

The next frontier in mobility.

Initiatives for Strengthening Competitiveness for Sustainable Growth

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President of Aisin Seiki Co., Ltd.

Automotive Industry

Time of major changes once in 100 years

Environmental regulations

Technological innovation

Change in users' needs and values

Direction of initiatives

I Electrification

(1) Improving lineup of electrified products
(2) Establishment of joint venture (Electric Driving module /Integrated ECU)

II Automated driving

- Vehicle Dynamics Control
- Automated Valet Parking, Driver Monitoring System

Connected cars

- Hospitality Services (Example: Smart Door Safety Function)
- Local Contribution Measures (Example: Shared transportation service)

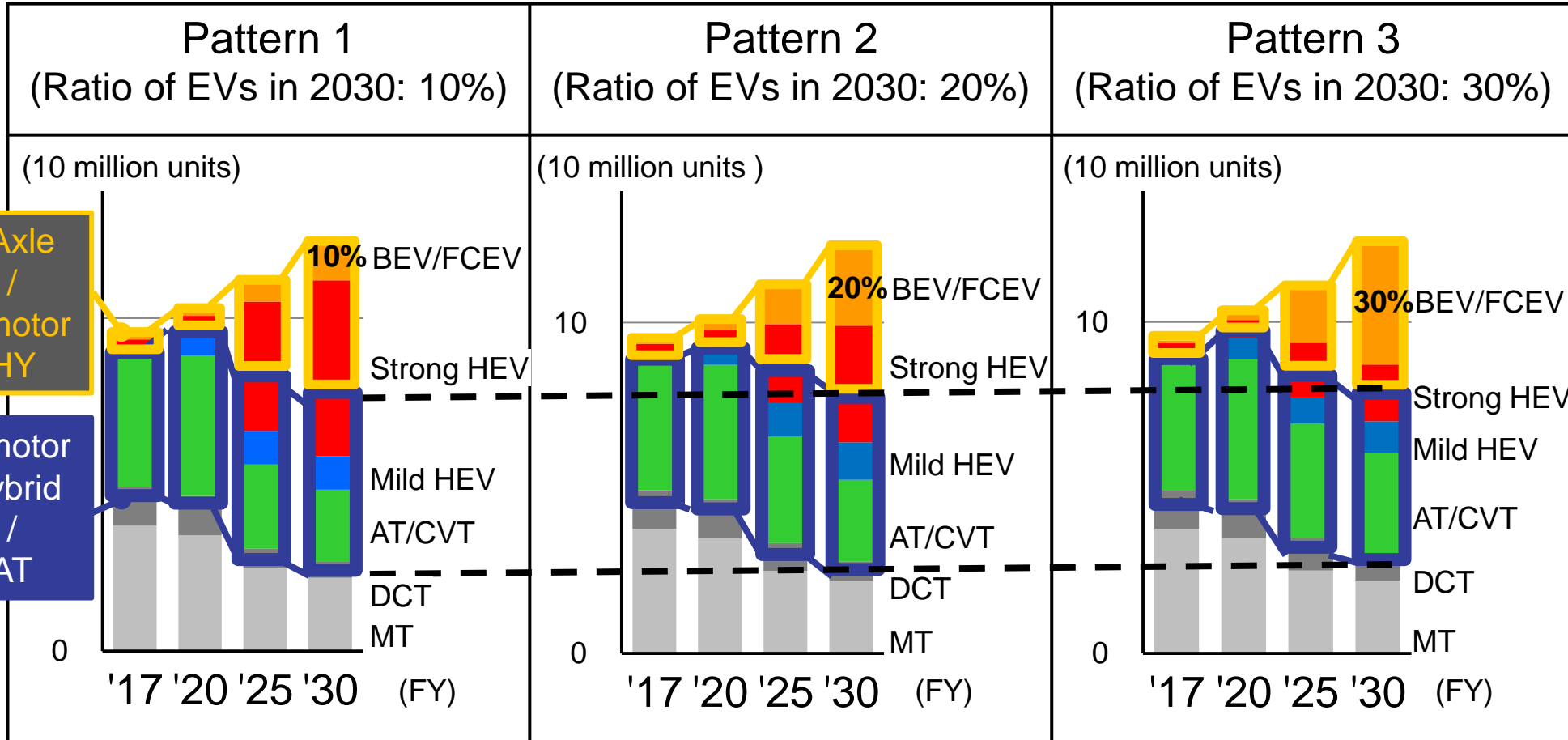
III Reinforcing foundation

(3) Business structural change

Explained today

(1) Improving lineup of electrified products



Forecast of Global Market Trend of Powertrain



Market for the Automatic Transmission-based powertrains does not change drastically regardless of the changes in the ratio of EVs in 2030.

