

IR DAY 2020

MinebeaMitsumi
Passion to Create Value through Difference

Motor Business

December 3, 2020

Osamu Nakamura

Executive Officer
Deputy Chief of Electronic Device &
Component Manufacturing Headquarters
Officer in charge of Motor Div.



1 Strength of MinebeaMitsumi's Motor Business

2 Target Market and Strategy

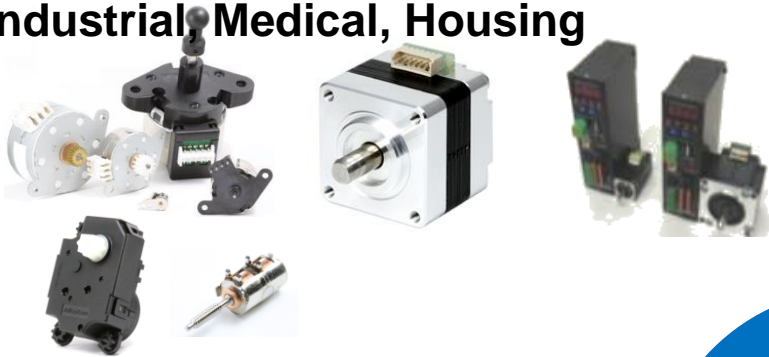
3 Introduction of Strategic Products

4 Plan of Expanding Motor Business

1. Strength of MinebeaMitsumi's Motor Business

Wide range of products and applications in Small Precision Motor

Main market: Automotive, OA, Industrial, Medical, Housing



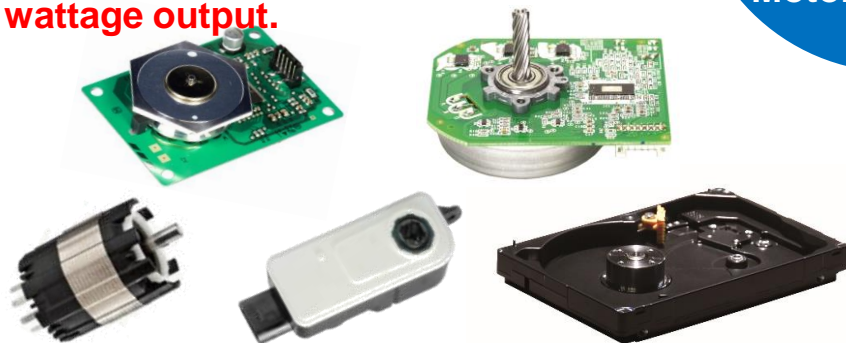
Φ3.3 size PM type to □85 size HB type. Largest number of products in the Stepping Motor industry.

Main market: Automotive, Housing, Games, Industrial



S series square model which is the highest level in DC Brush Motor industry. Product lineups of oval model, and round model.

Spindle to automotive and consumer model, products with wide range of wattage output.



