**Strategic Innovation Promotion Program (SIP) Automated Driving System
Large-scale Field Operational Tests
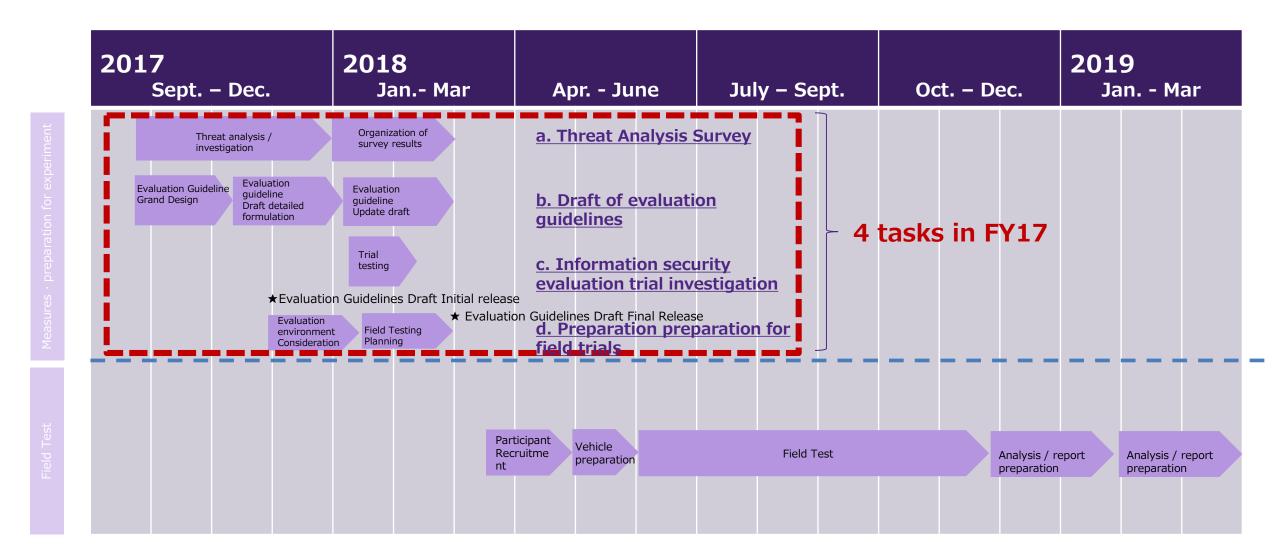Information Security Field Operational Tests**

Survey report (Overview)

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February 28, 2018

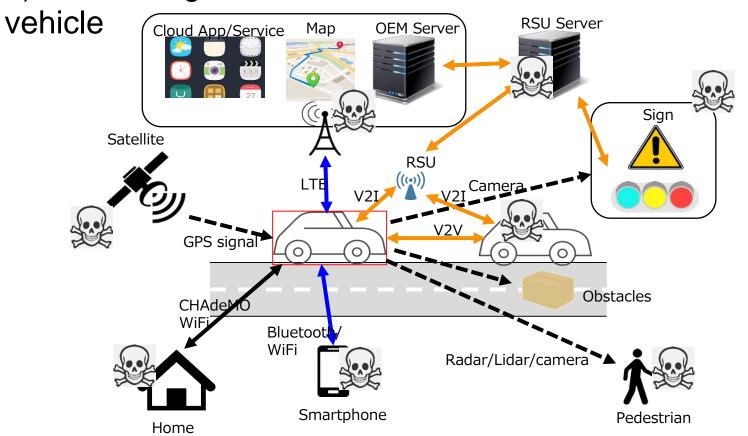# Scope of business for this fiscal year

2017 Sept. – Dec.	2018 Jan.- Mar	Apr. - June	July – Sept.	Oct. – Dec.	2019 Jan. - Mar

Measures · preparation for experiment

- Threat analysis / investigation
- Organization of survey results
- Evaluation Guideline Grand Design
- Evaluation guideline Draft detailed formulation
- Evaluation guideline Update draft
- Trial testing
- Evaluation environment Consideration
- Field Testing Planning

★Evaluation Guidelines Draft Initial release

★ Evaluation Guidelines Draft Final Release

a. Threat Analysis Survey

b. Draft of evaluation guidelines

c. Information security evaluation trial investigation

d. Preparation preparation for field trials

4 tasks in FY17

Field Test

- Participant Recruitment
- Vehicle preparation
- Field Test
- Analysis / report preparation
- Analysis / report preparation

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a. Threat Analysis Survey

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Overall image of the threat

- As the number of connected devices increases, the following two points are important from a security point of view
  - 1) Can not be deceived by the communicating party
  - 2) Counter against falsification and takeover of information in the vehicle