(1) Improving lineup of electrified products

We will advance product development **omnidirectionally** by utilizing the technological bases which were developed for Automatic Transmission and the 2-motor Hybrid transmission.

Market		Product lineup	Status of development	
Electrified vehicle	BEV・FCEV	eAxle 	Being developed	
	Strong HEV	PHEV・HEV	eAxle	Being mass produced / Being developed
			2-Motor Hybrid Transmission	Being mass produced
		1-Motor Hybrid Transmission 	Start of mass production is slated from Jan. 2019	
	Mild HEV	AT	Being considered	
Gasoline-powered vehicle, etc.		AT	Being mass produced	

(1) Improving lineup of electrified products

We will provide the products for major four fields for electrification of vehicles.

1. Electric driving module

2. Electric pumps

3. Cooperative regenerative brake system

4. Lightweighting

(1) Improving lineup of electrified products

1. Electric driving module

1-Motor Hybrid Transmission

Mounted on Groupe PSA's DS7 CROSSBACK (PHEV model)

Paris Motor Show



(Press conference at Paris Motor Show)



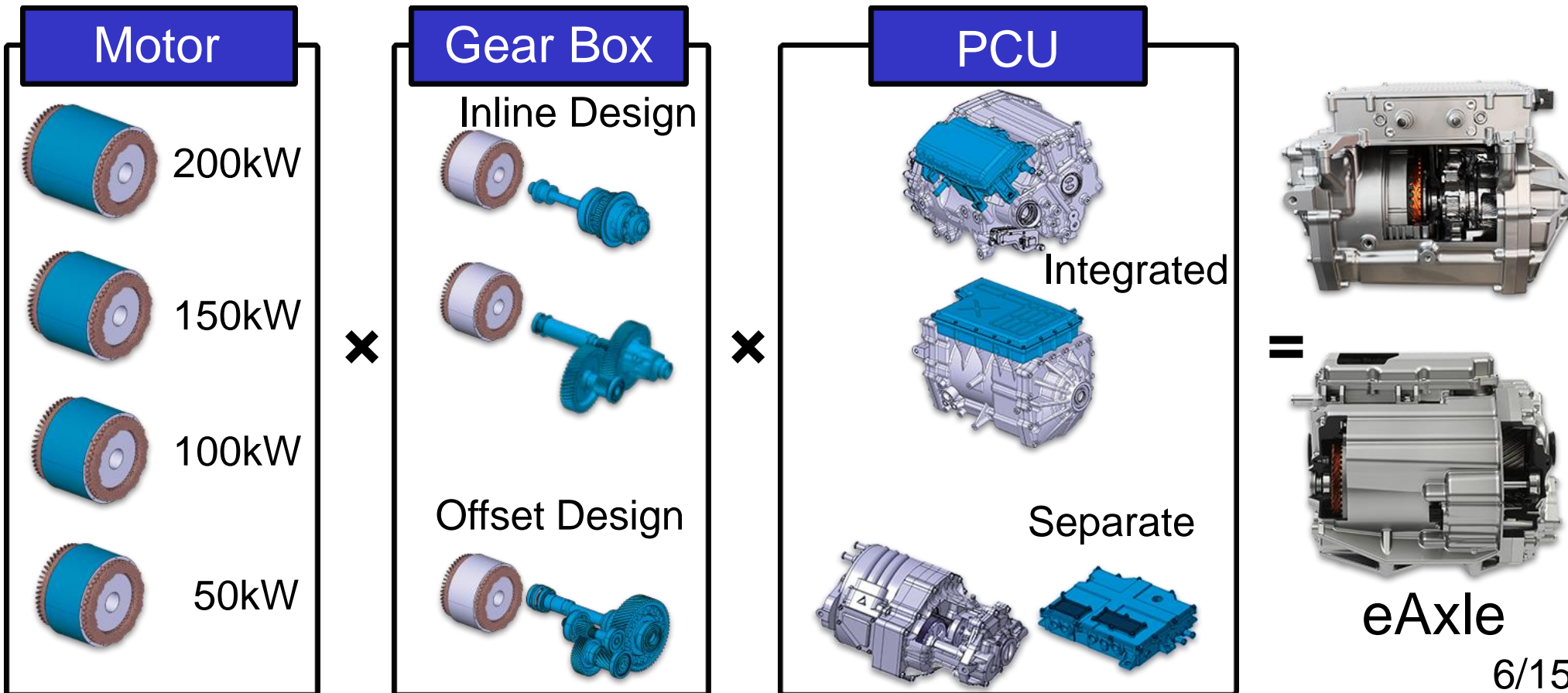
(Aisin Group's booth)

(1) Improving lineup of electrified products

1. Electric driving module

eAxle

By combining motors, gearboxes, and power control units (PCUs), we will promote development of the products that can be used for various vehicle types from cars to buses and trucks.



