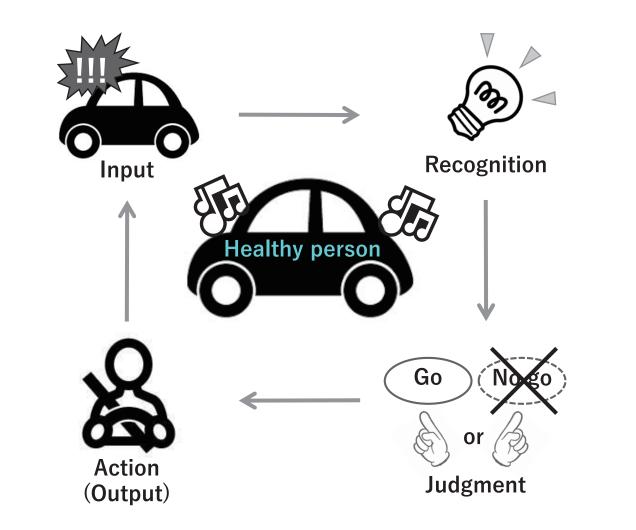# Application of ADAS technology for driver who has a narrow field of view

▶Introduction-1 │ Driving Process

▶Car driving process | Fig.1
Input→Recognition→Judgment→Action

▶Driving risk due to illness or drinking | Fig.2

Recognitive and Judgmental decline
Recognition and Judgment are subjective…

Dementia etc.

Same for drunk driving…

Includes subjective elements
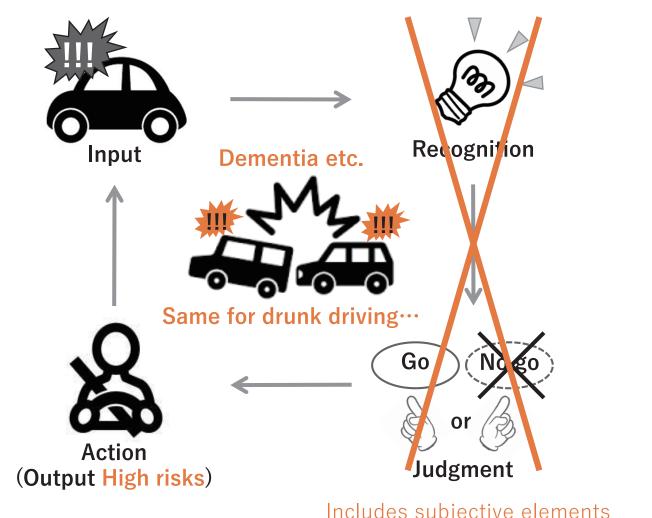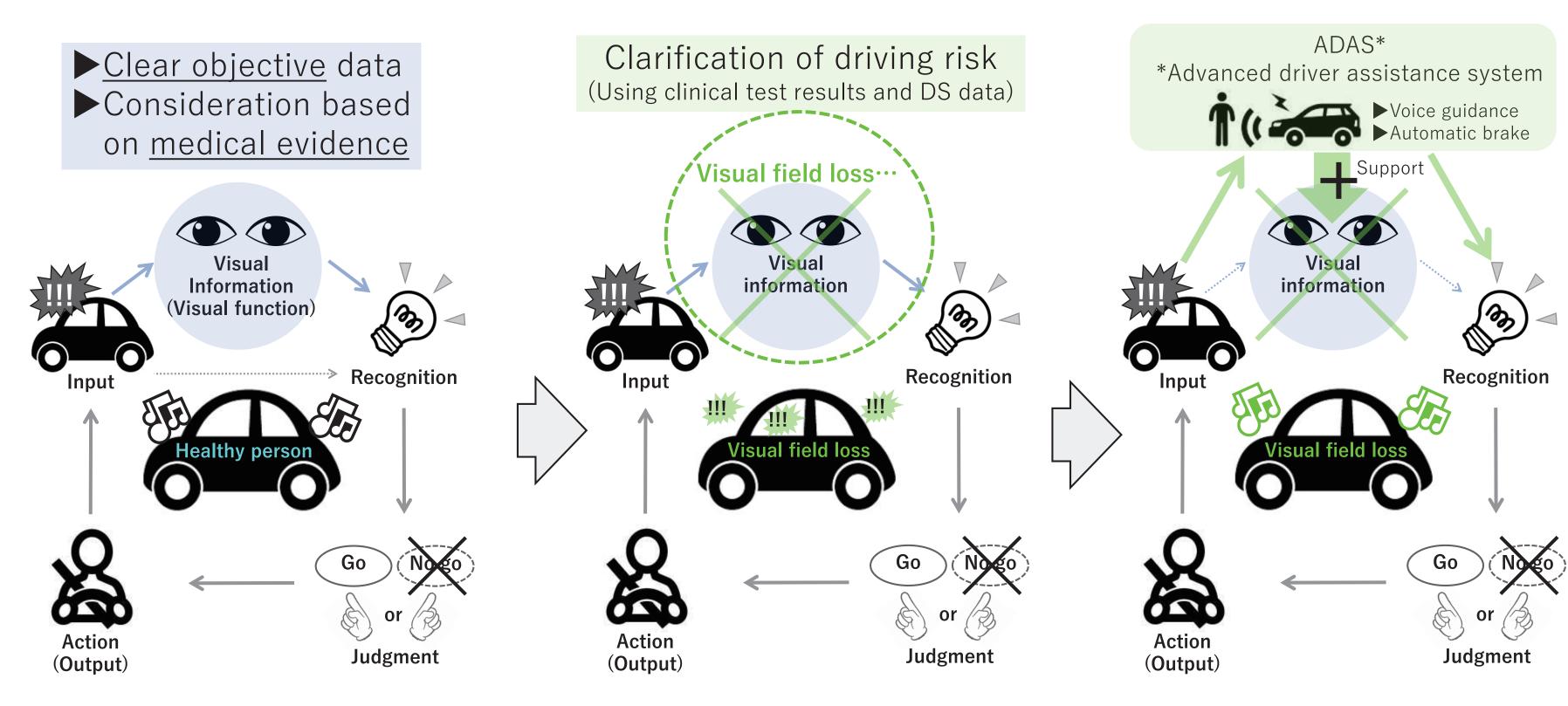→Complicated and Difficult

