

CDTI-NEDO online Joint Workshop on Hydrogen Technology
- Green Hydrogen Production & Mobility -



Creating Hydrogen + FC Mobility Utilization Model

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Group Leader

FC Mobility Promoting Group

Next Mobility Development Department

Toyota Tsusho Corporation





Company Profile : Toyota Tsusho Corporation

Headquarters

Head offices: Nagoya and Tokyo, Japan

Number of employees

* As of April 2021

Parent company: 3,404
Consolidated : 64,402

Shareholders

Key investors: Toyota Motor Corporation (21.69%),
Toyota Industries Corporation (11.18%), etc.

President & CEO

Ichiro Kashitani

Number of group companies

* As of April 2021

Group companies : 779 subsidiaries/ 231 affiliated companies
(including those under equity method)

Global network

Business locations in around 120 countries



Nagoya Headquarters
Century TOYOTA Bldg.



Tokyo Headquarters
Shinagawa Front Bldg.

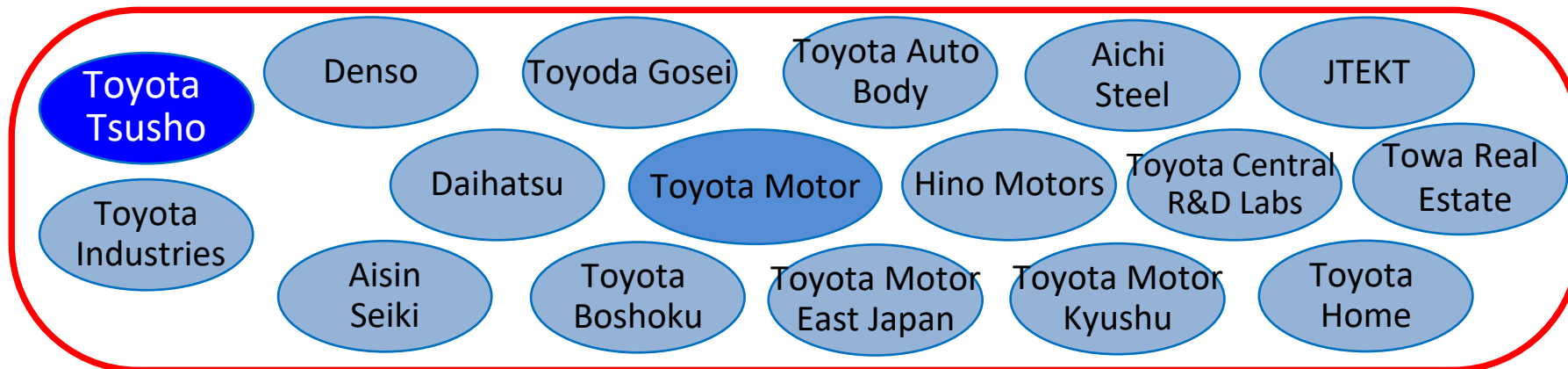


Symphony TOYOTA Bldg.