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AISIN Group's Product Lineup for Electrification

Le groupe Aisin a un éventail de produits qui sont essentiels à l'électrification des véhicules

Aisin Group has a range of products that are essential to electrification of Vehicles

Groupe motopropulseur Powertrain

eAxle, Transmission hybride, pompe pour gestion thermique eAxle, Hybrid Transmission, pompe for Heat management

Système de sécurité véhicule et châssis Chassis & Vehicle Safety System

Système de freinage régénératif Regenerative brake system

Carrosserie Body

Barre de protection légère pour choc latéral, Renforcement Light weight impact beam, reinforcement

TIC et Électronique ICT & Electronics

Unité de commande électronique Onduleur, IGBT Electric control unit, Inverter, IGBT

Collection d'eAxe AISIN AISIN eAxle Series

Concepts de la série eAxle Concepts of eAxle series

La Gamme eAxle couvre tout type de véhicule y compris les véhicules très puissants et performants Series lineup covering all type of vehicles including high performance models

Design optimal pour un moteur électrique avec intégration des éléments mécatroniques compacts Mechanically integrated compact design suitable for EV drive unit

Design Modulaire qui permet une sélection de composants électroniques personnalisés Modular design that allows selection of customized electronic components

Technologie et fiabilité assurée grâce à l'expérience d'Aisin AW au niveau Design (Transmission automatique et Hybride), Production & Assurance Technology and reliability derived from hybrid and automatic design, Production & Assurance

La Gamme eAxle d'AISIN rencontre la meilleur combinaison de boîte de vitesse, moteur électrique et onduleur pour tout type de véhicule AISIN's eAxle will provide the best combination of gear box, electric motor and inverter for all type of vehicles.

Différentes puissance moteur Motor

Motor Selection



Différentes boîtes de vitesses Gear Box Selection

Gear Box Selection



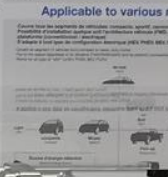
Différents type de contrôle de puissance PCU Type

PCU Type Selection



Disponible sur les véhicules suivants Applicable to various models

Applicable Models



(Exhibition at Paris Motor Show)

(1) Improving lineup of electrified products

2. Electric pumps

- Cooling/Lubricating motors, PCUs and batteries



Electric water pump

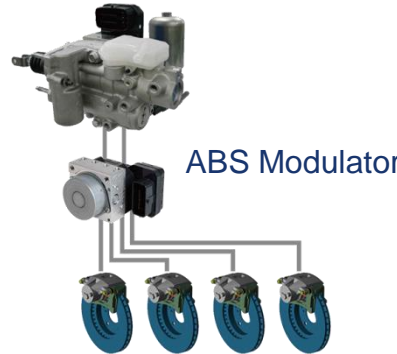


Electric oil pump

3. Cooperative regenerative brake system

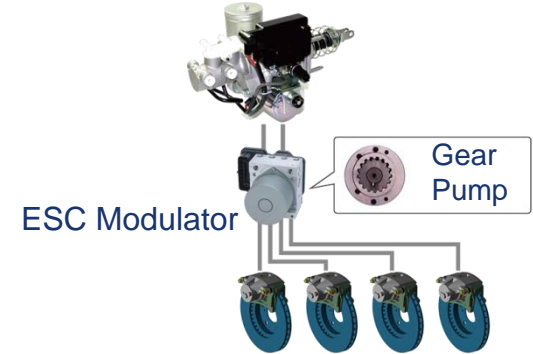
- Preparing two types to respond to different vehicle types and needs

Electronically Controlled Brake System



By wire type

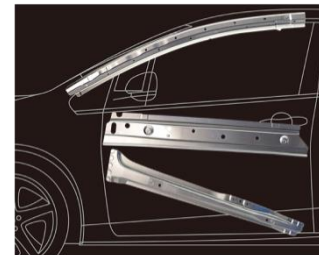
Hydraulic booster



ESC Modulator type

4. Lightweighting

- Rough shape materials and chemical products for high strength and lightweighting
- Reducing vehicles' energy consumption