Main market: PC, OA, Automotive, Home Appliances, Industrial

Stepping Motor

DC Brush Motor

DC Brushless Motor

Fan Motor

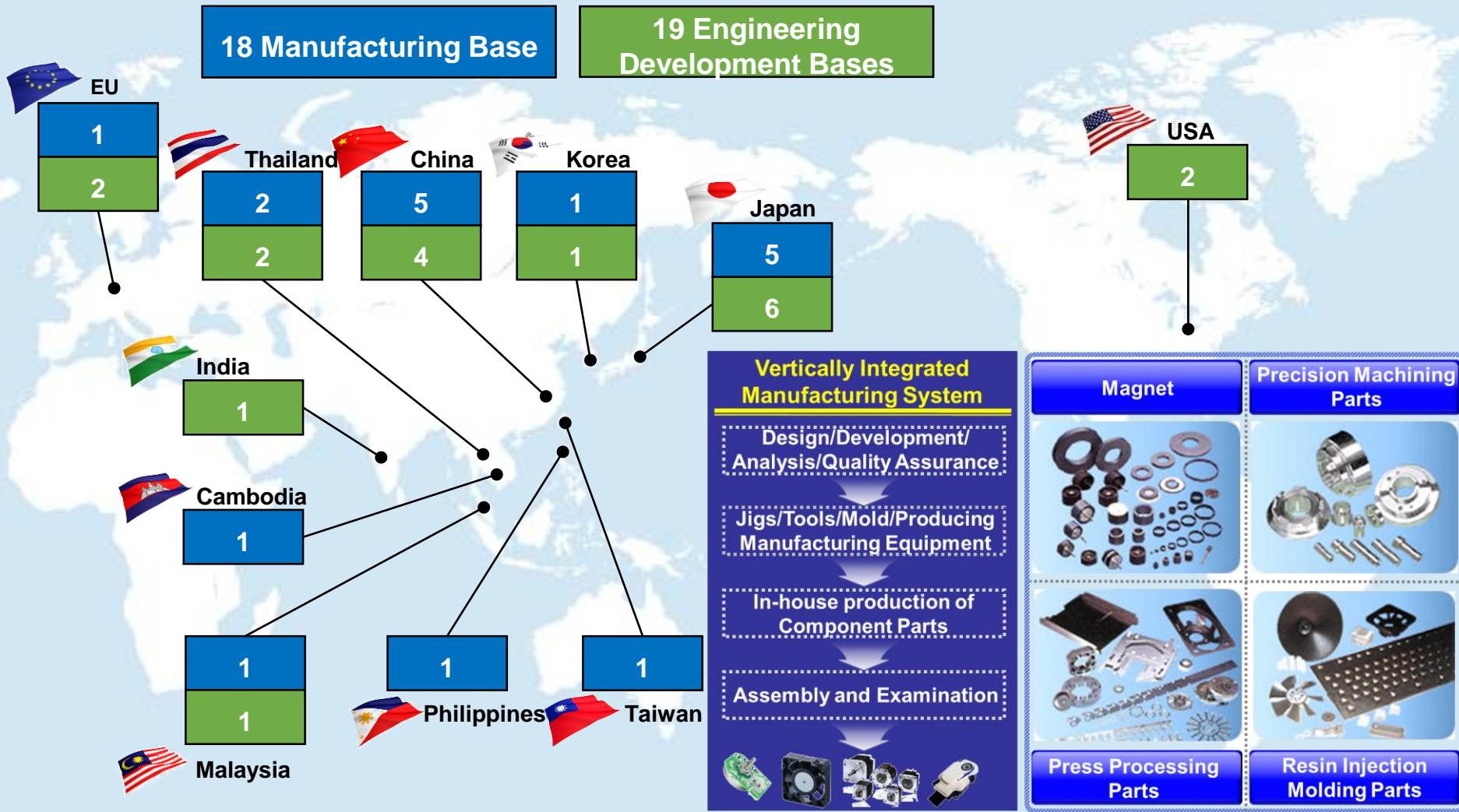
Variety of types such as AC, DC, Axial, Blower, Radial, and Turbo.



Main market: Automotive, Home Appliances, Information, Industrial, Games

1. Strength of MinebeaMitsumi's Motor Business

Global Production, Development System, and Vertically Integrated Manufacturing System



A Movie of Factories in Thailand

Vertically integrated manufacturing system
which enables ultra-precision machining technologies and mass production.

Design and development of products

Design and production of manufacturing
equipment and jigs

Mass production of component parts

Assembly and examination of component parts

**Managing
parts to processes
in-house**

We design, develop, assemble, and examine in-house by vertically integrated manufacturing system

Ultra-precision Quality

Stable Supply Capacity

Production Cost Reduction

High competitiveness by our vertically integrated manufacturing system

Video slide



2. Target Market and Strategy

Automobile Electrification/CASE, Telecommunications, and Robotics



Automotive Motor

- Fan and actuator products which support thermal management due to electrification
- 5G communication equipment for vehicles and cooling fan for CPU and GPU which contributes to durability against environment
- Control valve and HVAC actuator for BEV vehicle air conditioning system



Telecommunications

- Fan for data center which supports increasing data due to the spread of 5G
- Actuator and fan which has resistances against environmental impacts accompanied by 5G infrastructure development
- Potting specification fan for all weathers of products for base station equipment



Robotics

- Motors for small, lightweight, and high precision mini-arm robot
- Install in-house developed absolute encoder and 6-axis force torque sensors
- High precision control system of 200 thousand steps which equipped in-house resolver

