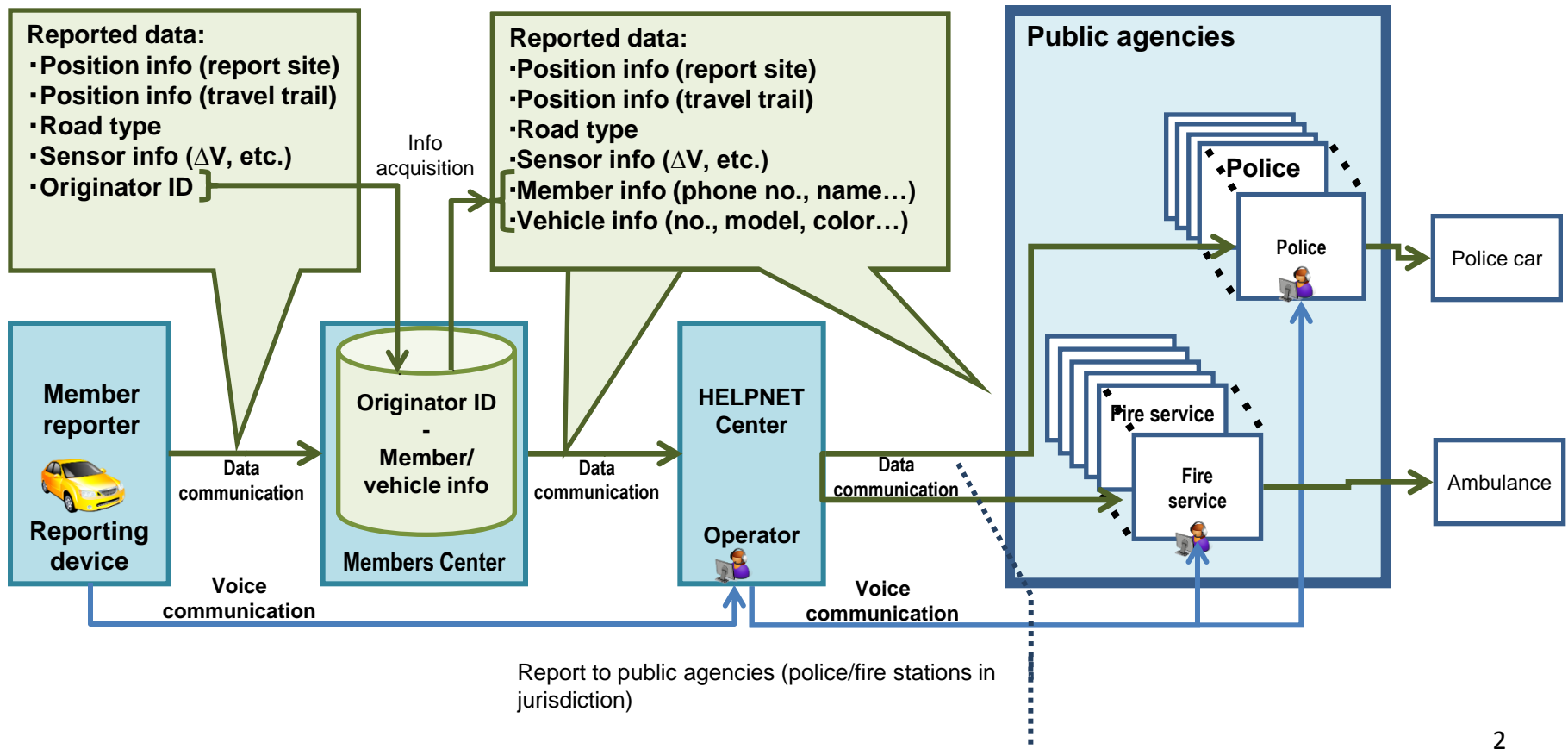# HELPNET System Specifications

26 February 2014
JAPAN

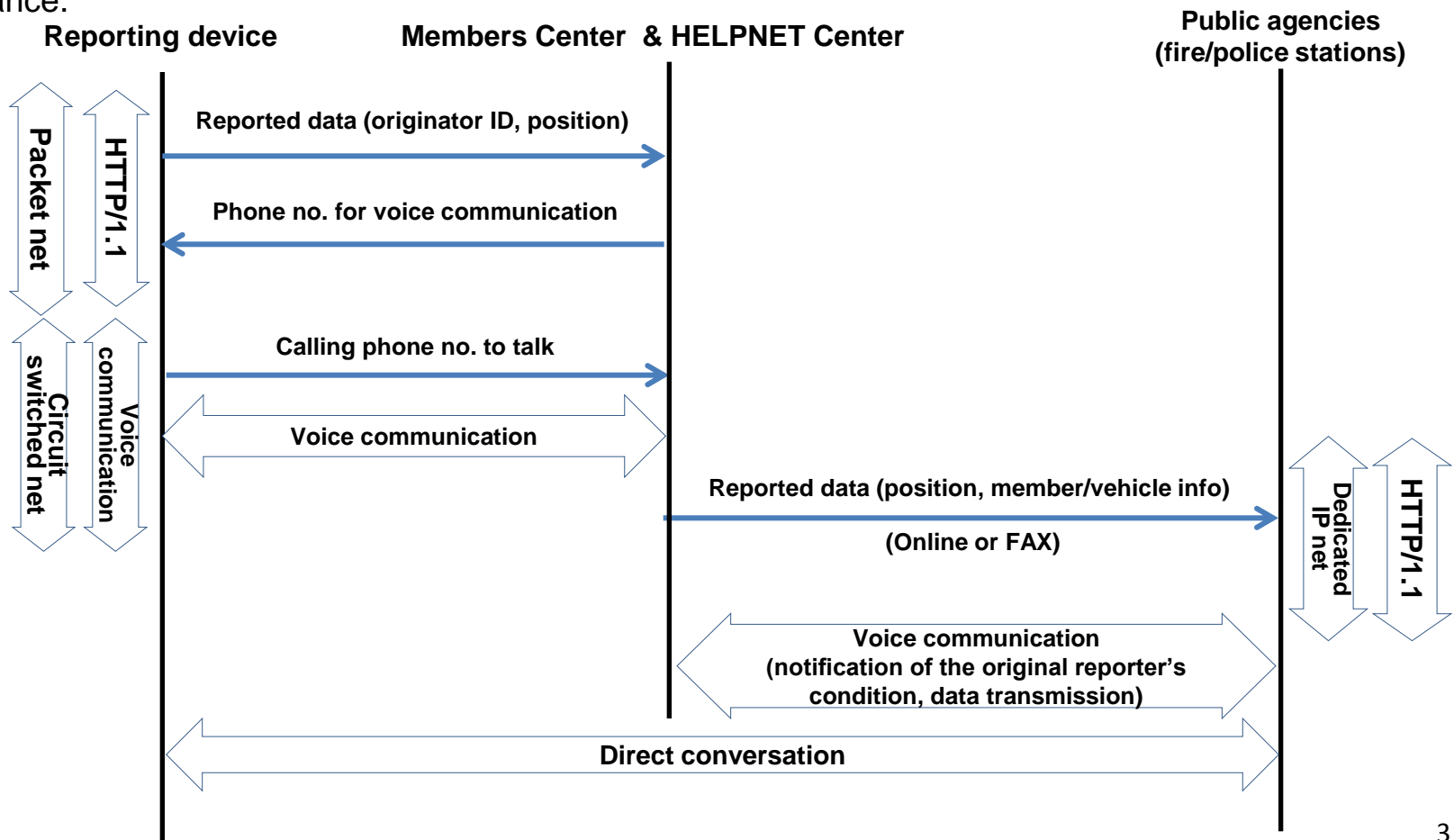# 1. HELPNET System Composition and Functions

Services of HELPNET

➤ Position info depositing & accident reporting (data/voice communication): Reporting device

