

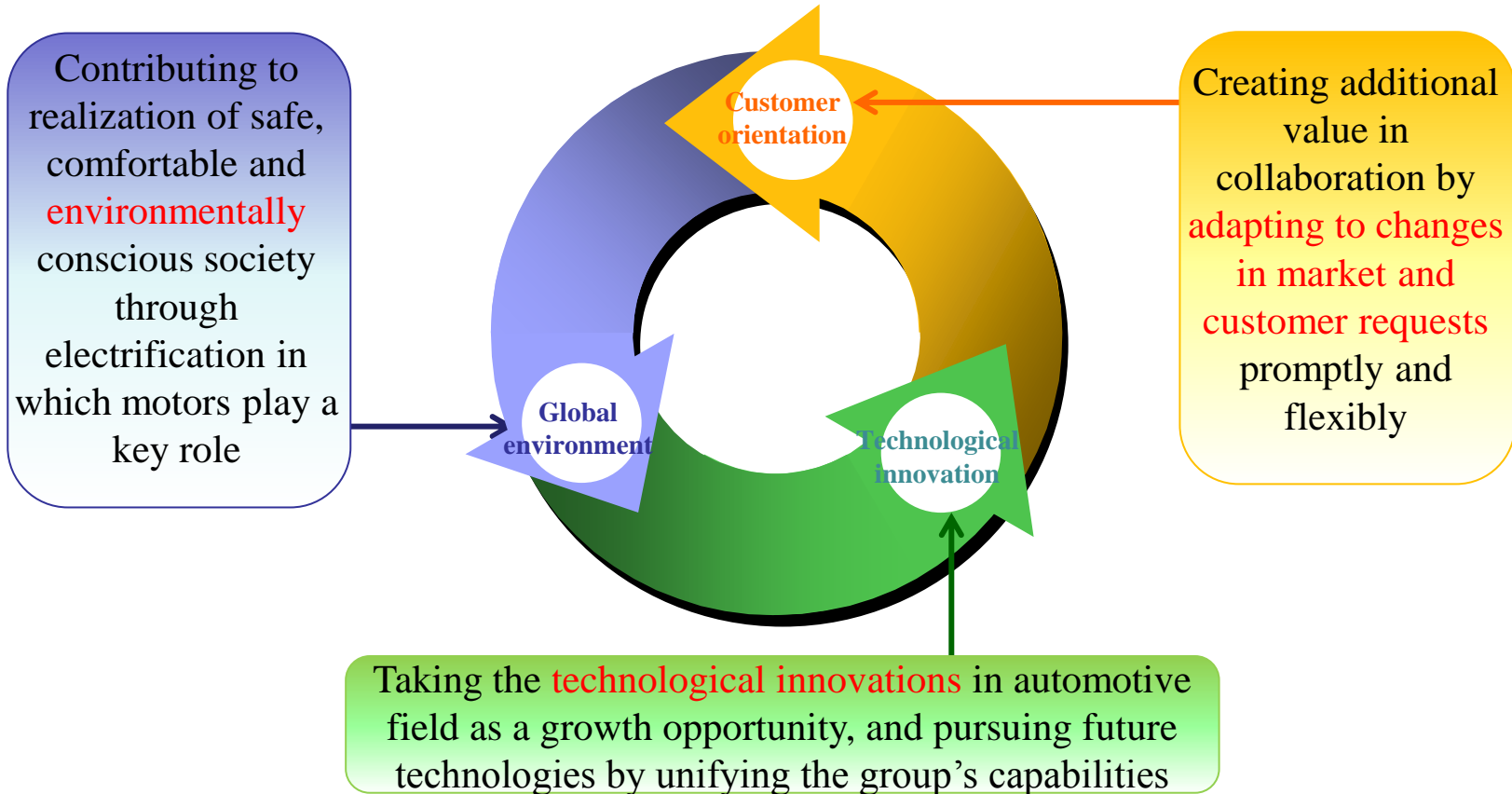


日本电产有限公司

Nidec Automotive Motors Strategies and Prospects

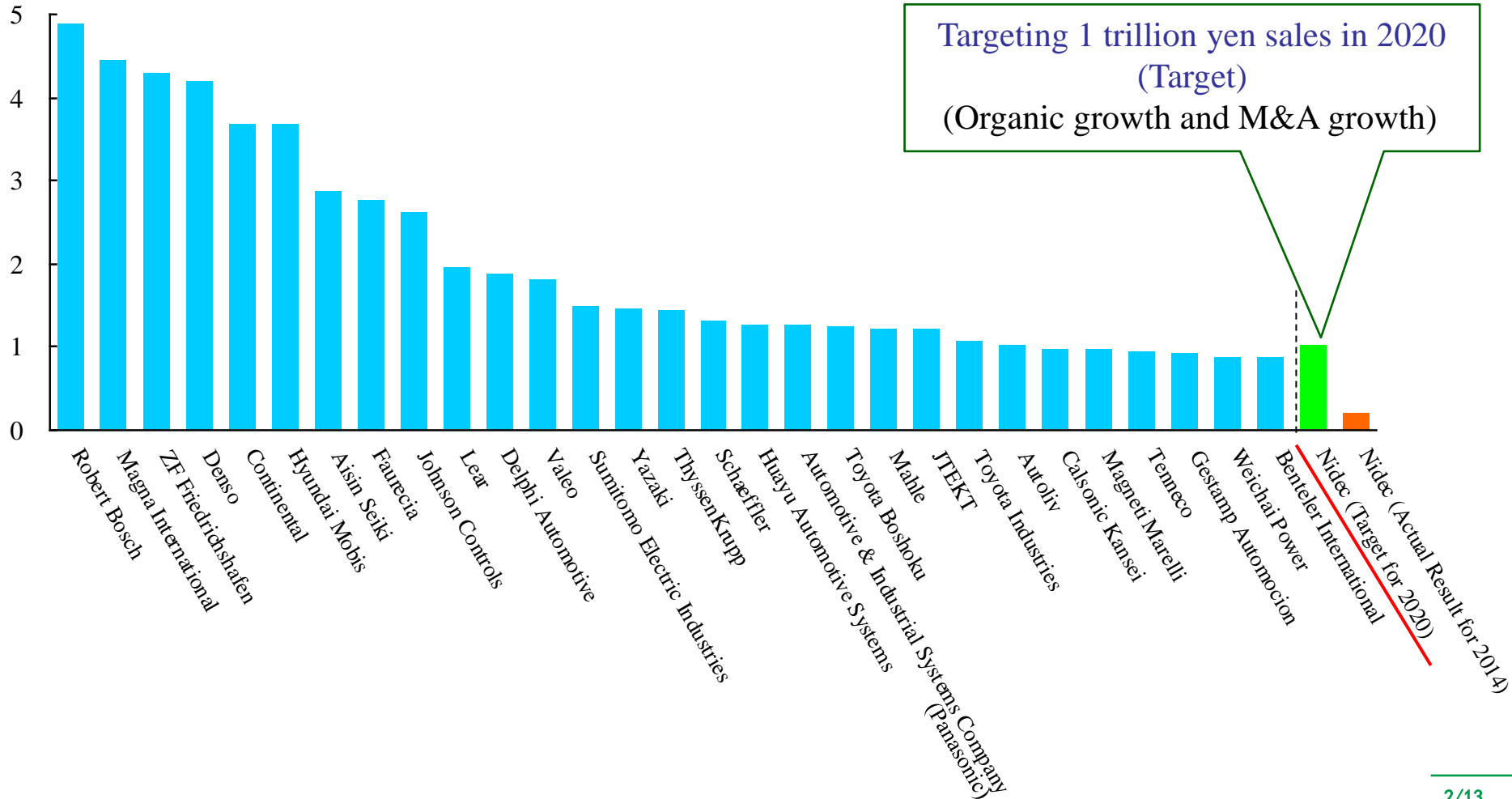
Aiming to achieve overwhelming growth