2. Target Market and Strategy

Combination by Integration and Enter the Market by Adding value

1 Combination by Integration

- ▶ Combination of motor and functional parts

Motor + Reducer + Encoder = Module
Motor + Combine controller = Unit (Mechatronics)

2 Adding value by Integration

- ▶ Non consolidated business to “proposal style” of business
- Low (individual) High (solution)

Low (individual)

Motor + Drive + Sensor + Controller

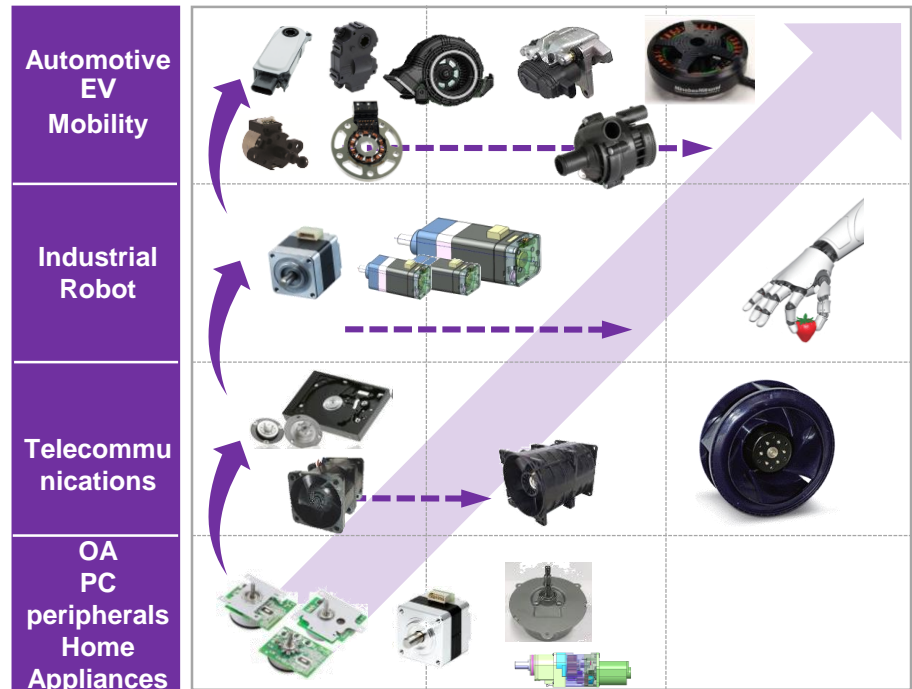
Mid size motor x Solution Biz.

3 Business Expansion

- ▶ Enhance motor product lineup
- ▶ Industry-university, industry-industry collaboration

