Ministry of Land, Infrastructure and Transport

KAIA

[R&D] Take-over safety evaluation and social acceptability of automated driving vehicle

Korea Transportation Safety Authority
Korea Automobile Testing & Research Institute

DGIST KATECH KOREA AUTOMOTIVE TECHNOLOGY INSTITUTE SAMSUNG 삼성교통안전문화연구소 KMU KOOKMIN UNIVERSITY AJOU UNIVERSITY Michigan Tech

ETRI NEIGHBOR SYSTEM KOREA UNIVERSITY KAIST AUBURN UNIVERSITY THE UNIVERSITY of EDINBURGH

KOTI THE KOREA TRANSPORT INSTITUTE ORi Open Roboethics initiative HYUNDAI MOBIS Inno-X WEESLEE & COMPANY 홍익대학교 HONGIK UNIVERSITY

Contents

1. Project overview
2. Research objectives
3. Participating institutions
4. Major research contents and achievements
5. Connecting research outcomes

1. Project Overview

Project Title

- Study on take-over safety evaluation and social acceptability of automated driving vehicle

SP1	**Development of evaluation technology of safety on control takeover for autonomous vehicle(SAE Level 2,3)**
SP2	Autonomous driving vehicle based human factor in-depth study
SP3	Fundamental methods for improving social acceptance for autonomous vehicle
SP4	Development of evaluation platform for control transition safety of autonomous vehicle

Durations and Budget

- Durations : 2017. 04. 26 ~ 2020. 12. 31
  - ➢ Current year study period : 2018. 01. 01 ~ 2018. 12. 31
- $12,500,000 (15,700,000,000 Won)
  - ➢ Current year budget : $4,959,211

Sponsor & Coordinator

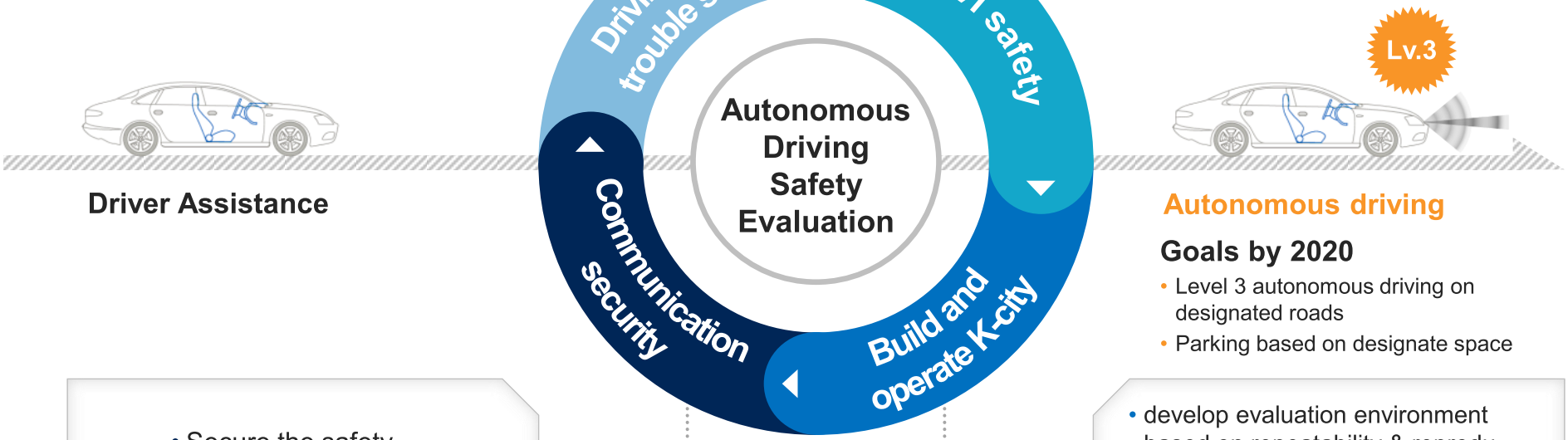
- Sponsor : Ministry of Land, Infrastructure and Transport
- Coordinator : Korea Transportation Safety Authority(KATRI)

Futuristic Vehicle Research

Roadmap to reach the level 3 in autonomous vehicle by 2020

- driving safety based on real world driving scenario
- fail-safety of autonomous driving system

- Take-back control & Human factors
- Driver's acceptability



Goals by 2020

- Level 3 autonomous driving on designated roads
- Parking based on designate space

- Secure the safety against cyber terror

- develop evaluation environment based on repeatability & reproducibility of autonomous driving on simulated real-world road systems

3. Participating institutions

Korea Transportation Safety Authority
Korea Automobile Testing & Research Institute

Study on safety evaluation technology and social acceptability of automated driving vehicle

Host organization	Professional Institution
KATRI (Korea Automobile Testing & Research Institute)	MOLIT (Ministry of Land, Infrastructure and Transport)

Like U.S. NHTSA?