Role and Position in the TOYOTA Group

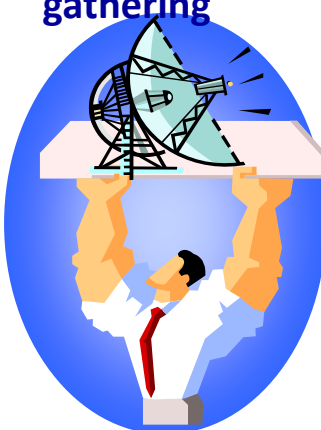
Toyota Group 17 companies



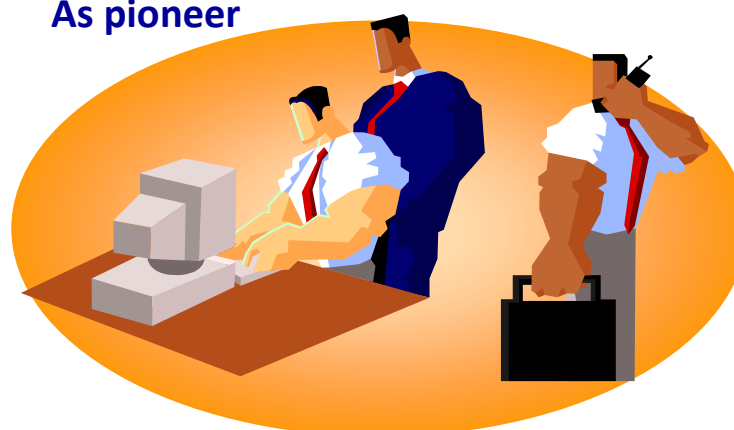
Negotiation & Coordination



Information gathering



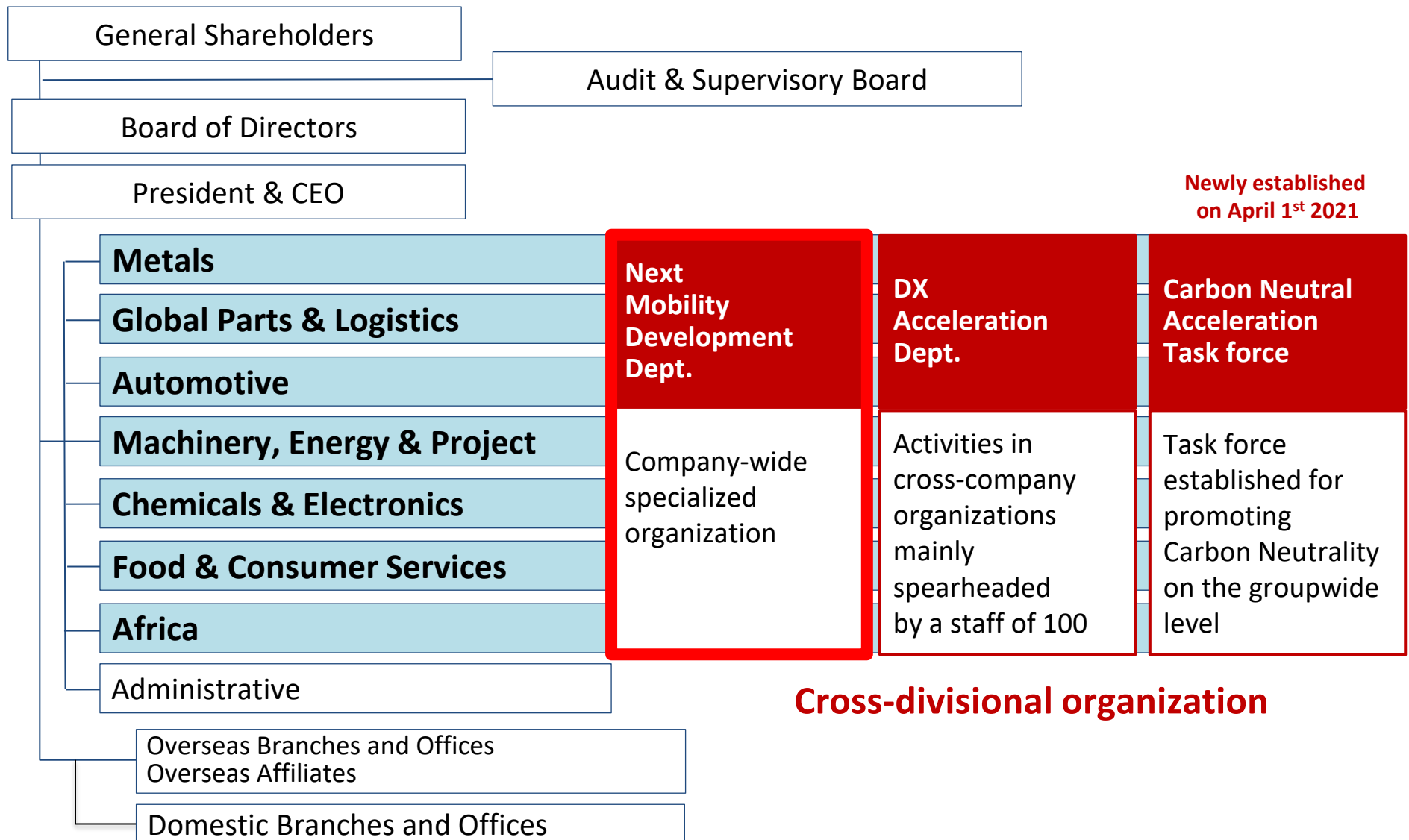
New business development As pioneer



We, a trading and investing company, act as organizer, coordinator, and pioneer in overseas and new business development



Organization



Cross-divisional organization



Target H2 and FC business structure

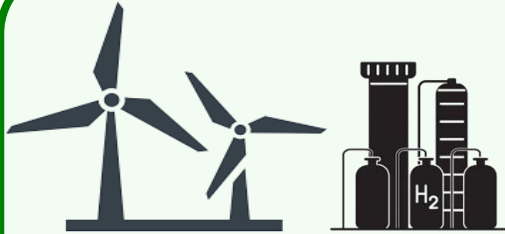
Packaging H2 & FC mobility to global end users

Production

Supply

Consumption

H2



CO2 Free H2 on-site production



H2 supply
(H2 station management)