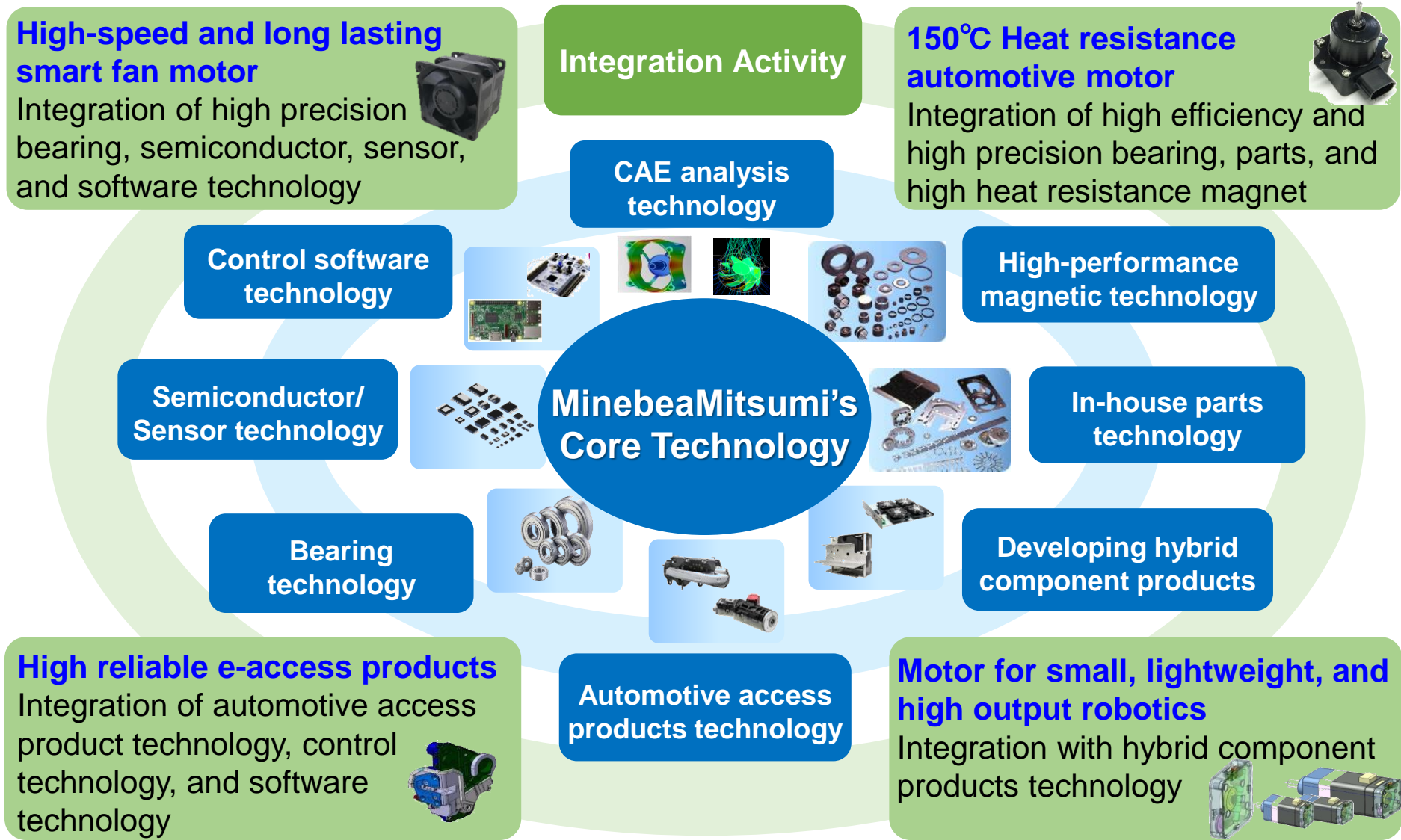
4 Strategy Image

- ▶ Accelerate expanding to telecommunications, robotics, and automotive products from OA and PC peripherals.
- ▶ Expanding portfolio and adding value