➤ Member/vehicle information acquisition: Members Center

➤ Voice communication with reporters & telephoning to public agencies: HELPNET Center

➤ Data transmission between HELPNET Center and public agencies: HELPNET Center, Public agencies

Reported data:
- **Position info (report site)**
- **Position info (travel trail)**
- **Road type**
- **Sensor info (ΔV, etc.)**
- **Originator ID**

Reported data:
- **Position info (report site)**
- **Position info (travel trail)**
- **Road type**
- **Sensor info (ΔV, etc.)**
- **Member info (phone no., name…)**
- **Vehicle info (no., model, color…)**

Info acquisition

Public agencies

Police

Police

Police car

Member reporter

Reporting device

Data communication

Originator ID - Member/ vehicle info

Members Center

Data communication

HELPNET Center

Operator

Data communication

Fire service

Fire service

Ambulance

Voice communication

Voice communication

Report to public agencies (police/fire stations in jurisdiction)

2

Emergency reporting

- Two reporting modes: (a) Automatic reporting at airbag deployment, (b) Manual reporting by original reporter
- Communication starts up by data transmission from the reporting device; an operator at HELPNET Center finds the situation through voice communication and reports to a public agency.
- In case of automatic reporting (if impossible to converse with the original reporter), the operator calls for an ambulance.

Reporting device　　　　**Members Center & HELPNET Center**　　　　**Public agencies (fire/police stations)**

Packet net / **HTTP/1.1**

Reported data (originator ID, position)

Phone no. for voice communication

Circuit switched net / **Voice communication**

Calling phone no. to talk

Voice communication

Reported data (position, member/vehicle info)

(Online or FAX)

Dedicated IP net / **HTTP/1.1**

Voice communication (notification of the original reporter's condition, data transmission)

Direct conversation

3

3. Functions of the Reporting Device

Functions installed in the reporting device

◆ **Retention of data for connection with the HELPNET Center**
➢ Data on originator ID (to identify the reporting device/member)
➢ HELPNET Center's URL for data transmission

◆ **Recording of position and time data**
➢ Data to specify positions using GPS, gyro, vehicle velocity signals, map-matching, etc. (even where GPS cannot work)
➢ Data on travel trail (64 points) leading up to the accident point

*In case voice communication with the original reporter is difficult, the above data are used to speculate whether an expressway or a surface road, the direction of vehicle progress.

*The travel trail is about 5 km long (64 points at 80 m intervals) so as to suit Japan's road environment where many expressways and surface roads run parallel.

◆ **Acquisition of sensor data to estimate the injury severity (future function)**
➢ Data on airbag condition, multiple crash, speed change (See "4. List of Data Reported to the HELPNET Center".)

◆ **Voice communication**
➢ Hands-free conversation by the original reporter (sufficiently large sound volume dispensing with a handset)
➢ Automatic response (talk readiness) to voice from emergency agency or HELPNET Center after data transmission