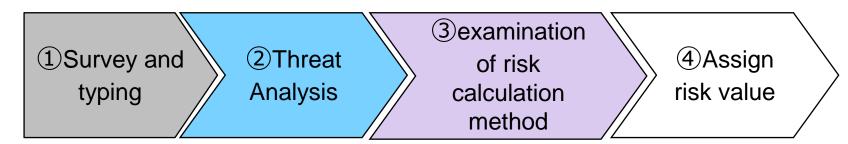※Blue : SIP-V2X Project scope
※Yellow : This project scope

Flow of threat analysis

• Analyze with the following 4 steps

① <u>Survey and typing</u>

    – Investigate vehicle systems and functions and classify them

② <u>Threat Analysis</u>

    – Consideration of threat analysis method

    – Implement threat analysis of categorized vehicle systems and functions / services

③ <u>examination of risk calculation method</u>

    – Investigation of metrics for risk value calculation

④ <u>Assign risk value</u>

    – Based on the threat analysis results, ranked the derived threats

①Survey and typing	②Threat Analysis	③examination of risk calculation method	④Assign risk value

b. Preparation of information security evaluation Guideline draft

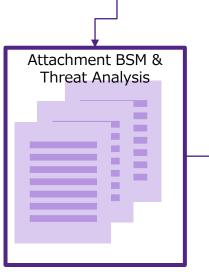# Formulation flow of security evaluation guideline and deliverables

BSM*
Basic System Model

Traceability Matrix

Evaluation Guideline
- Pentesting
- Vulnerability scan

Draft version creation Test

Reflecting the entire draft version (Guidelines)

Define basic system model of in-vehicle system, identify function, attacker model, asset.

*BSM: Basic System Modeling

Threat (attack) assumed from BSM, derivation of attack goal (Traceability Matrix) Furthermore, attacks are decomposed as necessary.

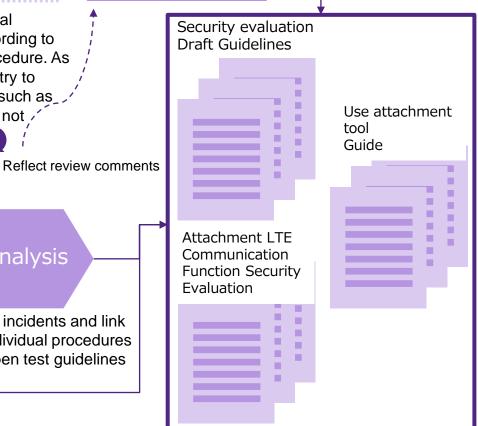Classify the part of the attack that was disassembled into each attack vector thing, procedure

Perform empirical verification according to the created procedure. As a result, we will try to improve issues such as where we could not opera

Reflect review comments

OEM

Attachment BSM & Threat Analysis

Deliverables

LTE test environment survey

Incident analysis

Analyze known incidents and link together the individual procedures created in the pen test guidelines and proceed

Security evaluation Draft Guidelines

Use attachment tool Guide

Attachment LTE Communication Function Security Evaluation

Overview of BSM & threat analysis

① Arrange the system components of the autonomous vehicle for threat analysis of the vehicle system (see the figure below)
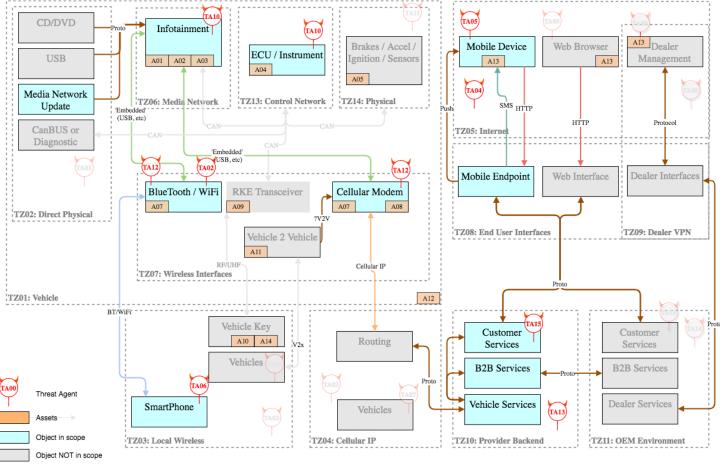
②Identification of assets of vehicle syste

③Threat agent (TAxx)

④Attack Surface (Attacker)