by taking advantage of rapidly advancing electrification

Nidec Automotive Business Vision



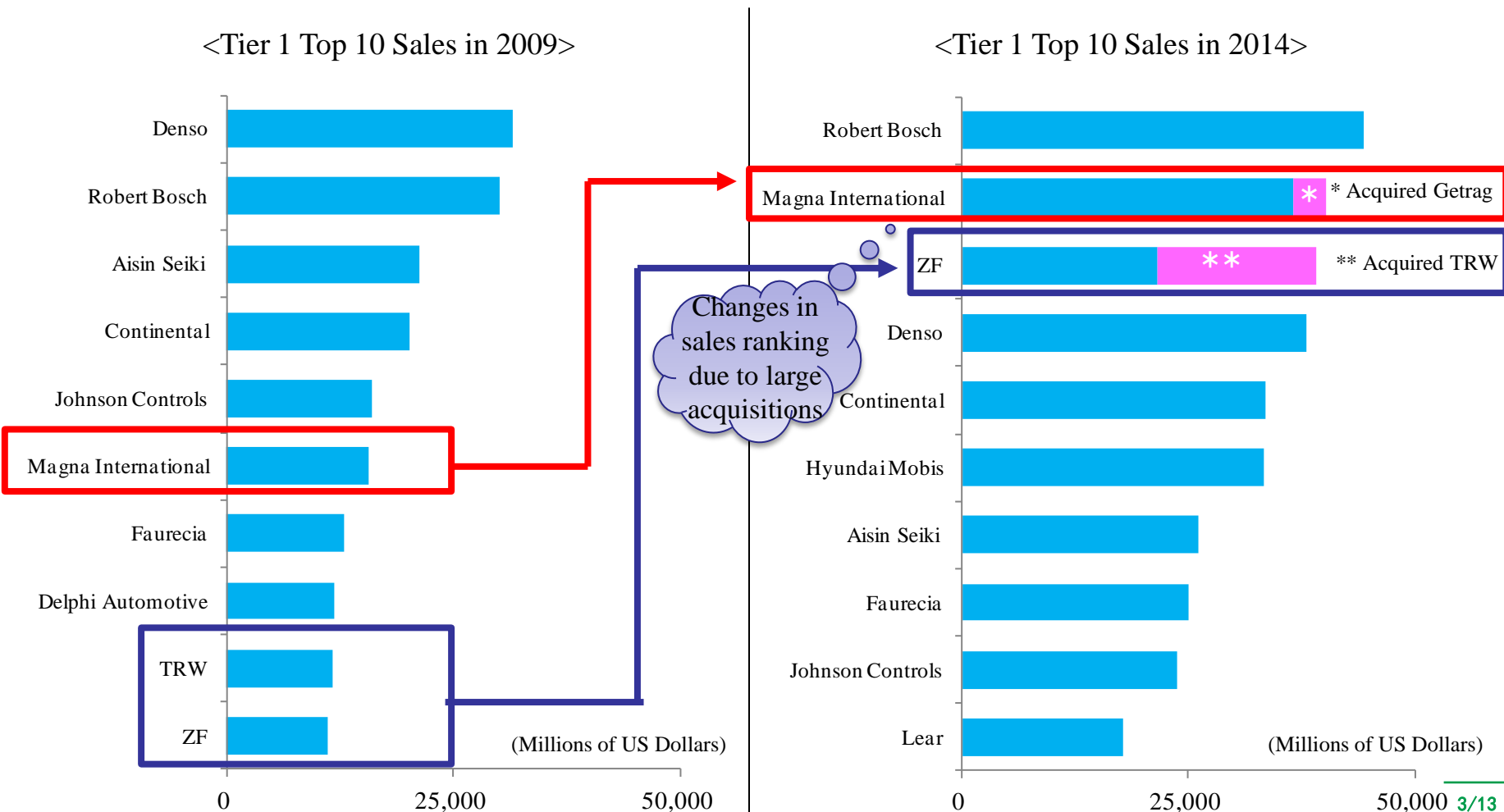
Numerous players exceeding one trillion yen sales