2. Target Market and Strategy

Motor Business Integration Image: Create Value by integrating Core Technology

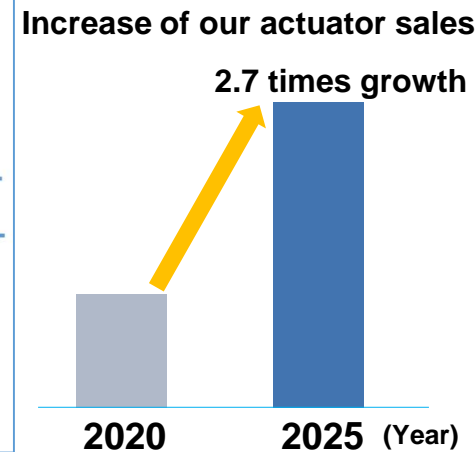
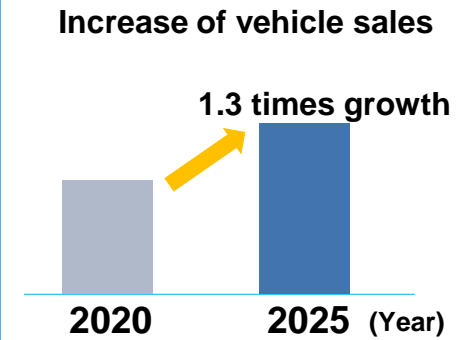
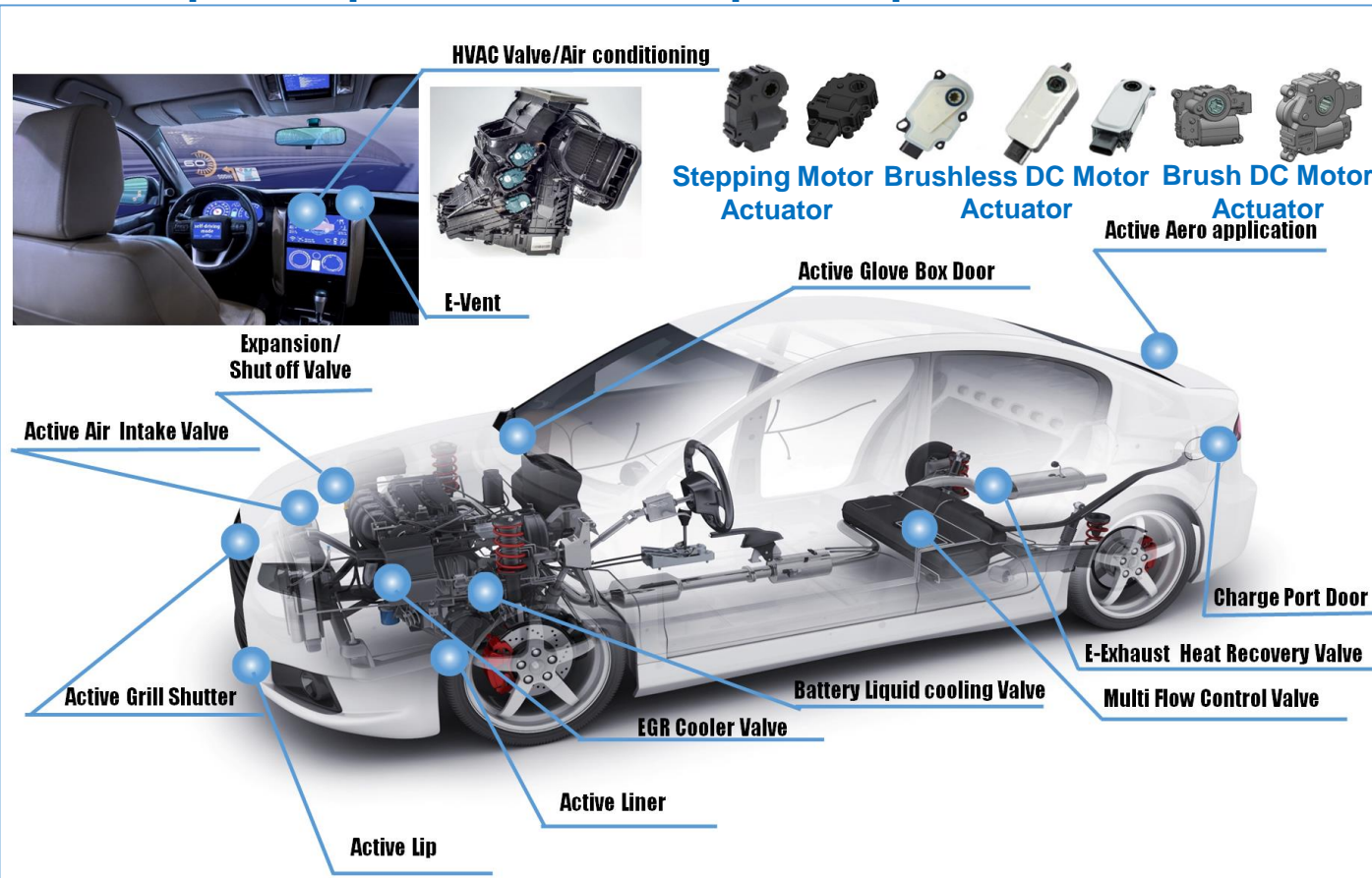


3. Introduction of Strategic Products: Automotive Motor

Prepare automotive actuator lineups for all products

Battery heating management, aerodynamic, and air conditioning control

▶ **Increase installed products per vehicle by promoting electrification: 10 pieces per vehicle to 25 pieces per vehicle**