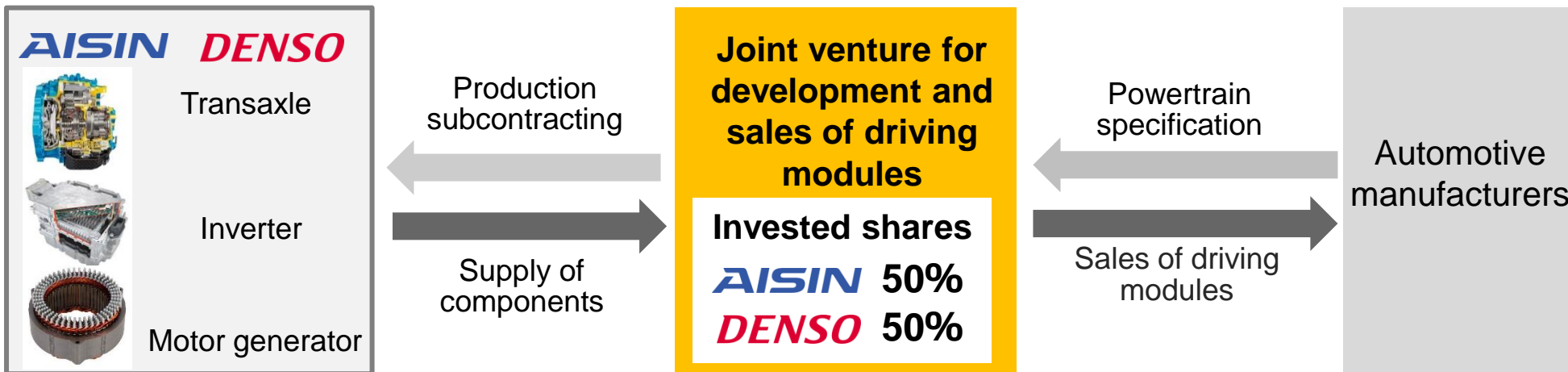


Hot stamping Products (Die Quenching)