(Sales per annum in Trillions of Yen)

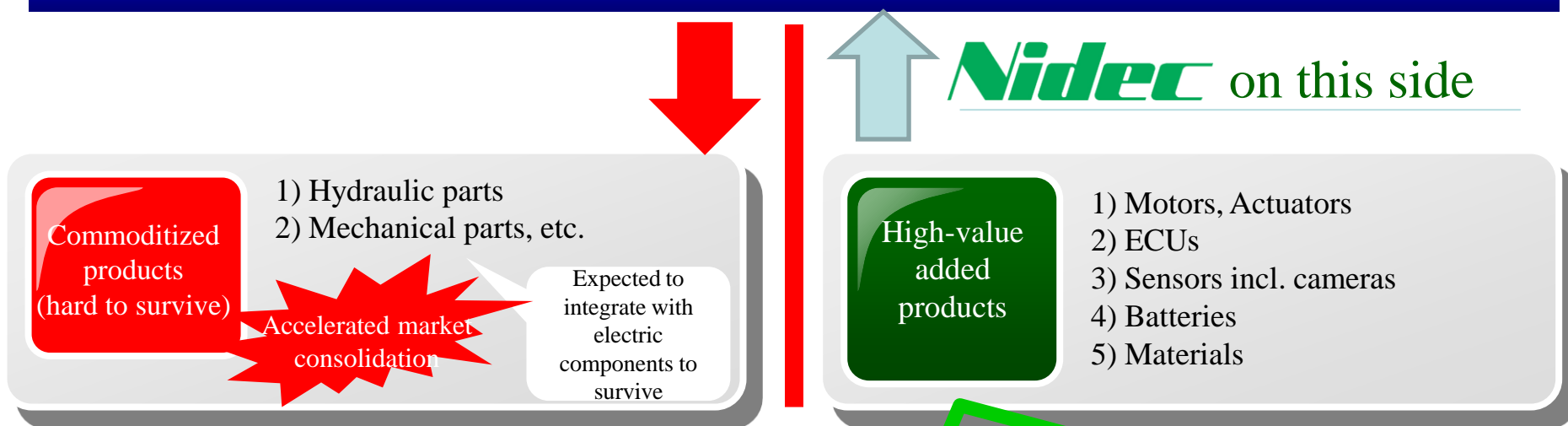


Business Environment: Changing Competitive Landscape

Investments are accelerating in powertrain/safety technologies
which lead to future autonomous driving
(ZF's acquisition of TRW followed by Magna's acquisition of Getrag)



Auto parts clearly being polarized on the back of the electrification trend



Electrification of automotive parts



Environment

System reforms boosted through enhanced environmental regulations across the world

Safety

Improvement of safety functions with electronic control

Comfort, Convenience

Electrification of general equipment, improvement of information and communication equipment

