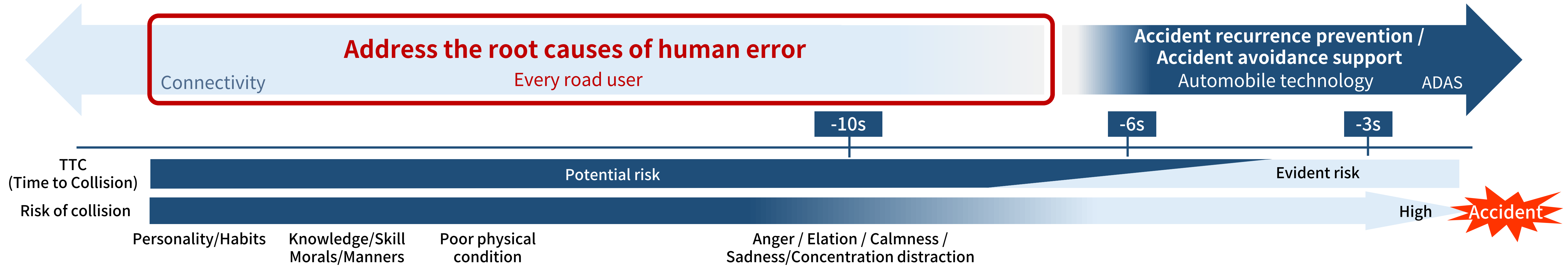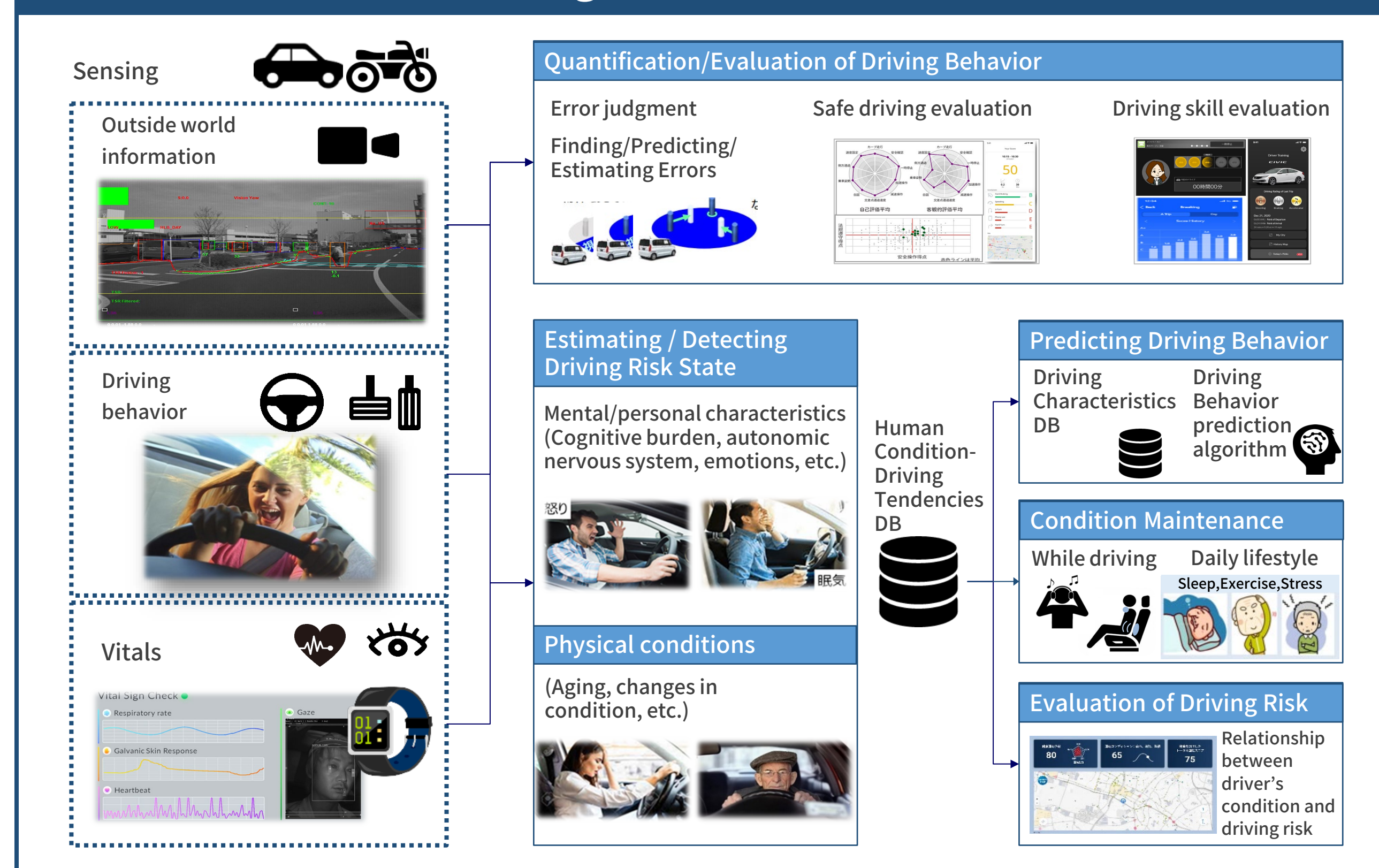# Safe and Sound Network Technology - Core Technologies -

Support Concept

Understand the predictions of risks caused by humans and address them before human error can occur.
Find the causes of risks caused by humans (Ex.: Poor physical condition, anger, impatience, etc.)

Address the root causes of human error
Every road user

Connectivity

Accident recurrence prevention / Accident avoidance support
Automobile technology

ADAS

-10s | -6s | -3s

TTC (Time to Collision) — Potential risk — Evident risk

Risk of collision — High — Accident

Personality/Habits | Knowledge/Skill Morals/Manners | Poor physical condition | Anger / Elation / Calmness / Sadness/Concentration distraction

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Understanding Personal Characteristics

Sensing

Outside world information

Driving behavior

Vitals
- Vital Sign Check
- Respiratory rate
- Galvanic Skin Response
- Heartbeat
- Gaze

Quantification/Evaluation of Driving Behavior

Error judgment
Finding/Predicting/Estimating Errors

Safe driving evaluation

Driving skill evaluation

Estimating / Detecting Driving Risk State

Mental/personal characteristics (Cognitive burden, autonomic nervous system, emotions, etc.)

Physical conditions

(Aging, changes in condition, etc.)

Human Condition-Driving Tendencies DB

Predicting Driving Behavior

Driving Characteristics DB

Driving Behavior prediction algorithm

Condition Maintenance

While driving | Daily lifestyle
Sleep, Exercise, Stress

Evaluation of Driving Risk

Relationship between driver's condition and driving risk

Synlogue based communication

Empathetic communication facilitating the understanding of potential risks while people and vehicles understand each other's reactions through a combination of verbal and non-verbal communication.

Understanding personal characteristics → Integrated risk judgment algorithm → Potential risk → Notification generated

Sequential understanding of the reactions of the driver in response to the notification

A motorcycle seems to be approaching from the oncoming lane..

An oncoming vehicle may come out .

Communicates potential risks in an easy-to-understand manner

Non-verbal communication
Communicates risks clearly so that they are understood instantly

Gives a sense of urgency

Verbal communication
Predicts risks without communicating definitively

Spare Time [sec]

15 | 6 | 3 | 0

Risk estimation accuracy
High — Low

Low — High

Occurrence frequency