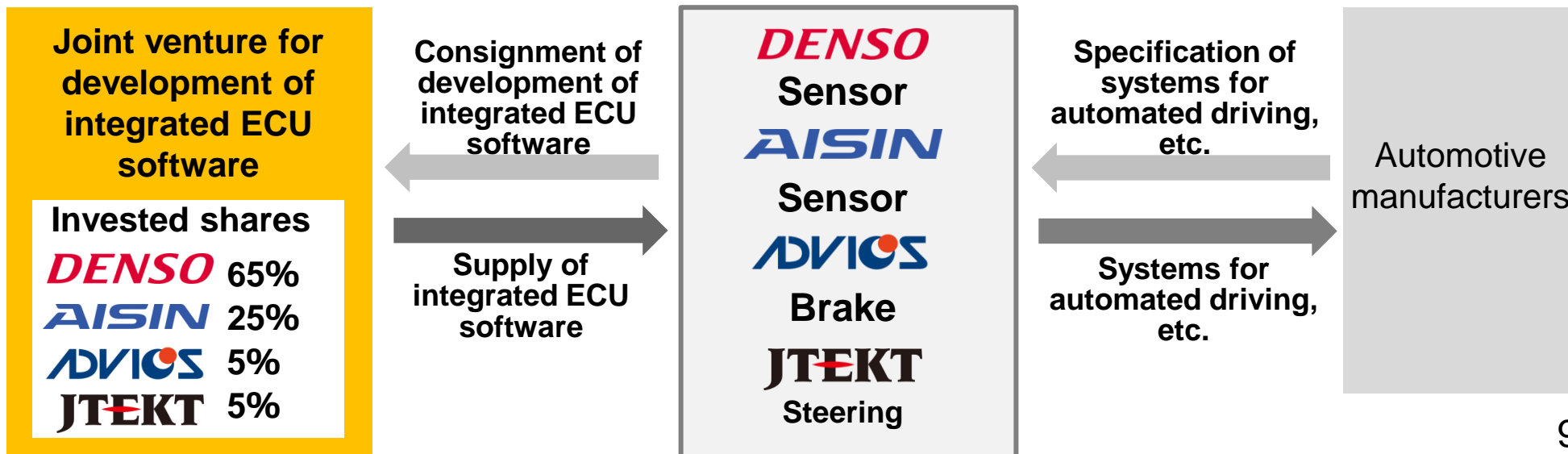


Spray-type damping coat 8/15

1) Overview of the joint venture for development and sales of driving modules

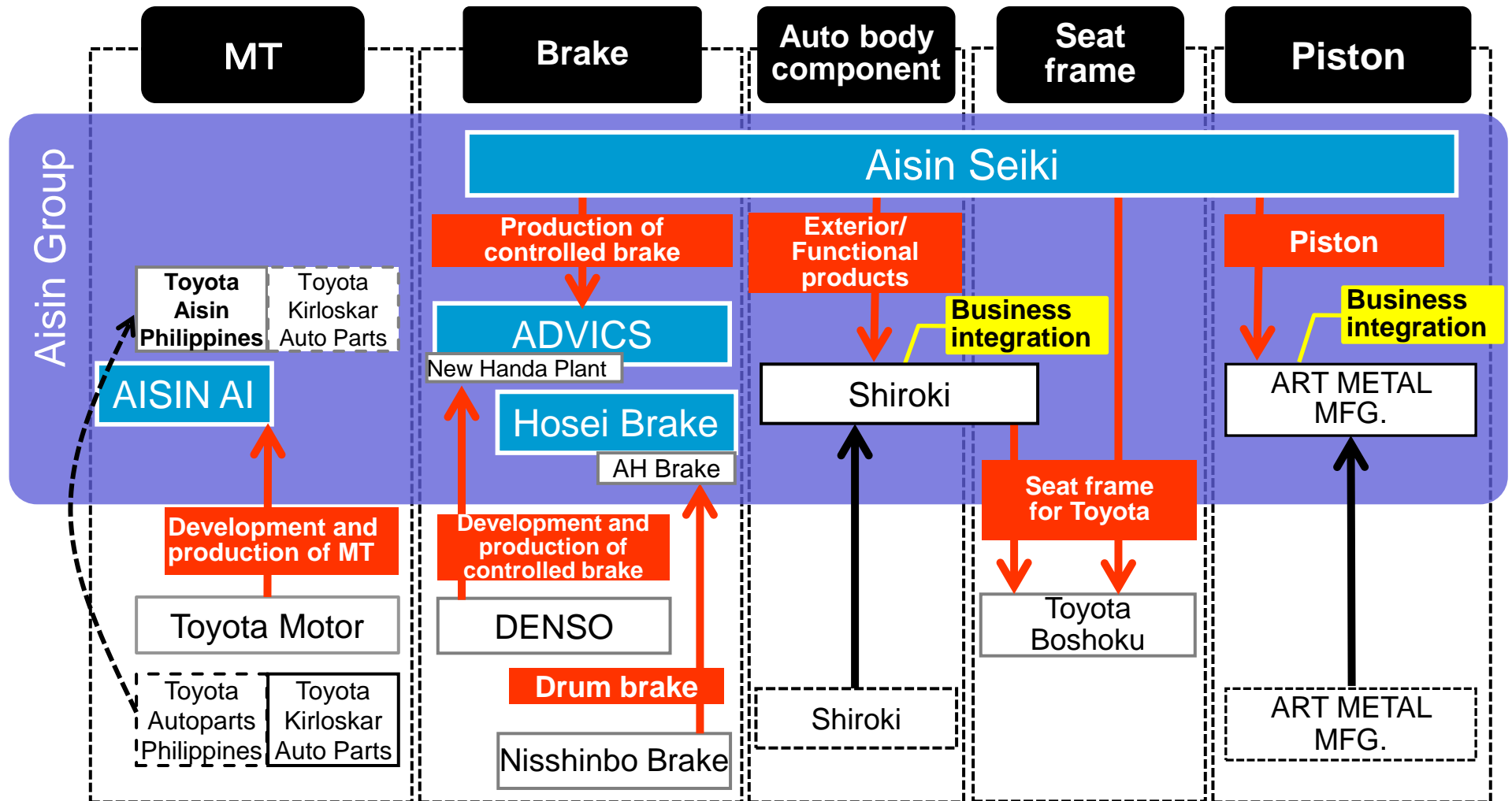


2) Overview of the joint venture for development of integrated ECU software

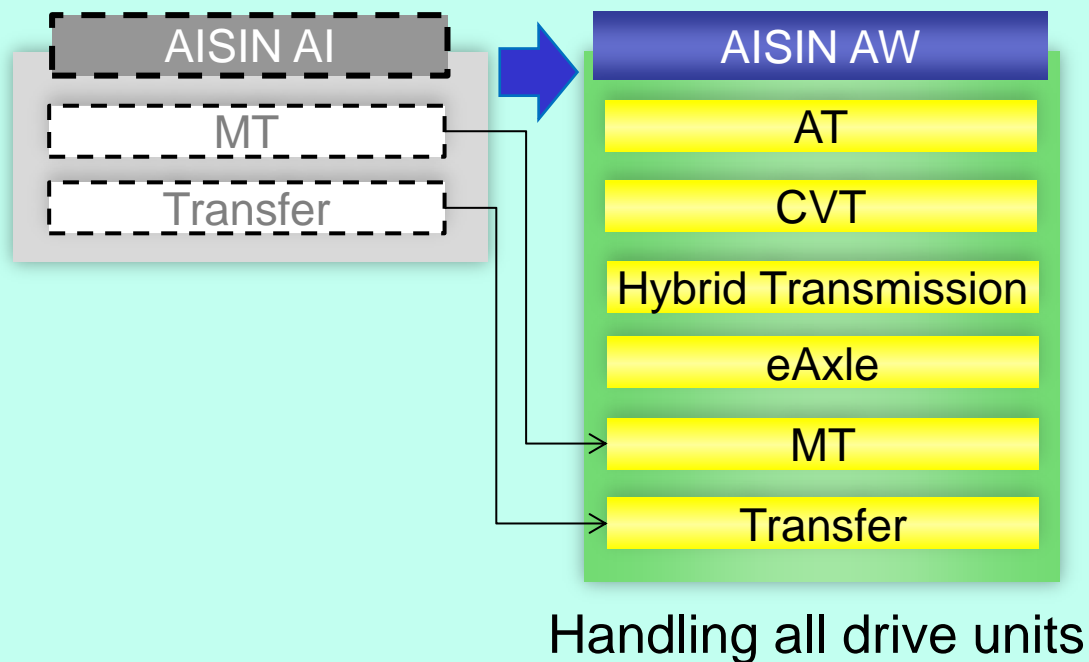


(3) Business structural change - Business reorganization

We will implement business reorganization steadily