Example of data usage with or without travel trail (1): Chiba, Chiba Prefecture
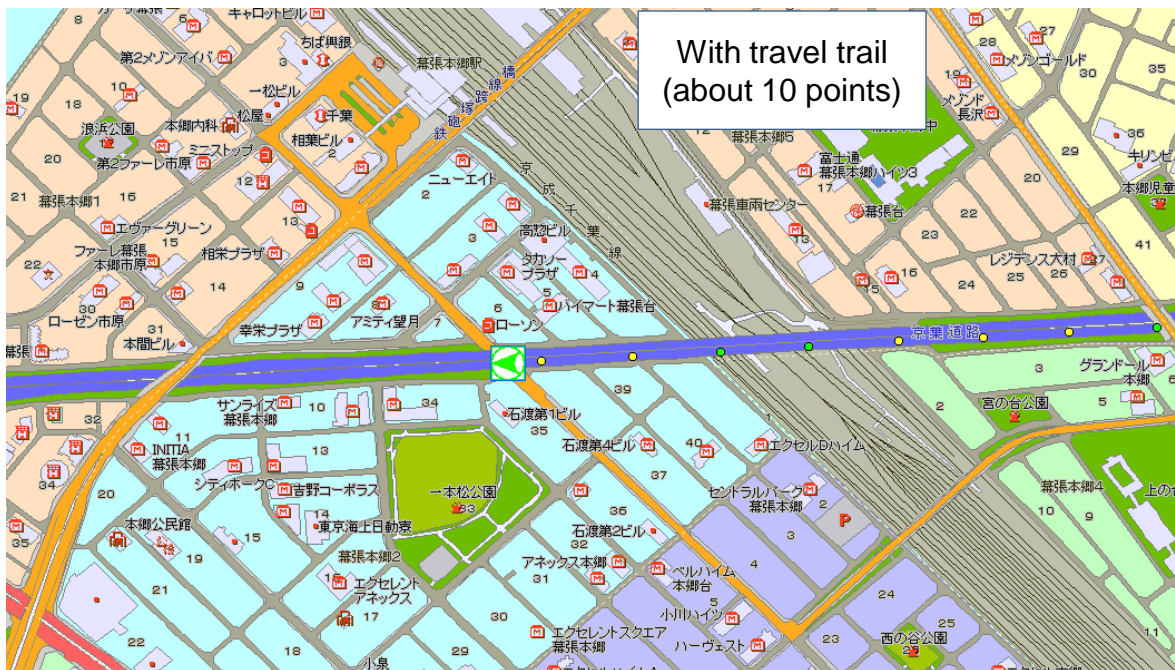

Without travel trail
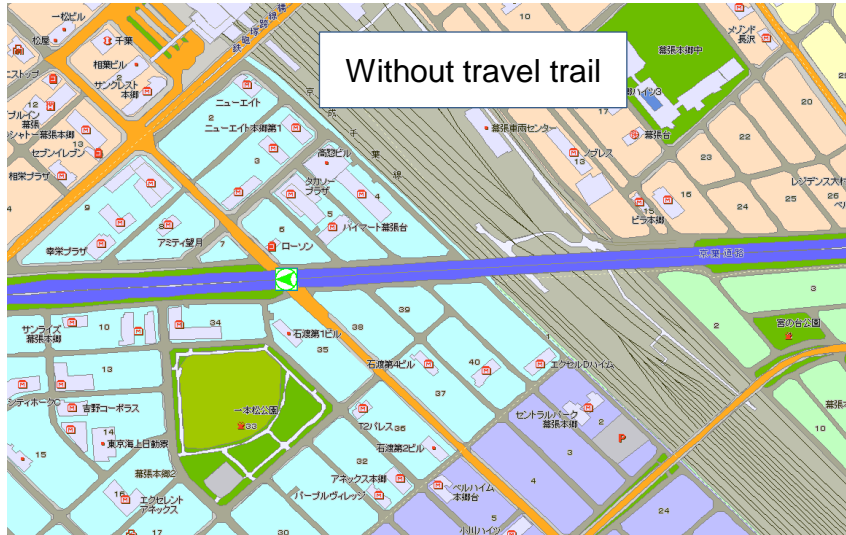
Keiyo Expressway runs above a surface road, crossing another surface road.

The data on the accident point alone cannot identify the road type (surface road or expressway).

Indication of the travel trail consisting of several points finds that the vehicle was running above a railroad track (Keiyo Line), which then helps speculate that the reporting was made from the expressway.

(19 October 2013)

With travel trail
(about 10 points)

Example of data usage with or without travel trail (2): Nagoya, Aichi Prefecture


Without travel trail

A surface road runs above Nagoya Expressway Route 2 (Higashiyama Route).

The data on the accident point and several other points alone cannot identify the road type (surface road or expressway).

Indication of the complete travel trail finds that the reporting was made from the surface road.