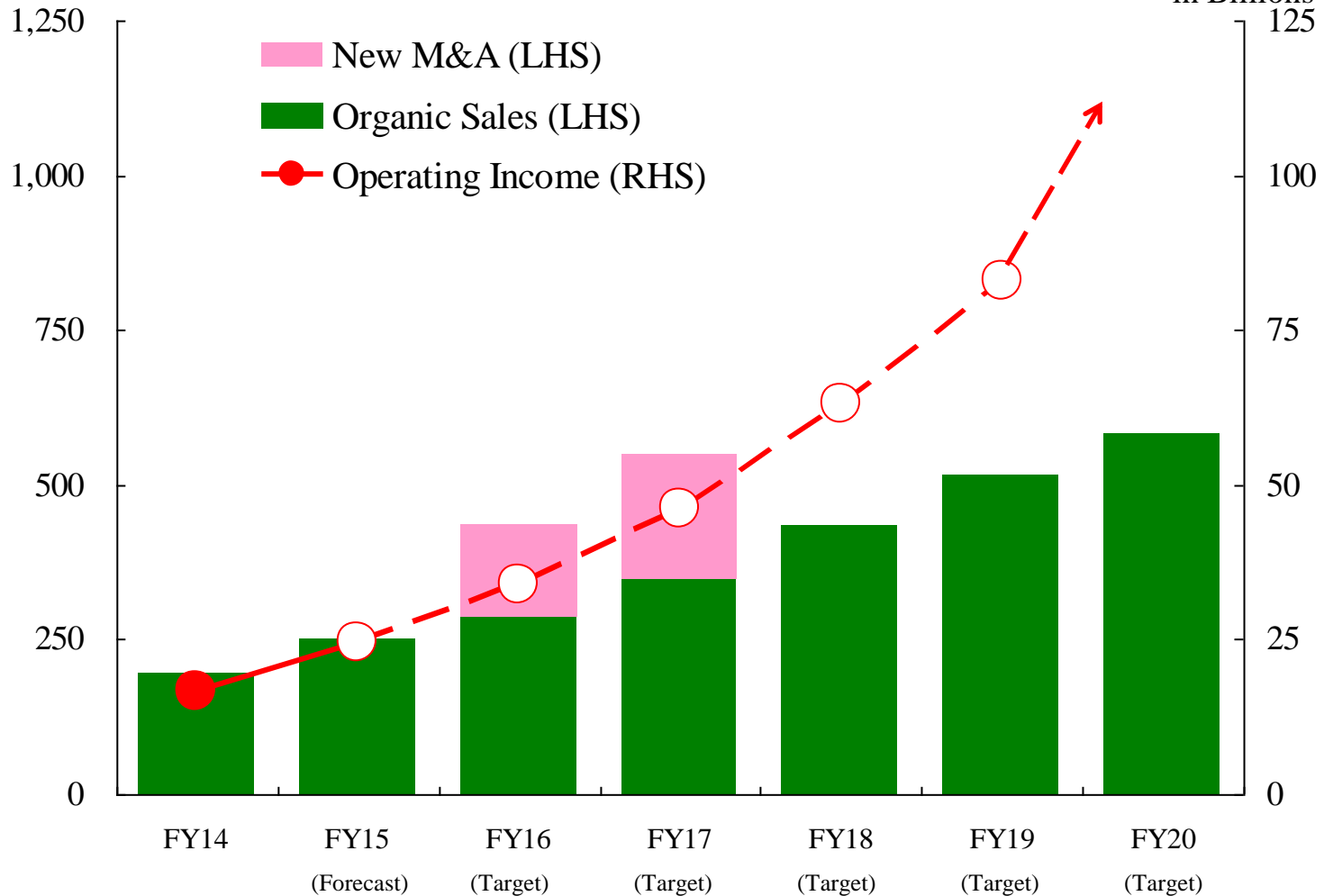
Customers accelerating to switch over to suppliers with global supply capabilities

		Competitor A	Competitor B	Competitor C	Competitor D	Competitor E	Competitor F	Competitor G
Brushless motor comprehensive strength	★★★★	★★★★	★★★★	★★	★★★★	★★★★	★	★
Global supply capability	★★★★	★★★★	★★★★	★★	★	★★	★	★
Scale	★★★★	★★	★★★★	★★	★★★★	★★★★	★★	★★★★
Quality	★★★★	★★★★	★★★★	★★★★	★★★★	★★★★	★	★
Cost competitiveness	★★	★★	★	★	★	★★	★★★★	★★★★
Power-pack development capabilities	★★	—	★★★★	—	★★★★	★★★★	—	★