Business integration of AISIN AW and AISIN AI in April 2019



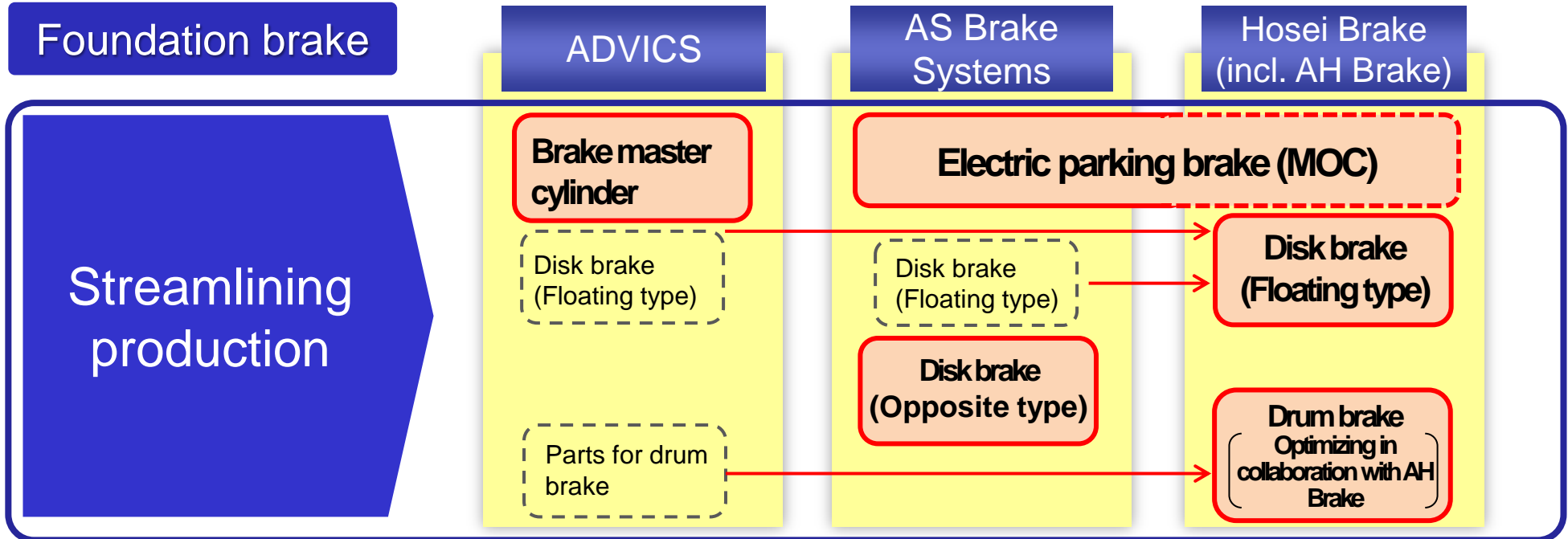
Making the “virtual” company system real and expediting structural change in an integrated manner

- Reorganizing and aggregating MT production
→ Changing to production of AT and Hybrid transmission
- Streamlining duplicated functions. Improving efficiency. Efficient utilization of MT engineers.