(30 May 2013)

→ Trail traveled

With travel trail (about 10 points)

With travel trail (complete)
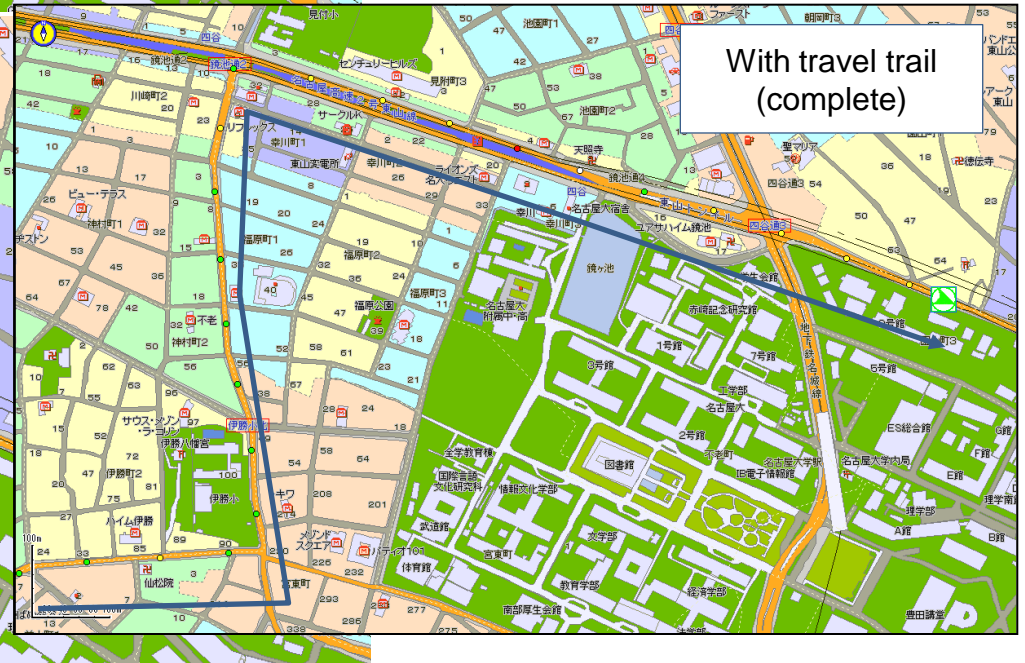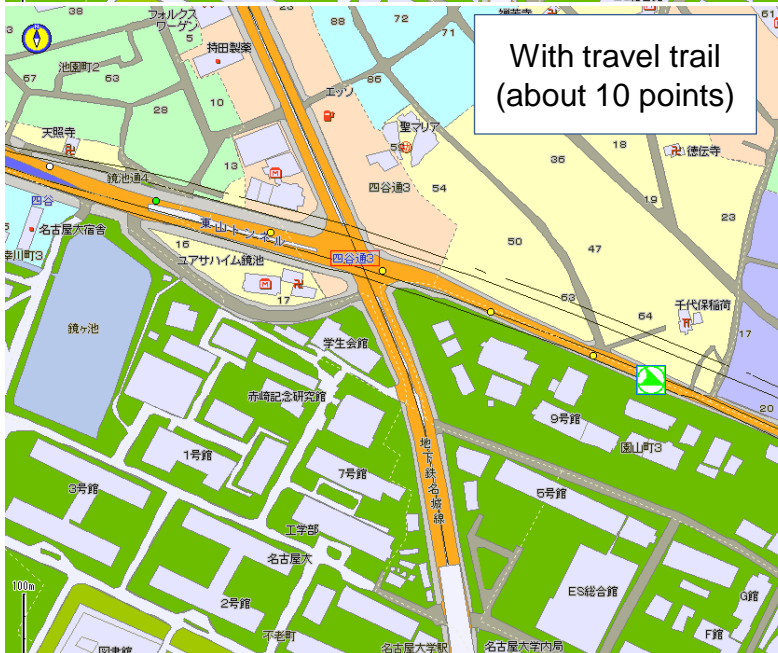
4. List of Data Reported to the HELPNET Center - 1

