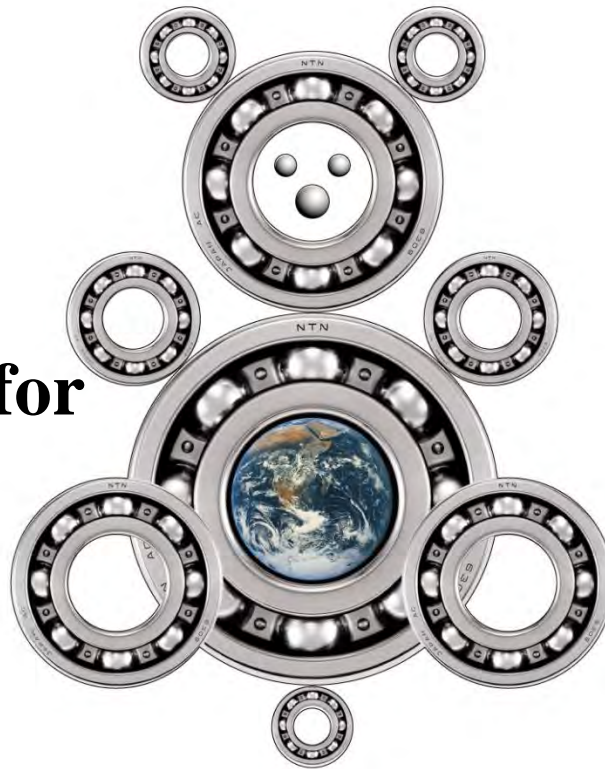


# Main Management Indices of "NTN 100"

(100 million yen)

	Forecast	NTN100	Year on year (2)-(1)
	FY2014 (1)	FY2017 (2)	
Net sales	6,730	8,000	+1,270
Operating income	420	700	+280
Operating margin	6.2%	8.8%	+2.6 points
Net Income	200	420	+220
Inventories	1,680	1,800 or less	+120 or less
Inventory turnover ratio (times)	4.0	4.5	+0.5
Equity to capital ratio	26.0%	30.0% or more	+4 points or more
Net D/E ratio	1.24	1.0 or less	0.24 or more improvement
ROE	9.7%	14% or more	+4.3 points or more
Exchange rate	\$:¥101.5 €:¥134.5	\$:¥110 €:¥130	-

**NTN**  
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