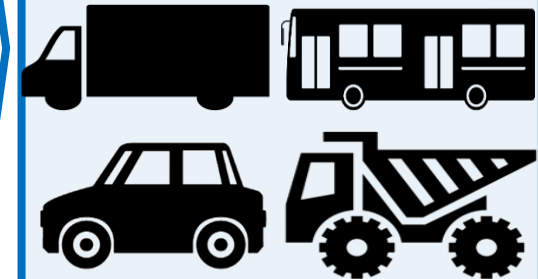


Support of Toyota-FC-adopted mobility development



Maintenance
Supply of mobility

Packaging



Package service combining H2 & FC mobility to make transparency & less barriers to entry

FC mobility

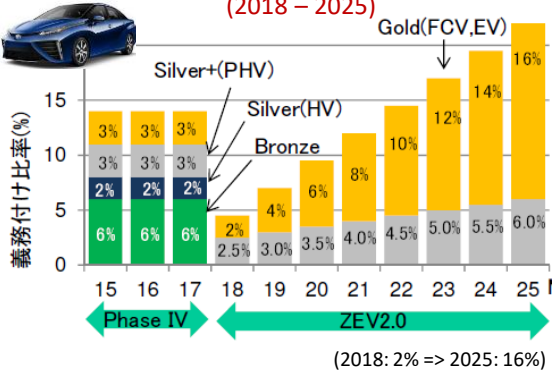


~Background~

Feasibility study at Port of Los Angeles supported by NEDO



Current ZEV 2.0 Rule, Light Duty
(2018 – 2025)



CA: Truck (Plan: 2024~)



CA: Port of LA/LB (Equipment)



(BY 2030 =100%)

CA: Port of LA/LB (Drayage Trucks)



(BY 2035=100%)

CA: Bus



(BY 2040)

State of CA

100%
Clean
Energy



(BY 2045)

ZEV Truck Rule

Advanced Clean Air Regulation approved by CARB on 6/25/2020.

Model year	Class 2b-3	Class 4-8	Class 7-8 Tractor
2024	5%	9%	5%
2025	7%	11%	7%
2026	10%	13%	10%
2027	15%	20%	15%
2028	20%	30%	20%
2029	25%	40%	25%
2030	30%	50%	30%
2031	35%	55%	35%
2032	40%	60%	40%
2033	45%	65%	40%
2034	50%	70%	40%
2035	55%	75%	40%