Reinforcing preparations for electrification by optimizing resources in the powertrain field

(3) Business structural change - Business reorganization - 2

[Brake business] Improving efficiency of development and production systems and focusing on the growing field



AH Brake: Acquired from Nisshinbo Brake in April 2018

Improving efficiency of development

Integrating the drum brake development systems of ADVICS, Hosei Brake, and AH Brake and shifting the streamlined human resources to development of electric parking and control brakes.



We will achieve further growth by responding securely to the demands for control brakes and electric parking brakes that are expected to grow.

ADVICS Handa Plant is expanded for increase of the control brake production capability.



- ※ Start of operation in the expanded area is slated for Mar. 2019.
- ※ Transfer of production from DENSO is planned to complete before the end of 2020.

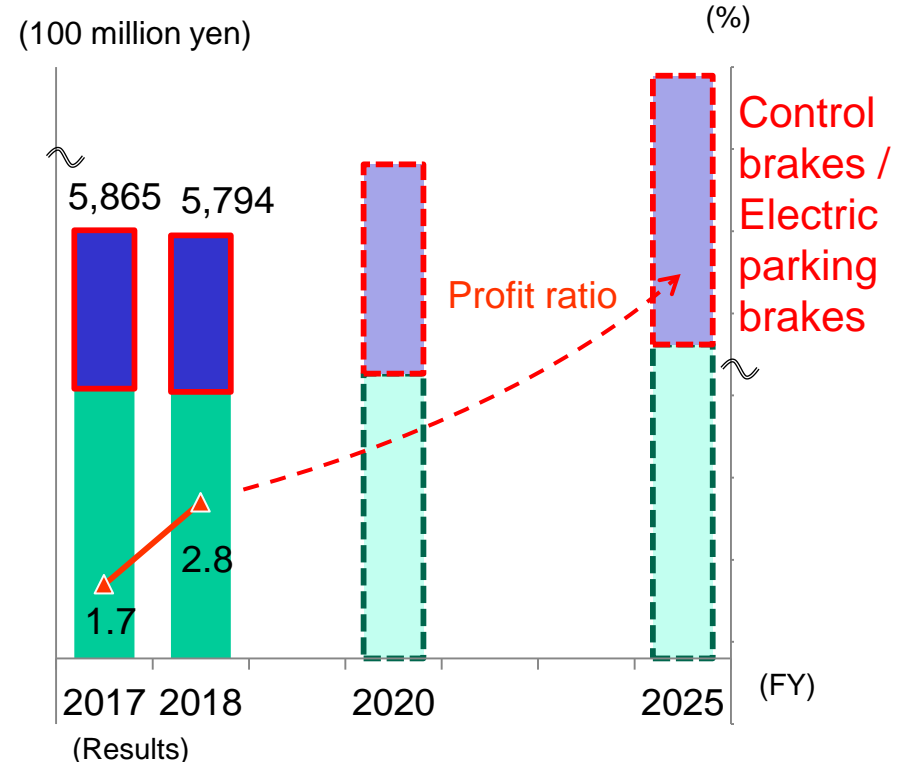


Cooperative regenerative brake system



ESC

Sales goal of Brake Business



**Strengthening
the VC system**
(Breaking down the
walls of organization)

**Scrap & build work
with no exceptions**

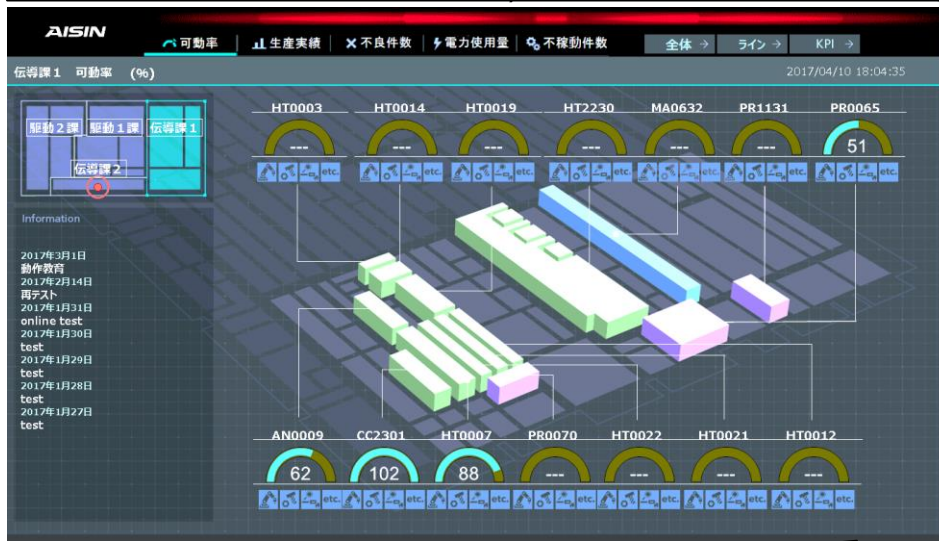
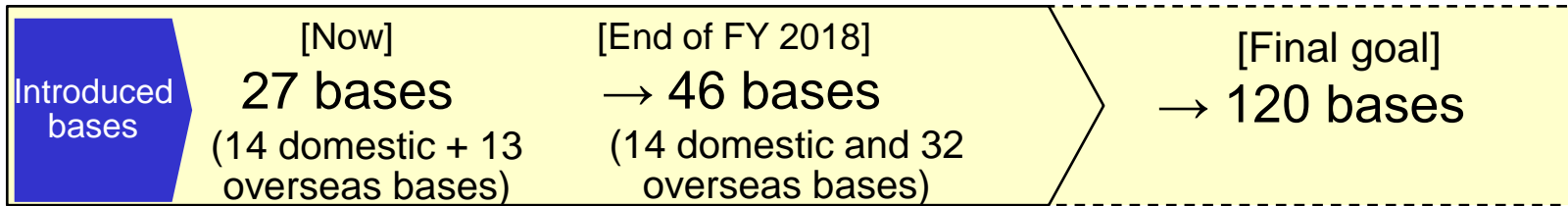
**Selection from
existing products and
intensive investment**