▶Introduction-2 │ Visual function & Driving

▶More detailed car driving process | Fig.3
Subdivide recognition: Consider visual function
Visual function estimated by the objective clinical data
Possible to consider based on medical evidence
Apply ADAS technology to compensate for driving risks due to visual field defect

▶Clear objective data
▶Consideration based on medical evidence

Clarification of driving risk
(Using clinical test results and DS data)

Visual field loss…

ADAS*
*Advanced driver assistance system
▶Voice guidance
▶Automatic brake
Support

Visual Information (Visual function)

Healthy person

Visual field loss

Visual information

Input Recognition
Action (Output) Go No go or Judgment

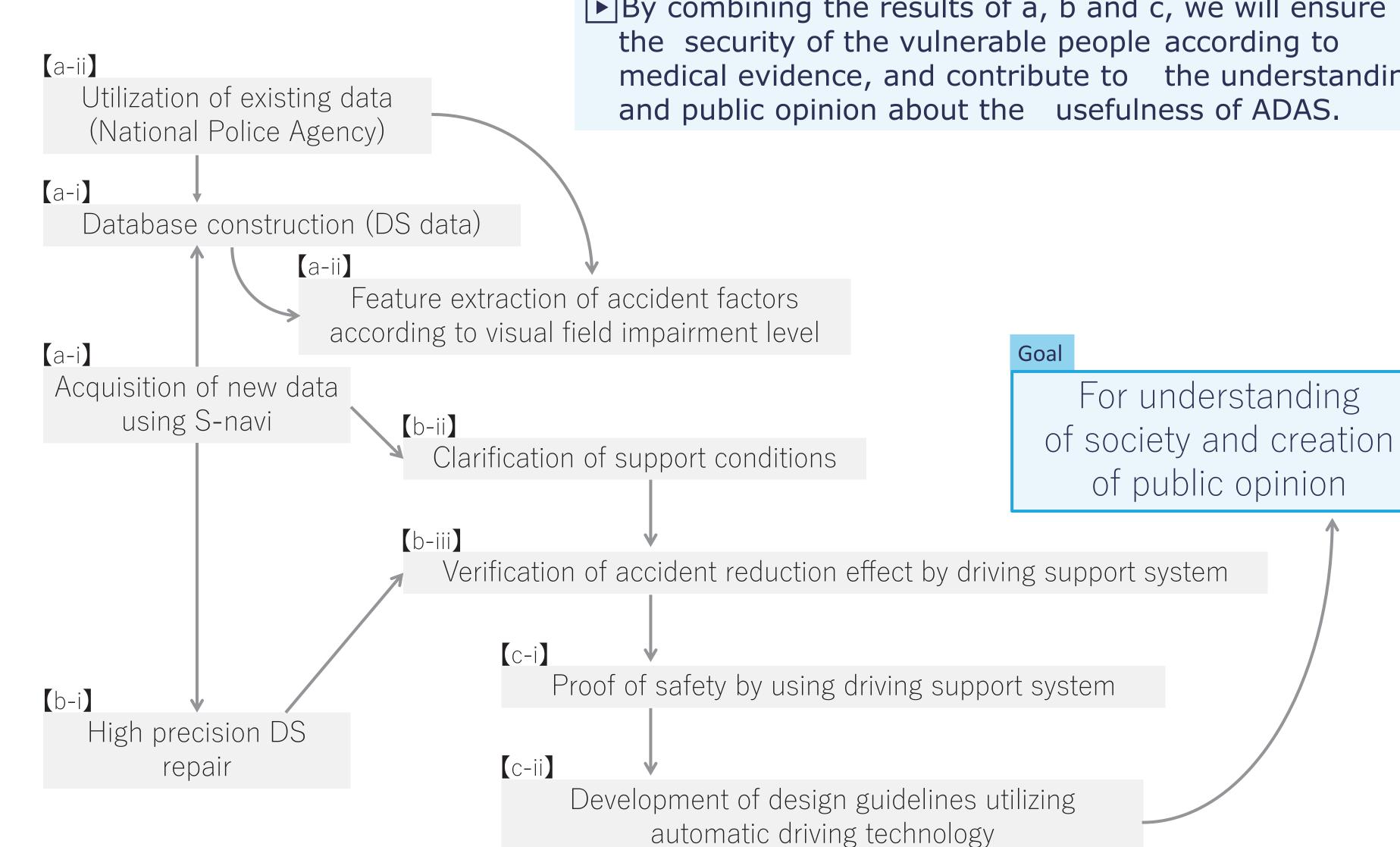Ensuring safety equivalent to healthy person with ADAS