⑤Traceability matrix

To formulate security test evaluation guidelines

C. Trial investigation of information security Testing

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Trial outline of security evaluation guideline

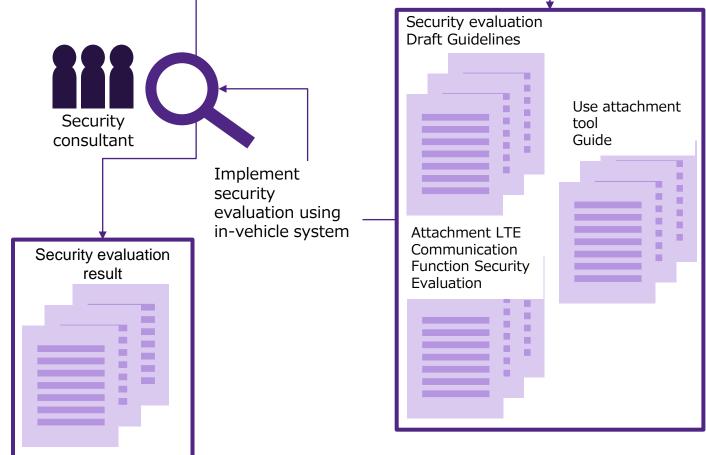BSM* Basic System Model → Traceability Matrix → **Evaluation** Guideline · Pentesting · Vulnerability scan → **Draft version creation Test** → **Reflecting the entire draft version (Guidelines)**

· List of target test cases

· Estimate the working hours of the test cases in the formulation of guidelines. Record the time taken for the test. Available for testing plans when conducting similar tests
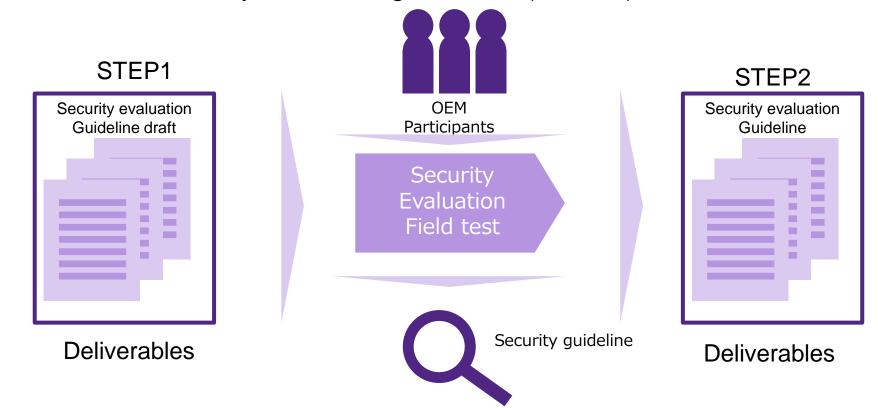
·

Security consultant

Implement security evaluation using in-vehicle system

Security evaluation Draft Guidelines

Use attachment tool Guide

Attachment LTE Communication Function Security Evaluation

Security evaluation result

Deliverables

d. Preparation for operation of next year's demonstration experiment

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Outline of demonstration experiment

For the social implementation of the automatic driving system, we have formulated a security evaluation guideline at the vehicle level from the point of view of the attacker (STEP 1). As a demonstration experiment, we verify the guidelines created in STEP 1 using multiple vehicles etc. and establish security evaluation guidelines. (STEP 2)

STEP1

Security evaluation
Guideline draft

OEM
Participants

Security
Evaluation
Field test

Security guideline

STEP2

Security evaluation
Guideline

Deliverables

Deliverables

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How to proceed

A. Participation recruitment and selection for field trials	B. Concluded vehicle and business contract etc to be provided	C. Security evaluation (Assumed for 2 months / vehicles)	D. Closing
・We will recruit participants from the domestic OEM for the security evaluation test of the vehicle system. ・Refer to the implementation summary of the demonstration experiment. ・Applicants are required to fill out the application form and apply.	・adjust the consensus formation between the two companies concerning various conditions concerning the provided vehicles. ・create a business contract based on the mounting situation of the provided vehicles and preparation etc. ① Wireless communication implementation status ② Vehicle preparation status ③ Definition of evaluation range ④ Structure and operation method ⑤ Schedule	do the work in the following order. ① Start meeting ② Environment construction ③ Vehicle system analysis ④ Start evaluation ⑤ Organization of evaluation result information ⑥ Report creation ⑦ Meeting held at a meeting ⑧ End evaluation	Based on the contents of the contract, we will conduct acceptance. Also, between the two companies, confirm the following contents. ・Return of borrowed items ・Discard acquisition information Sign off and finish.