SIP-adus Workshop 2022

Impact assessment of automated driving on Japanese society and economy

The Overview of the Research

Purpose of the Research

I Basic consensus of public and private entities regarding the premises for quantification.

II Quantification of socioeconomic impact of automated driving.

III Study of measures to promote automated driving and provision of information to support decision-making.

The Outline of the Research

I-A. Organization of preconditions with Industry members and bureaucrats

I-B. Organization of promotion measures

II. Quantification
Assessment items: diffusion rate, traffic accidents, traffic congestion and CO_2 emissions, domestic economy

III. Research output

Assessment items

Diffusion Rate

The number of diffused vehicles are estimated,taking into consideration new sales and replacement of old vehicles, for each passenger vehicle automated driving function and vehicle type category, in order to analyze the impact of promotion measures and conduct a sensitivity analysis for important parameters.

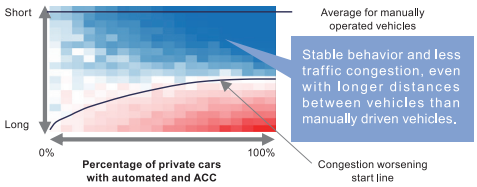
	Driving safety assist		Driving assist			System driving					
	S20 Forward short distance sensing	S25 Omnidirectional long distance sensing	D20 Vehicle-only road ACC, LKAS	D25 Vehicle-only road ACC, Lane change assist, Ordinary road LKAS	D30 Ordinary road ACC, LKAS, Lane change assist	A25 Vehicle-only road during congestion L4-3	A30 Vehicle-only road L4-3	A35 Vehicle-only road L4-4	A40 Vehicle-only road L4-4, Ordinary road L4-3	A45 Ordinary road L4-4	Time of market entry
S20-D20 (Base)	✓		✓								Existing
S25-D20	✓	✓	✓								2025
S25-D25	✓	✓	✓	✓							2025
S25-D30	✓	✓	✓	✓	✓						2030
S25-D25-A25	✓	✓	✓	✓		✓					2025
S25-D25-A30	✓	✓	✓	✓		✓	✓				2030
S25-D30-A25	✓	✓	✓	✓	✓	✓					2030
S25-D30-A30	✓	✓	✓	✓	✓	✓	✓				2030
S25-D30-A35	✓	✓	✓	✓	✓	✓	✓	✓			2035
S25-D30-A40	✓	✓	✓	✓	✓	✓	✓	✓	✓		2040
S25-D30-A45	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	? (2045)

Category

Traffic Congestion & CO_2 Emissions

Sensitivity analysis of the amount of traffic congestion on the expressway is conducted while varying the time setting between vehicles and the penetration rate of automated vehicles. The amount of CO_2 emitted in those congested conditions is also calculated.

The time between vehicles



Traffic Accidents

The reduction in traffic accidents due to the spread of automated driving functions and safe driving support functions is estimated.

Logistics

The effect of the spread of unmanned vehicles on expressways on reducing labor shortages among truck drivers is estimated.

Domestic economy

The change in parts due to automation is estimated, and then interindustry tables are used to estimate the impact of the parts change on domestic products and employment in the Japanese industry overall.

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