Targeting 1 trillion yen sales and double-digit operating income ratio in FY2020

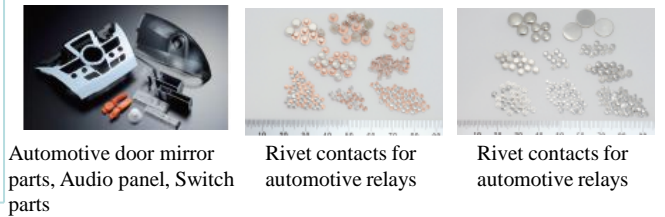
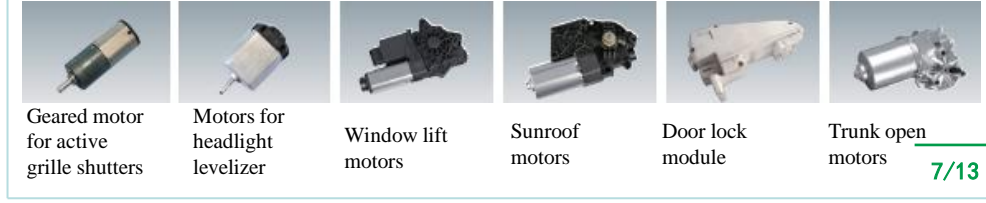
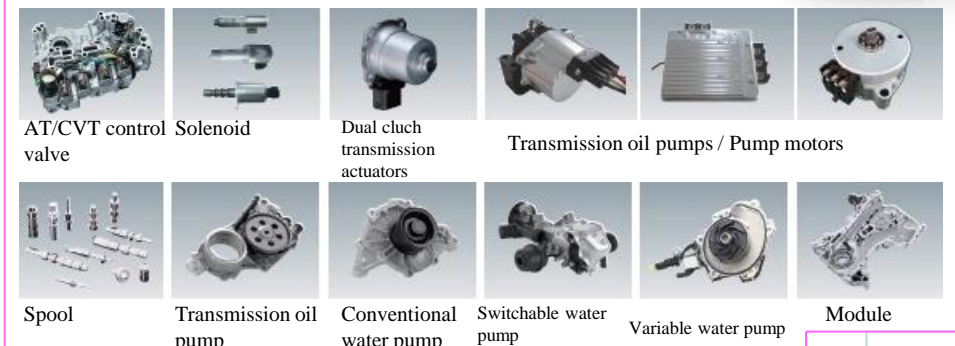
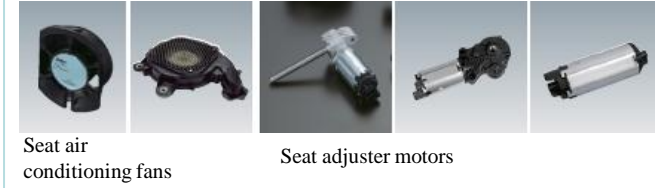
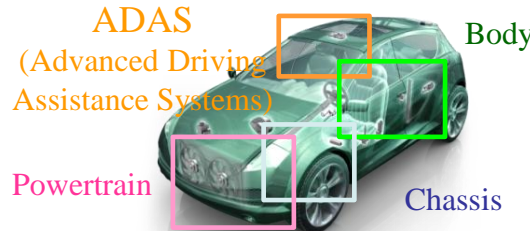
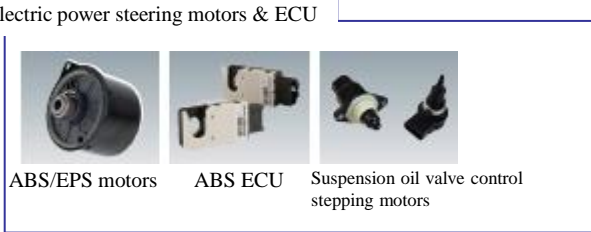
(Sales in Billions of Yen)

(Operating Income in Billions of Yen)



This slide includes forward-looking statements. See disclaimer on page 2 of this presentation.

Nidec steadily building its product lineups since the mid-1990s

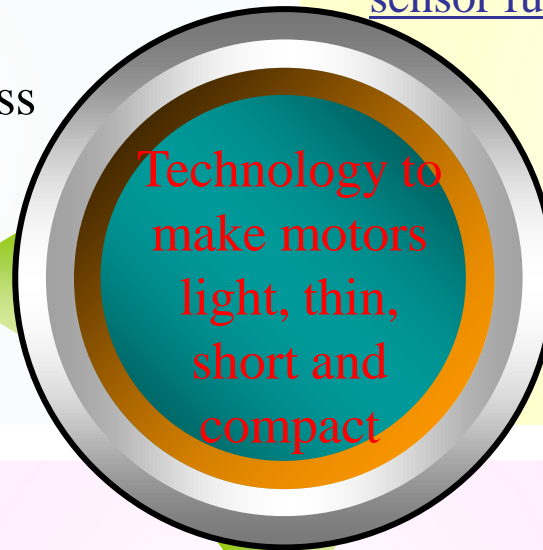
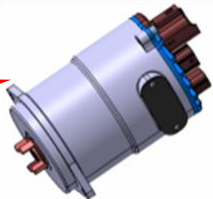


Launching products based on our technologies nurtured through IT experiences to make things light, thin, short and compact

Example 1

Power-packs for electric power steering

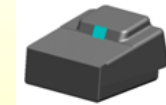
Superior cost competitiveness of brushless motors to brushed motors



Example 2

Millimeter wave radar/camera integrated sensor fusion

Enabling millimeter wave radar to fit in vehicle interior



Example 3

Electric water pump modules

Developed **world's smallest and lightest** product with our unique technologies: power-packs combining motors+pumps+ECUs