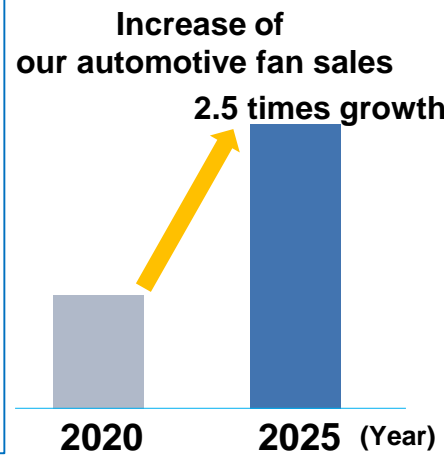
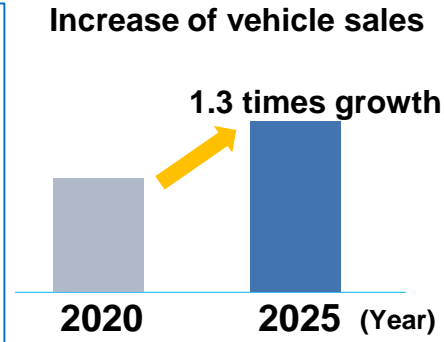


3. Introduction of Strategic Products: Automotive Motor

Various applications for automotive fan motor

Battery heating management, telecommunications, and comfort/safety and security

▶ Increase installed products per vehicle by promoting electrification/CASE: 4 pieces per vehicle to 10 pieces per vehicle



3. Introduction of Strategic Products: Telecommunications

Maximize added value of having main motor component parts by integration

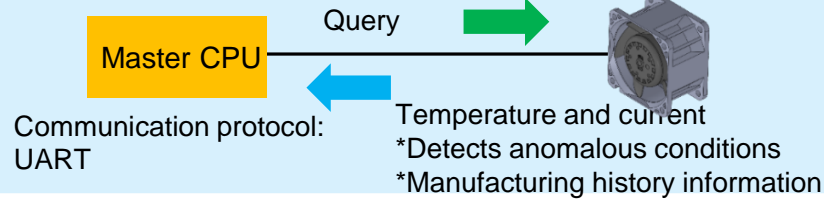
Fan motor usable in the oil

Bearing technology + Material technology + Molding technology

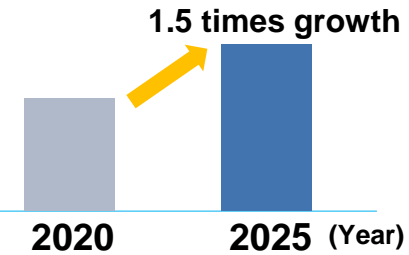


Fan motor contains telecommunication functions

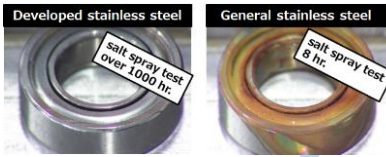
Semiconductor technology + Sensor technology + Firmware technology
Reading motor temperature/current information and manufacturing history by 1-wire digital communication