Data from the reporting device

Tag		Value and Description
Sequence No.	SQ_NO	Request sequence No. 00-99
Origination time	E_TIM	UTC "YYYY-MM-DDThh:mm:ssTSD"
Originator phone No.	TEL	Mobile phone no. of originator
Originator ID	U_ID	No. assigned to reporting device for member/vehicle ID
Service ID	S_ID	No. to identify service category
Report type	C_TYPE	0：Manual 1：Automatic
Sensor info 1	S_KIND	[Sensor info 1] (1) Front airbag (2) Side airbag (3) Rear-impact sensor (4) Overturn sensor (5) Belt sensor (driver) (6) Belt sensor (passenger)
Sensor info 2	S_KIND2	[Sensor info 2] (1) Passenger detect (2) Multiple crash (speed change 2 generated) [Value] 0: Sensor info lacking 1: Sensor info OFF 2: Sensor info ON 3: Sensor info abnormal
Speed change 1 (Fore-aft)	S_DVL1	Speed change –128 ~ +127; Unit km/h (Fore-aft) + impact from rear; - impact from front (Lateral) + impact from left side; - impact from right side
Speed change 1 (lateral)	S_DVW1	
Speed change 2 (Fore-aft)	S_DVL2	
Speed change 2 (lateral)	S_DVW2	

4. List of Data Reported to the HELPNET Center - 2

Tag			Value and Description
Unit of latitude/longitude		UNIT	0: Degree, minute, second 1: Degree
Geodetic data (latitude, longitude, height)		DTUM	0: WGS-84 geodetic reference system
No. of transmission sites		P_NO	Standard 64 sites
Position info 1	Position acquisition time	P_TIM1	UTC "YYYY-MM-DDThh:mm:ssTSD"
	Latitude information	P_LAT1	Latitude information
	Longitude information	P_LON1	Longitude information
	Direction	P_DIR1	0~359 degrees
	Speed	P_SPD1	Km/h
	Position accuracy	P_DEF1	Meters
⋮	⋮	⋮	⋮
Position info 64	Position acquisition time	P_TIM64	UTC "YYYY-MM-DDThh:mm:ssTSD"
	Latitude information	P_LAT64	Latitude information
	Longitude information	P_LON64	Longitude information
	Direction	P_DIR64	0~359 degrees
	Speed	P_SPD64	Km/h
	Position accuracy	P_DEF64	Meters

5. Originator Data Transmitted by Center to Public Agencies

Tag		Value and Description
Member's name in Kanji	P_NAM	Member's name in Kanji
Member's name in Kana	K_NAM	Member's name in Kana
Registered number	C_NUIM	Registered number
Automaker's name	C_NAM	Vehicle name (automaker's name)
Vehicle model name	V_NAM	Vehicle name (model name)
Vehicle type	T_NAM	Vehicle type, etc.
Body color	C_COL	Vehicle body color

6. Summary of HELPNET

HELPNET system has developed transmission data and reporting sequence that are different from e-Call MSD, because of requests from the fire and policy agencies.

◆ **Transmission data**

Following optional data must be included to answer Japanese needs:

UN-regulation should permit to add optional data.

- Member information (ID)
- Position/travel trail information
- AACN accident info from vehicle sensors

◆ **Reporting sequence**

The reporting sequence of HELPNET, fitted to the Japanese infrastructure, differs from e-Call as follows:

- Packet data communications
- Referencing of member info and reporting of phone number info by the center
- Information relay from the center to public agencies

For countries to suit their different national conditions, no detailed requirements for reporting sequence should be established in any UN Regulations.

7. Japan's Position

◆ **Transmission data**
Japan requests the regulation to be such that, in addition to the MSD (minimal set of data) to be sent from the vehicle, supplemental data transmission may be allowed depending on each Contracting Party's communication infrastructure and other conditions. As regards the VIN to be included in the MSD, each Contracting Party's national regulation should be complied with.

* Data communication method
The regulation should include a provision that simply states that each Contracting Party may use any data communication method suitable for use in that country.

The data communication conditions greatly vary from country to country. Moreover, since the data communication method development takes place rapidly, future technological progress would be compromised if the regulation contained detailed requirements based on the current data communication technologies.