Strategy (1): Power-Packs for Electric Power Steering

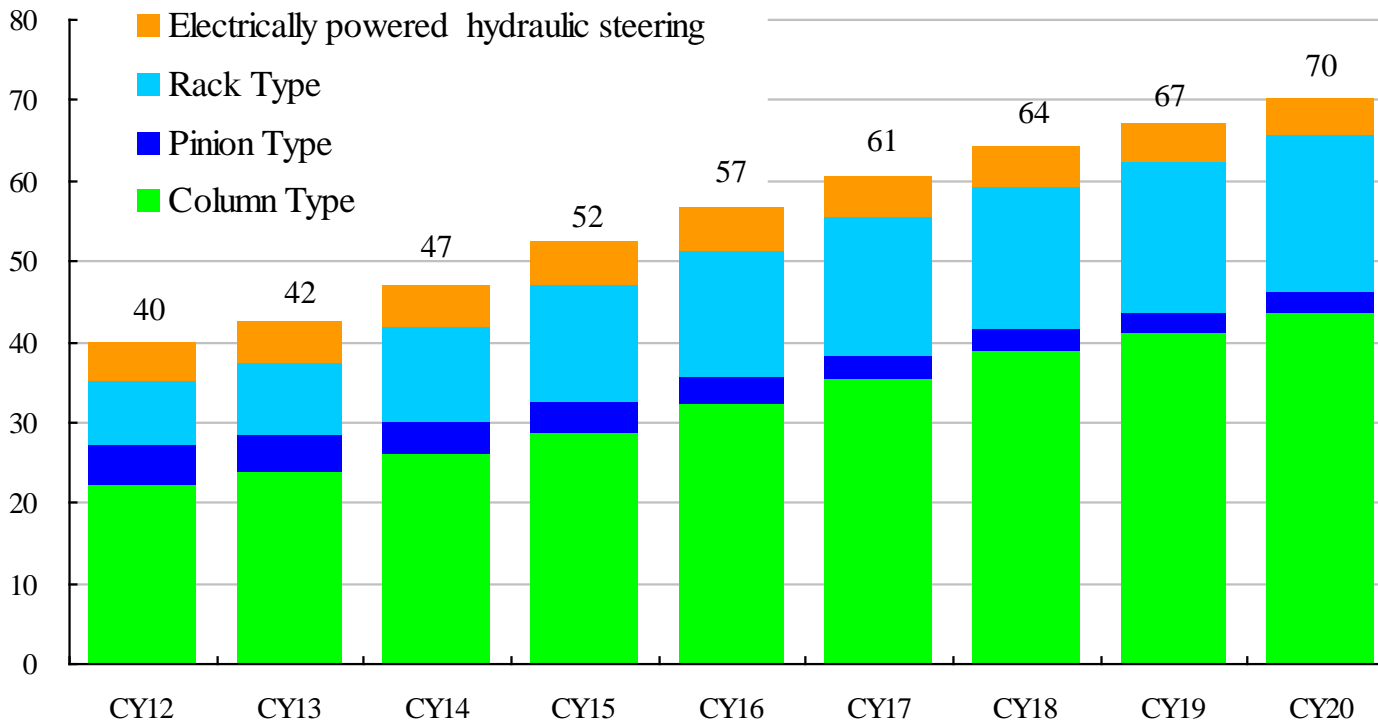
Introducing new products for Column Type EPS
expected to grow significantly



Aiming to replace brushed motors with **our strategic brushless motors** in Column Type and to expand brushless business further to dominate the market

<EPS* market estimate (by type)>

(Millions of Units)



*EPS: Electric Power Steering (Nidec estimates based on various sources)

Strategy (2): Next-Generation Braking System

The market expected to grow fast in response to demand for safety

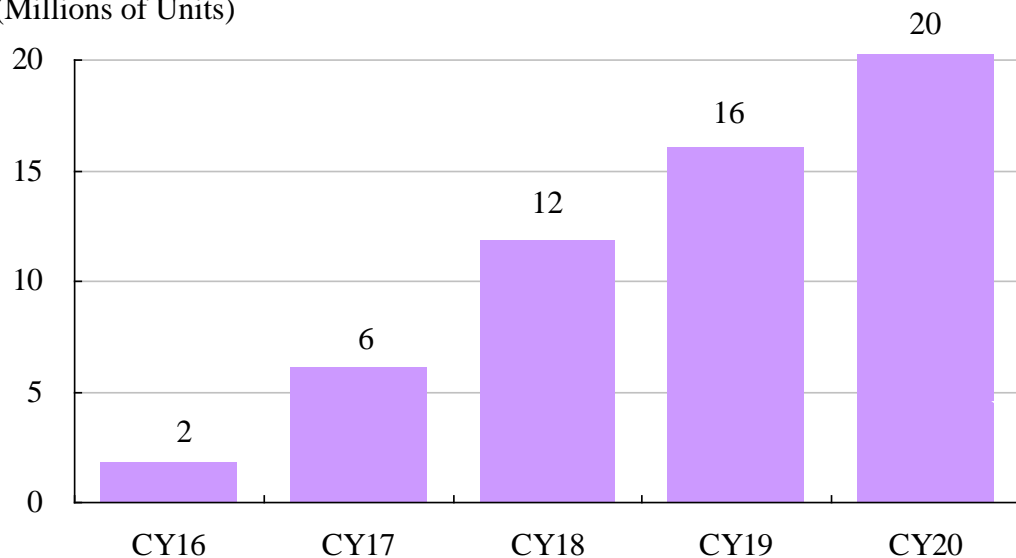
10 OEMs agreed to make automatic emergency braking (AEB) a standard feature on new vehicles in the U.S.

A motor serves as the key component for the next-generation braking system to which Nidec can apply its EPS motor technologies.