▶For people who have a narrow field of view and can obtain a driver's license, we propose a method to ensure safety with advanced technology without returning a driver's license.

▶Project │ Overview

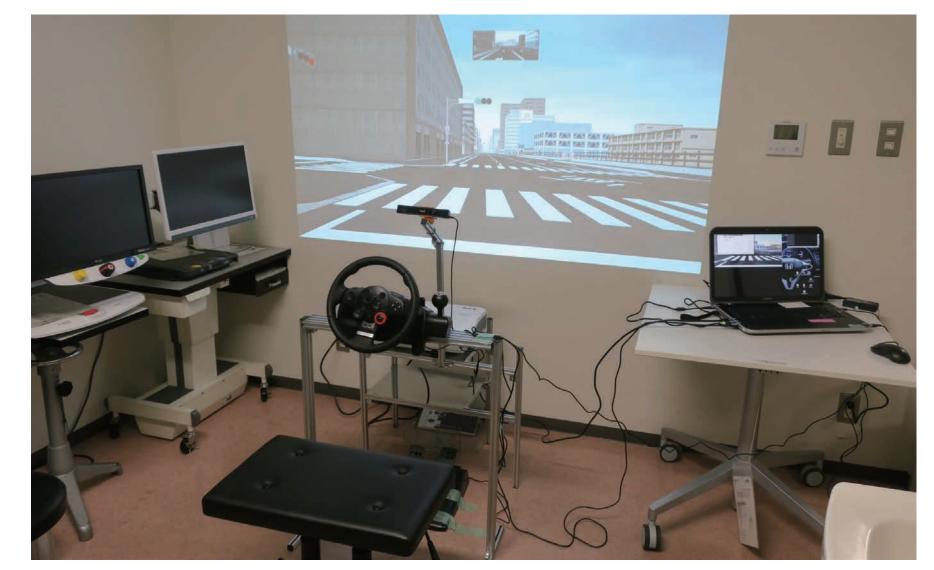▶Research consortium
RIKEN, Nagoya university, University of Tsukuba

(Tohoku university, Niigata university, Kobe eye center Hospital)

【a-ii】 Utilization of existing data (National Police Agency)

【a-i】 Database construction (DS data)

【a-ii】 Feature extraction of accident factors according to visual field impairment level

【a-i】 Acquisition of new data using S-navi

【b-ii】 Clarification of support conditions

【b-iii】 Verification of accident reduction effect by driving support system

【b-i】 High precision DS repair

【c-i】 Proof of safety by using driving support system

【c-ii】 Development of design guidelines utilizing automatic driving technology

▶By combining the results of a, b and c, we will ensure the security of the vulnerable people according to medical evidence, and contribute to the understanding and public opinion about the usefulness of ADAS.

Goal
For understanding of society and creation of public opinion

▶Driving simulator

↑ Simple type_Honda Safety navi

↑ High precision DS @NIC

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