<SP1> Development of evaluation technology	<SP2> Human factor in depth study	<SP3> Study for social acceptance	<SP4> Evaluation platform development
SP1 Collaboration (KATRI)	SP2 Collaboration (ETRI)	SP3 Collaboration (KOTI)	SP4 Collaboration (KATRI)
[SP1-1] Development of evaluation technology	In-depth study of human factors	Law/Ethics/ Technology	[SP4-1] Evaluation platform development
[SP1-2] Research Methodology			[SP4-2] Performance management

3. Participating institutions

Consortium

- Study on safety evaluation technology and social acceptability of automated driving vehicle

Company	Research Institute	University	University(overseas)
HYUNDAI MOBIS	Korea Transportation Safety Authority / Korea Automobile Testing & Research Institute	KMU KOOKMIN UNIVERSITY	Michigan Tech
Inno-X	ETRI	AJOU UNIVERSITY	AUBURN UNIVERSITY
ORi Open Roboethics initiative	KOTI THE KOREA TRANSPORT INSTITUTE	KAIST	THE UNIVERSITY of EDINBURGH
NEIGHBOR SYSTEM	KATECH KOREA AUTOMOTIVE TECHNOLOGY INSTITUTE	KOREA UNIVERSITY	
WEESLEE & COMPANY	DGIST	홍익대학교 HONGIK UNIVERSITY	
	SAMSUNG 삼성교통안전문화연구소		

4. Major research contents and Achievements

Korea Transportation Safety Authority
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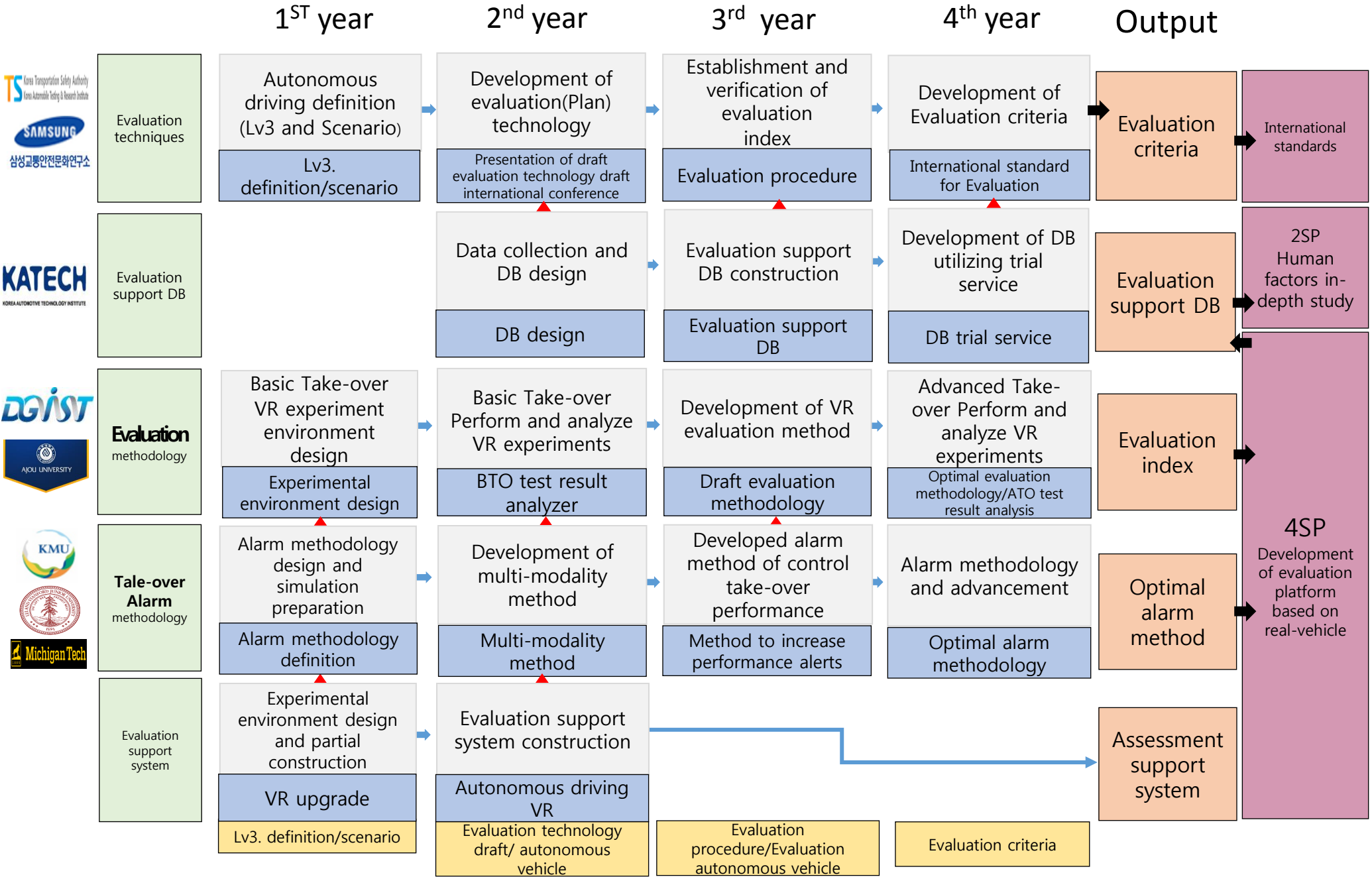
	Major research contents	Key performance	Utilization plan
SP1/SP4 Development of safety evaluation technology	Vehicle-based control take over safety evaluation technology	Control take over safety evaluation criteria and platform	**Apply domestic vehicle safety standards** **Leading international standards for automated driving vehicles**
	VR-based control take over safety assessment methodology	Control take over evaluation Support system	
SP2 Human factors in-depth study	In-depth study of human factors in autonomous driving situation	Autonomous vehicle driver's Psychology/behavior DB	**Derive control shift design guidelines** **Supporting the development of R&D related to autonomous vehicles**
	Driver psychology/behavior analysis technique and DB development in the take over situation of autonomous vehicle control	Driver psychology/physiology-Based workload quantification model	
SP3 Study for social acceptance	Improvement of legal/ethical/ Technical/standard Viewpoints for improving the acceptability of autonomous vehicles	Autonomous driving policy proposal	**Improve the legal system** **Identification of accident liability**
		Autonomous driving ethics guidelines	

5. Connecting research outcomes(4years)

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