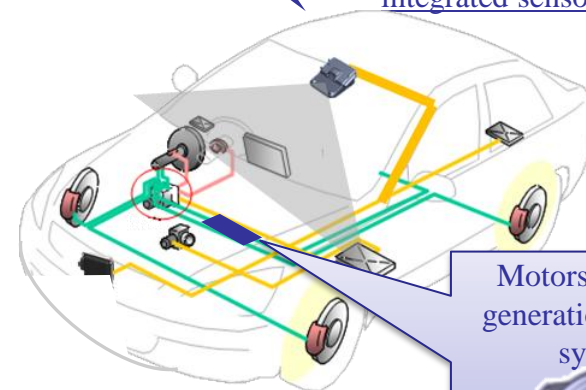


<ADAS market estimate>

(Millions of Units)



Millimeter wave radar/camera integrated sensor fusion



Motors for next-generation braking system

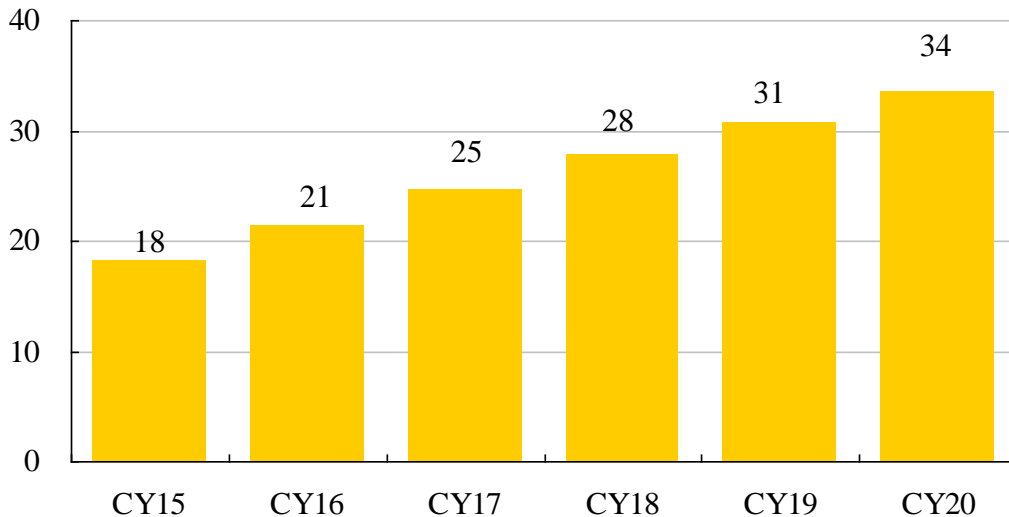


Providing environmentally conscious solution: significant improvement in energy efficiency of cooling water circulation

Integrating Nidec's motors with Nidec GPM's pumps and Nidec Elesys's ECUs. Introducing **EWP* modules created through putting group companies' technologies together.**

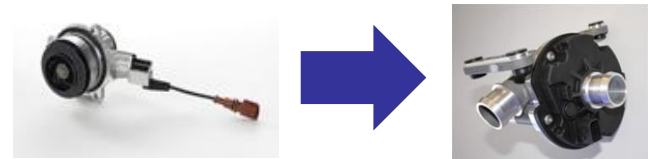
<EWP* market estimate>

(Millions of Units)



*EWP: Electric Water Pump

Environmental contribution (1): Improvement of fuel efficiency



Mechanical pump

Electric pump

➤ From belt drive to motor drive

Environmental contribution (2): More parts requiring cooling as electrification advances

Cooling for

- HEV/EV inverters
- HEV/EV motors
- Turbo chargers

(Nidec estimates based on various sources)

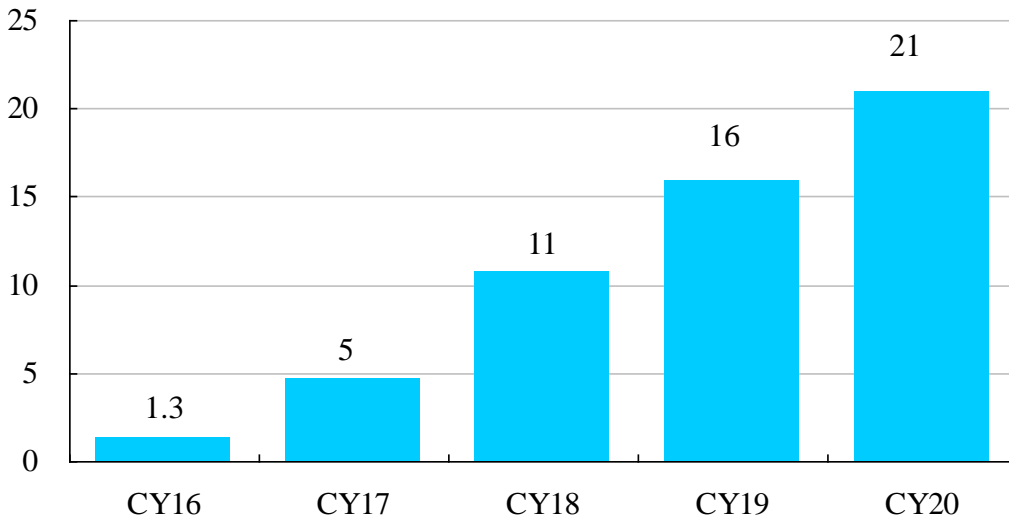
Strategy (4): Electric Oil Pump Modules

Providing environmentally conscious solution: significant improvement on energy efficiency of transmission oil pumps

Combined energy efficient motor of Nidec, low noised pump and high functional inverter of Nidec Tosok.
Introducing electric oil pump modules created through unifying superior Nidec group technologies.