CARB: California Air Resource Board

Port Area :
Concentrated
Niche
Market



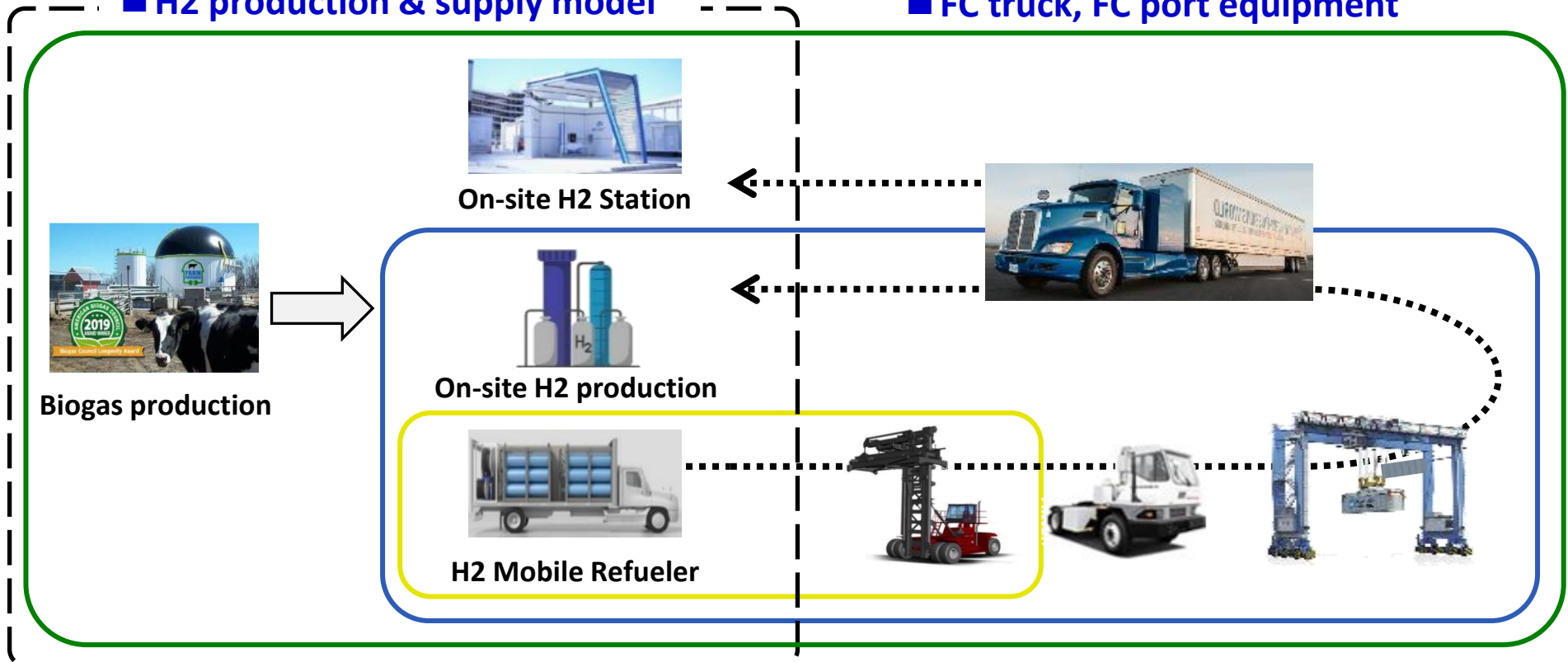
~Target Model & Phases~

Feasibility study at Port of Los Angeles supported by NEDO

We plan to establish Port H2 utilization model by 3 phases, FS/Limited demo, Implementation demo, and Commercialization.

■ H2 production & supply model

■ FC truck, FC port equipment



Feasibility Study
/ Limited Demo

Implementation
Demo

Commercialization





~Outline~

Feasibility study at Port of Los Angeles supported by NEDO

▽ Scope : To clarify business feasibility of local production & local consumption of H₂ by FC mobility nearby the port of Los Angeles (POLA) area, collaborating with the limited operational demo that TTC promotes.

Target Business Model



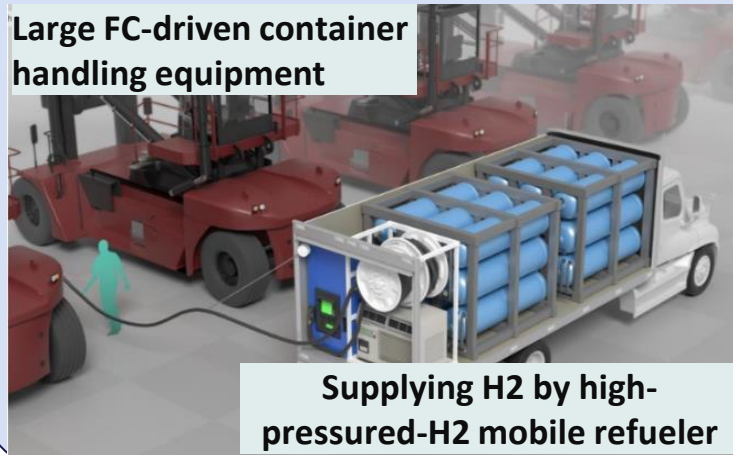
RNG***
procurement



Supply of RNG
via pipeline



H₂ production
by SMR



Large FC-driven container
handling equipment

Supplying H₂ by high-
pressured-H₂ mobile refueler

Utilizing
demo data
for study

1. H₂ utilization potential investigation

- Investigate POLA overview
- Analysis of demo data
- Calculation of H₂ utilization potential

2. H₂ production potential investigation

- RNG production volume
- H₂ production/supply/storage potential
- Evaluation of H₂ production equipment

3. Feasibility of local prod. & consumption

- Build up business model based on POLA area.
- Potential of business development/transfer

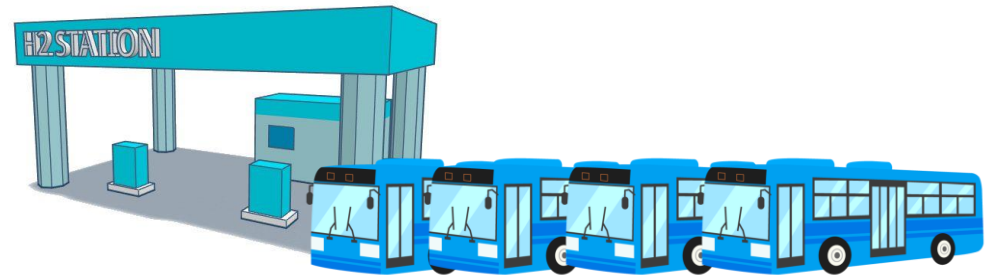
***Renewable natural gas : we aim to procure RNG derived from daily manure



Ideas for a Japan – Spain collaboration

We would like to collaborate to establish “FC mobility + Hydrogen Supply” Package model in Spain!

- ✓ “FC Bus Fleet + Hydrogen supply” Package model



- ✓ Carbon Neutral Port with FC Port Equipments