Growth of server market

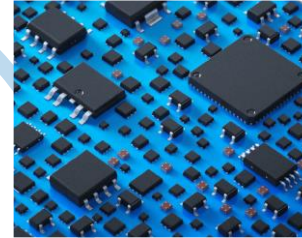


Rustproof bearing



Compact and lightweight
Long life
Weather resistant
Power saving

Analog semiconductor and Hall IC

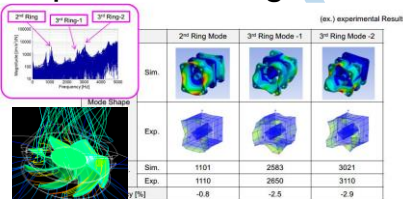


IP69K Potting molding technology



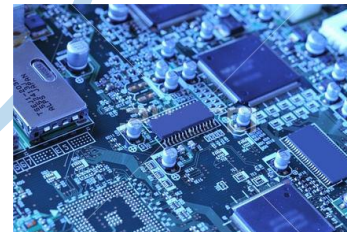
High performance smart IO

High precision simulation impeller molding

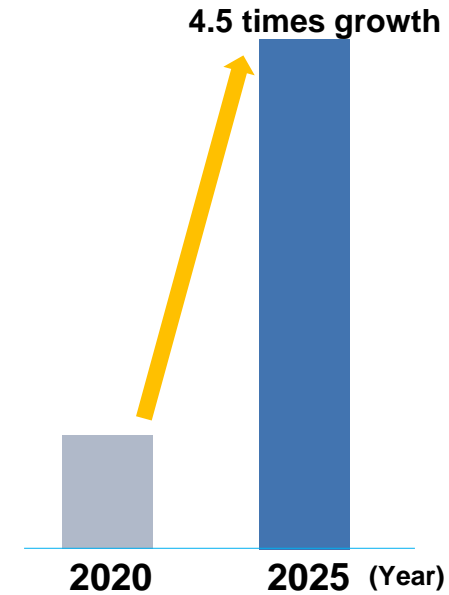


High air volume
Low vibration
Low noise

Unique control and firmware



Increase of our server product

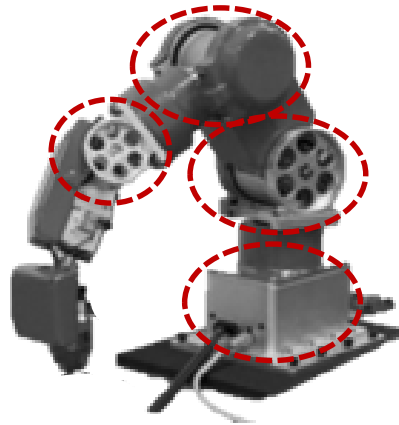


3. Introduction of Strategic Products: Robotics

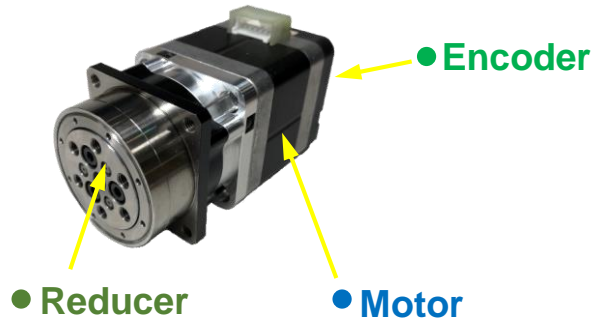
Single motor + Integrated control + Output conversion + Software = Solution

▶ Actuators for robot using our original hybrid components/products

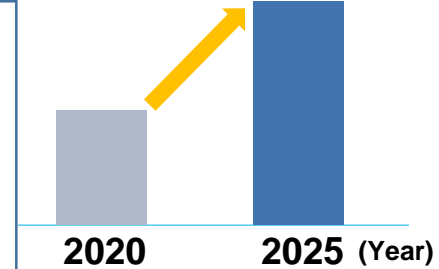
Modularization with Motor + Reducer + Encoder



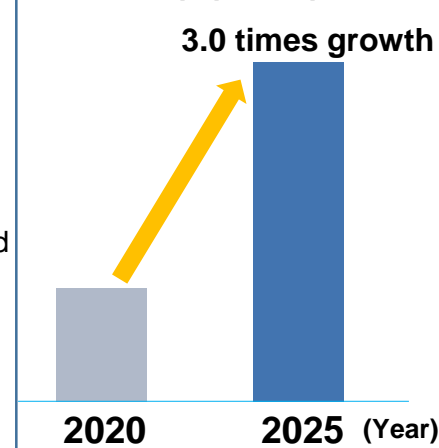
Joint module



Growth of the small robot market
2.0 times growth



Increase of our industrial equipment products
3.0 times growth



< Modularization > → → → < Unitize > → → →



- Develop various motors
 - Stepping Motor
 - Brushless Motor
- Our original development
 - Small, high output, and high precision
- Our original development
 - Mechanical absolute
- Stepping Motor (HB)
 - Activate control method



4. Plan of Expanding Motor Business

Expand in all products mainly in strategic market

- ◆ Electrification, CASE, New lifestyle, DX, Labor saving
- ◆ Propose solutions by integration at business opportunities

