Toyota’s Connected & MaaS Strategy

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Toyota Motor Corporation
Executive Vice President
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### Toyota’s Connected Strategy

<p>| | |</p>
<table>
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</table>
| **1** | **Build a Mobility Service Platform (MSPF)** for use with vehicles that will all be “connected”
- On-board DCM* standard on all passenger vehicles sold in Japan, U.S., China by 2020 |
| **2** | **Accelerate business innovation within Toyota** by promoting the utilization of big data, benefitting customers and society |
| **3** | **Create new mobility services** via tie-ups with various companies |

*DCM: (Data Communication Module)*

On-board dedicated communication module. Unlike general communication methods via mobile phones, a dedicated network makes connection with vehicles possible at all times.
Mobility Service Platform (MSPF)

- Safe and secure collection and management of data transmissions/big data between vehicles and external sources.
- General service companies able to offer services to Toyota and Lexus vehicles via the Mobility Services Platform (MSPF).

**Service companies**

- Insurers
- Ride-sharing companies
- Car-sharing companies
- Rent-a-car company
- Taxi companies
- Government offices
- Logistics companies
- Retailers

**Mobility Services Platform (MSPF)**

- **Smart Key Box/TransLog**
- **Flexible leasing**
- **Telematics insurance**
- **Traffic information**
- **Fleet vehicle management**

**Toyota Smart Center**

- **OTA**: "Over-the-Air" refers to the updating of software via wireless communication systems.
- **Individual/Device authentication**
- **Basic telematics services** (map update, agent, etc.)
- **Internal use of big data** (CRM/quality control)

**Global Communications Platforms**

- **DCM**
- **Timely maintenance**

**Financing/payment services**

- Toyota Financial Services Corporation

*OTA: “Over-the-Air” refers to the updating of software via wireless communication systems.*
To create new value for cars and a new mobility business

Three faces of Connected Strategy

Defense
To establish a long-term relationship of trust with customers, and to secure and expand the existing value chain

Kaizen
To rapidly improve productivity, quality, and lead time by changing existing work habits

Offense
To create new value for cars and a new mobility business
- Timely after-sales service provision by dealers and a call center, both enabled by vehicle data
- Delivering a secure life with cars, therefore, increasing service visits to dealers and promoting sustained replacement with Toyota/Lexus vehicles

**e-Care (Driving Guidance)**
Providing advanced safety and security with dedicated operators monitoring customer cars 24 hours a day, 365 days a year

**e-Care (Health Check Report)**
Analysis of car use and driving styles of customers; recommending of ideal maintenance plans to customers.

- Increase of service visits to dealers
- Sustained replacement with Toyota/Lexus vehicles
EDER (Early Detection and Early Resolution): Early detection of market defects and pinpointing of target vehicles made possible through vehicle data

OTA (Over-the-Air): On-board software can be constantly updated, reducing costs

- Faster, more efficient market action
- Action-cost reduction
- On-board software kept updated
- Update cost reduced
Creating new value for vehicles

Agent 1.0

Hello. How may I help you?
Can you find me a soba restaurant nearby?
Searched for soba restaurants nearby. The first one is..., the second one is...
Set the second one as my destination.

Agent 2.0 (Concept-i)

You seem tired.
We are entering an automated driving zone. Would you like to set the car to automated driving?

Creating a new mobility business

MaaS (Mobility as a Service)

Connected: “Offense”

- Creating new value for vehicles: Cloud AI virtual assistant “Agent” transforms cars via the ability to communicate with people
- Creating a new mobility business: New growth field as a mobility company
MaaS Strategy Approach

- Three-approach strategy promotion tailored to the region and market
- Provision of maintenance, insurance, and leasing in addition to cars by the Toyota Group

### Three-approach MaaS Strategy

1. **Collaboration Model**
   - Collaboration with powerful regional MaaS players

2. **Toyota-led Business Model**
   - Toyota the main business entity in the MaaS business

3. **Toyota Dealer-led Business Model**
   - Dealers the main business entity in the MaaS business

### Securing the value chain in the MaaS domain

<table>
<thead>
<tr>
<th>Manufacturing</th>
<th>Sales</th>
<th>Maintenance</th>
<th>Insurance</th>
<th>Finance</th>
<th>Ride-share</th>
<th>Car-share</th>
</tr>
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<tbody>
<tr>
<td>TOYOTA</td>
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<tr>
<td>Manufacturer</td>
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<td>Dealers</td>
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<tr>
<td>KINTO</td>
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<td>HUI</td>
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<tr>
<td>Ride-hailing/Ride-sharing company</td>
<td>Car-sharing company</td>
<td>Uber</td>
<td>Grab</td>
<td>DiDi</td>
<td>Getaround</td>
<td>ToyotaShare</td>
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</table>
Collaboration with Grab: “Total-care Service”