**Improving efficiency
of business
operations**

- Unification of sales activities in China
(Sale of other products by using the sales routes for AT)
- Aftermarket VC
- Unifying the administration functions into the Group's head office
- Shifting resources from the unprofitable businesses to the growing businesses
Taking into consideration the products' competitiveness, market size, and yieldability
- Increasing sales of the power sliding doors
- Intensive investment of resource in the products with the biggest and second biggest market shares
- Improving productivity by utilizing the IoT and AI in the production lines
- Increased utilization of RPA in offices and engineering departments

Improving productivity by utilizing the IoT in the production lines

Achieving outstanding quality and productivity and securing customers' trust

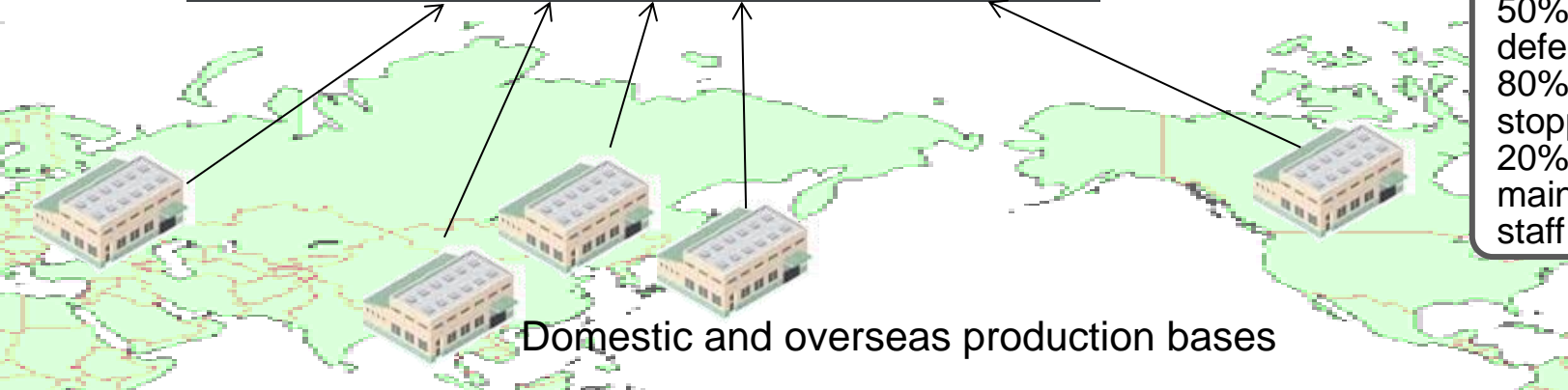


<<Batch monitoring of operations>>

- 1) Visualization of operational situations
- 2) Failure prediction. Prevention of occurrence of failures. (No stoppage due to malfunction. No defectives.)

[Expected effects]

- 20% increase in output
- 50% reduction in Discarded defectives
- 80% reduction Long-hour stoppage due to malfunction
- 20% reduction in maintenance and inspection staff



Domestic and overseas production bases



For a Better Tomorrow

AISIN GROUP