01 Electrification

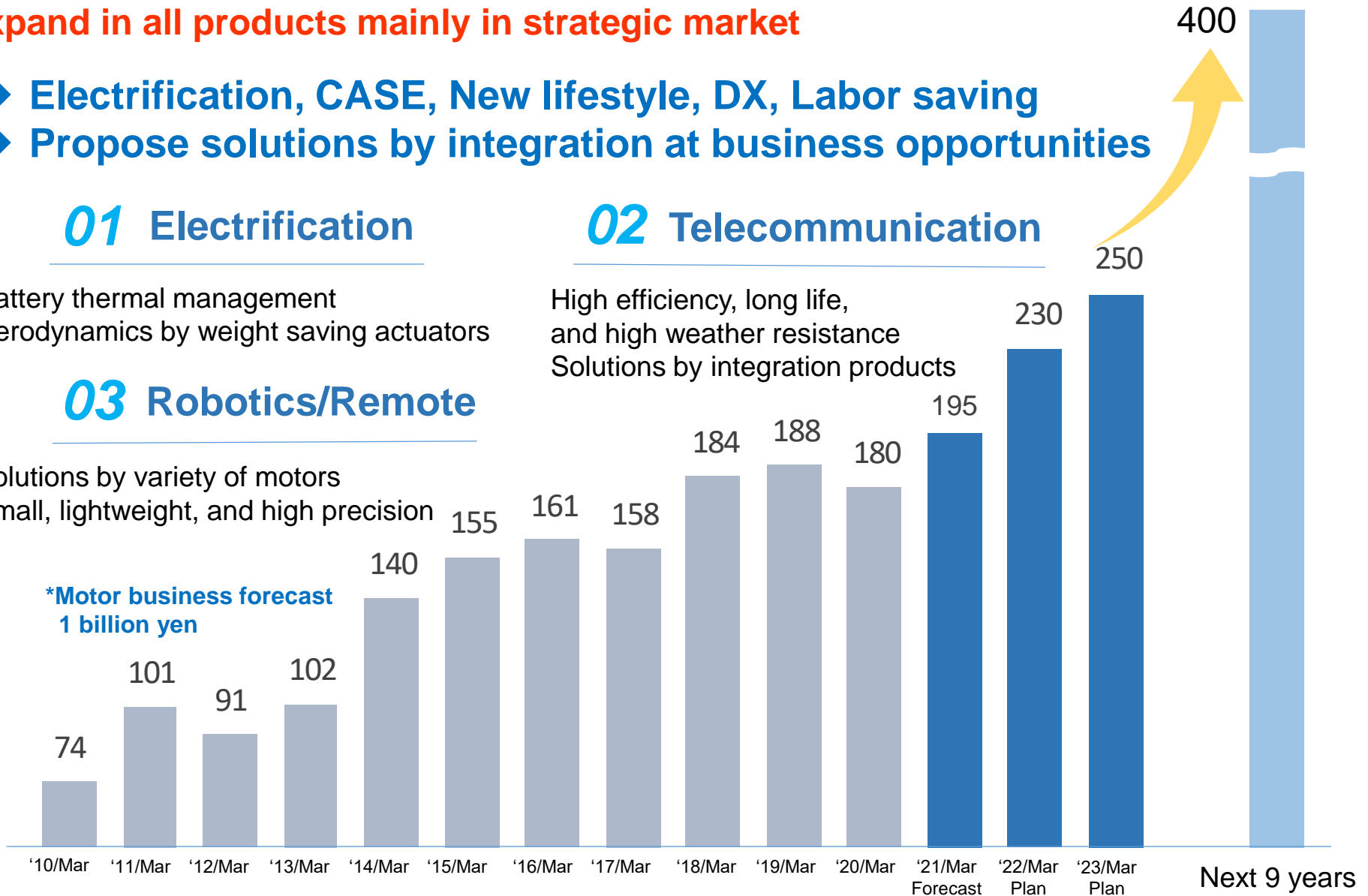
Battery thermal management
Aerodynamics by weight saving actuators

02 Telecommunication

High efficiency, long life,
and high weather resistance
Solutions by integration products

03 Robotics/Remote

Solutions by variety of motors
Small, lightweight, and high precision





Any statements in this presentation which are not historical are future projections based on certain assumptions and executive judgments drawn from currently available information.

Please note that actual performance may vary significantly from any particular projection due to various factors.

Factors affecting our actual performance include but are not limited to: (i) changes in economic conditions or demand trends related to MinebeaMitsumi's business operations; (ii) fluctuation of foreign exchange rates or interest rates; and (iii) our ability to continue R&D, manufacturing and marketing in a timely manner in the electronics business sector, where technological innovations are rapid and new products are launched continuously.

All the information in this document is the property of MinebeaMitsumi Inc. All parties are prohibited, for whatever purpose, to copy, modify, reproduce, transmit, etc. this information regardless of ways and means without prior written permission of MinebeaMitsumi Inc.