- Provide support for safe, efficient operations by sharing vehicle/driving data via a Mobility Service Platform (MSPF)
- Provide insurance, vehicle management, and maintenance, all coordinated with data, by the Toyota Group

Insurance Company

Telecommunication-type drive recorder “TransLog”

Use for scoring

Driving data • Dangerous behavior

Provision of telematics insurance

Ride-hailing company

Toyota Dealers

Introduction of TPS

Use for vehicle management • encourage safe driving

Use for maintenance

Mobility Service Platform

Vehicle data
Collaboration with Grab: Introduction of TPS

- Provision of highly efficient maintenance with ICS (Intensive Care Stall) leverages TPS' kaizen specifically for Grab cars
- Increase Toyota’s share of Grab rental vehicles in Southeast Asia by 25% (by 2020)

ICS

- Preparation using vehicle data
- Work instructions on tablets
- Standardized work with work-assistance carts

Increase operating rate of vehicles; Reduce maintenance costs

Toyota’s Share in Grab’s Rental Vehicles

- Non-Toyota
- Toyota

+25%
Fleet-leasing business
- Lineup of approximately 70 models, from compact to hybrid vehicles
- Provision of connected service “TransLog”
- Centralized management of administrative processes linked to vehicle data
- “Anshin Plus” allows users to receive high-quality maintenance anytime across Japan

Car-sharing service in Japan “TOYOTA SHARE”
- Available 24/7 with a smartphone app
- Vehicle doors can be unlocked/locked via user smartphones
- No sign-up/monthly fee
- Prices from 150 yen (tax incl.) per 15 min.
- Vehicles equipped with additional safety functions and assisted-mobility vehicles available
- Cars can be returned to stations other than the station from which the car was borrowed

Car-leasing business for individual customers

1) KINTO-ONE
- Max. 3-year contract, monthly fixed-sum lease fees
- Fee includes maintenance, voluntary insurance, and more
- Points awarded based on data reflecting peace-of-mind services and safe driving, gathered by connected technology

2) KINTO-SELECT
- Max. 3-year contract; users can lease 6 different cars in total, changing every 6 months. Monthly fixed-sum lease fees
- Fee includes maintenance, voluntary insurance, and more
- Peace-of-mind services through connected technology

North America Car-sharing service “Hui”
- Available for use at 25 stations in Honolulu City
- Available 24/7 with a smartphone app
- Vehicle doors can be unlocked/locked via user smartphones
- 24/7 help desk and roadside service
- Gasoline, vehicle insurance, roadside service, tax, maintenance, and cleaning are included in the basic fee.
- Prices from $9.95/hour

*Underlined sections are connected-related services.
## MaaS-dedicated Vehicle Lineup

Develop multi-task vehicles that reflect the characteristics of MaaS (including capacity efficiency, ease of getting in/out, cleaning, and maintenance)

<table>
<thead>
<tr>
<th>Purpose</th>
<th>e-Palette</th>
<th>MaaS Sienna</th>
<th>MaaS BEV</th>
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<tbody>
<tr>
<td>Purpose</td>
<td>Multi-task short distance transportation</td>
<td>Medium-to-long distance ride-sharing</td>
<td>Short-to-medium distance ride-sharing</td>
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<tr>
<td>(people/cargo)</td>
<td>(people/cargo)</td>
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<tr>
<td>Launch</td>
<td>2020 Tokyo Olympic Games</td>
<td>2021</td>
<td>-</td>
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<tr>
<td>Power</td>
<td>BEV</td>
<td>HEV</td>
<td>BEV</td>
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<tr>
<td>Size</td>
<td>Large</td>
<td>Medium</td>
<td>Small</td>
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Autonomous Driving MaaS Vehicles

- Convert Level 2-3 mass-produced vehicles into Level 4 MaaS-dedicated vehicles through ADKs (Autonomous Driving Kit)
- Improve safety through dual-monitoring of the surrounding environment by the ADK software and the Guardian system on the vehicle
- Promote standardization of VCI (Vehicle Control Interface) and generalization of the vehicle control unit, including the Guardian system
Global Collaboration in MaaS

Create a new mobility service by fusing the SoftBank Group’s IT assets and Toyota Group’s power of monozukuri.
Using Toyota’s Real-World Technology and Assets as Strengths

Mass-produce advanced vehicles equipped with AI at sufficient quality and appropriate cost, and conduct maintenance on those vehicles at appropriate intervals to popularize them as safe mobility services in society.

**Popularization of Mobility Services**

- **Advanced hardware/software**
  - Mass-production at sufficient quality and appropriate cost
  - Timely maintenance
  - Popularization in society as a safe mobility service

**Technology companies**

**TOYOTA**

Real-world technology & assets
Toward a mobility society in which everyone can move safely, smoothly, and freely