<EOP* market estimate>

(Millions of Units)



**IS: Idling Stops, CS: Coasting Stops, SS:Sailing Stops

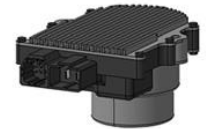
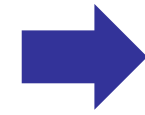
***DCT: Dual Clutch Transmission

*EOP: Electric Oil Pump

Environmental contribution:
Improvement of fuel efficiency



Mechanical pump



Electric pump

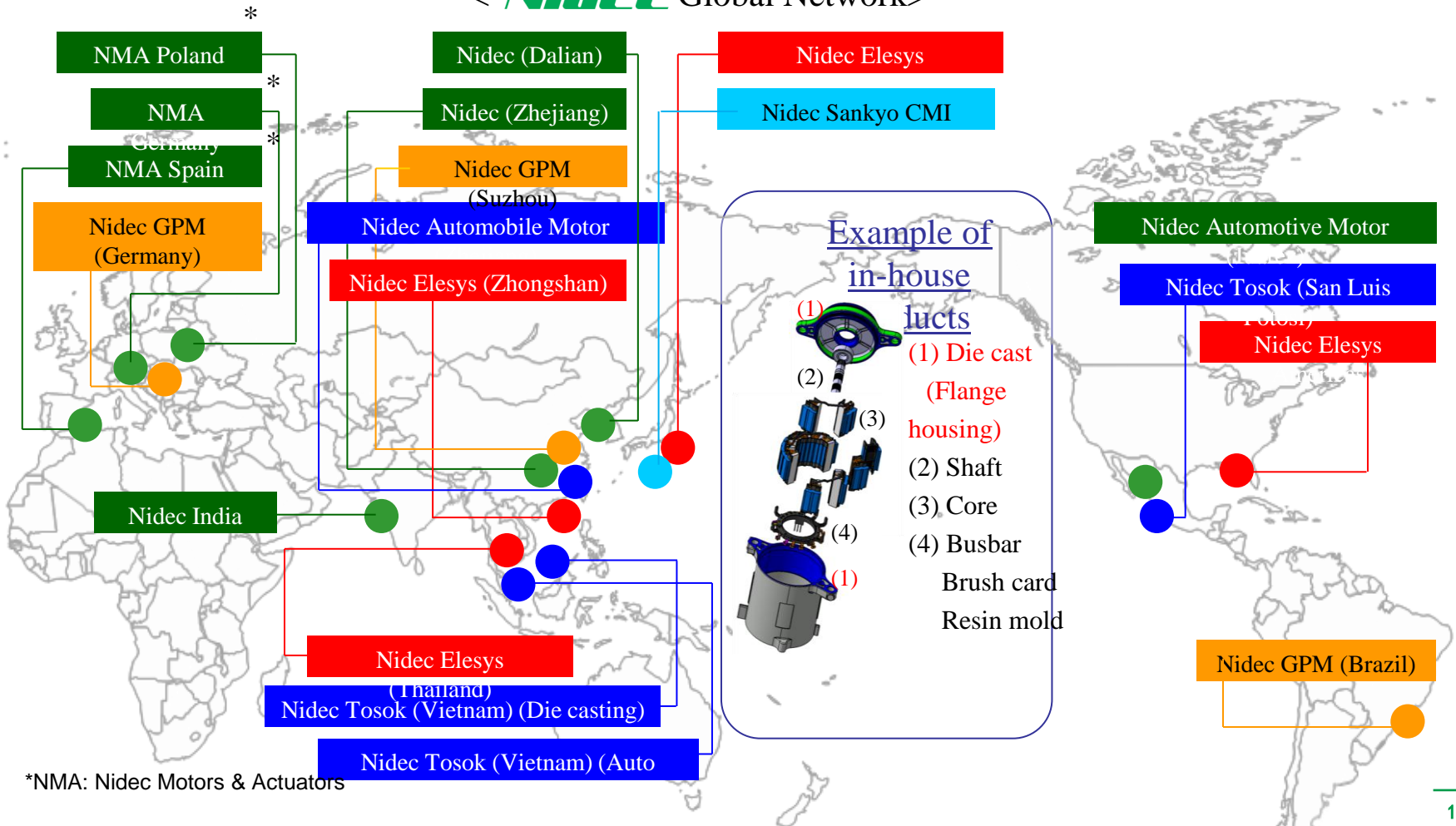
Switching the power source from engines to electric motors

- IS & CS & SS**:
Intentionally stopping engines to save energy
- Shifting gears in DCT***:
Reducing energy loss by switching from mechanical pumps to electric pumps
- Cooling down driving motors in HEV/EV:
By keeping traction motor's temperature stable, will assist its energy efficiency

(Nidec estimates based on various sources)

Large orders from Mega-Platform provide great opportunities to enhance in-house production, critical for improving

< **Nidec** Global Network >



*NMA: Nidec Motors & Actuators

Nidec

尼得科

— All for dreams