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UN ESCAP 2026

KOREA'S APPROACH TO AUTOMATED DRIVING TESTING, DEMONSTRATION, AND COMMERCIALIZATION

FROM REAL-ROAD TESTING TO LARGE-SCALE DEMONSTRATION AND REGULATIONS



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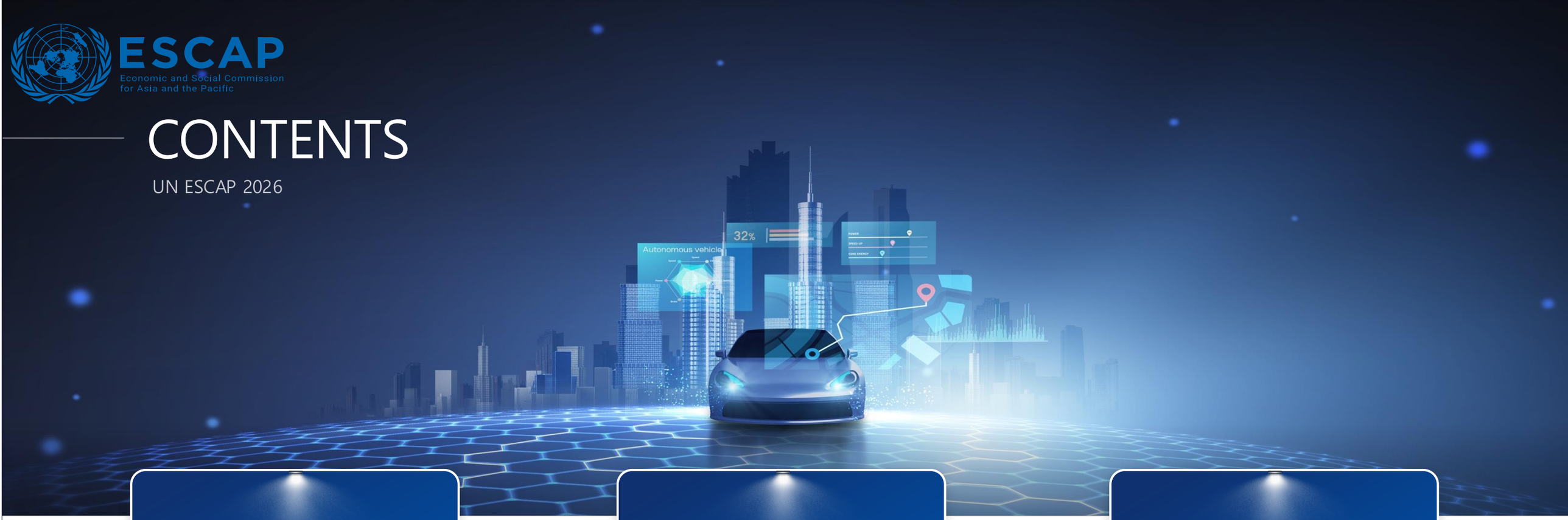


Ⅰ KOREA'S AUTOMATED DRIVING REGULATORY FRAMEWORK

Ⅱ LARGE-SCALE DEMONSTRATION CITY AND SCALE-UP STRATEGY

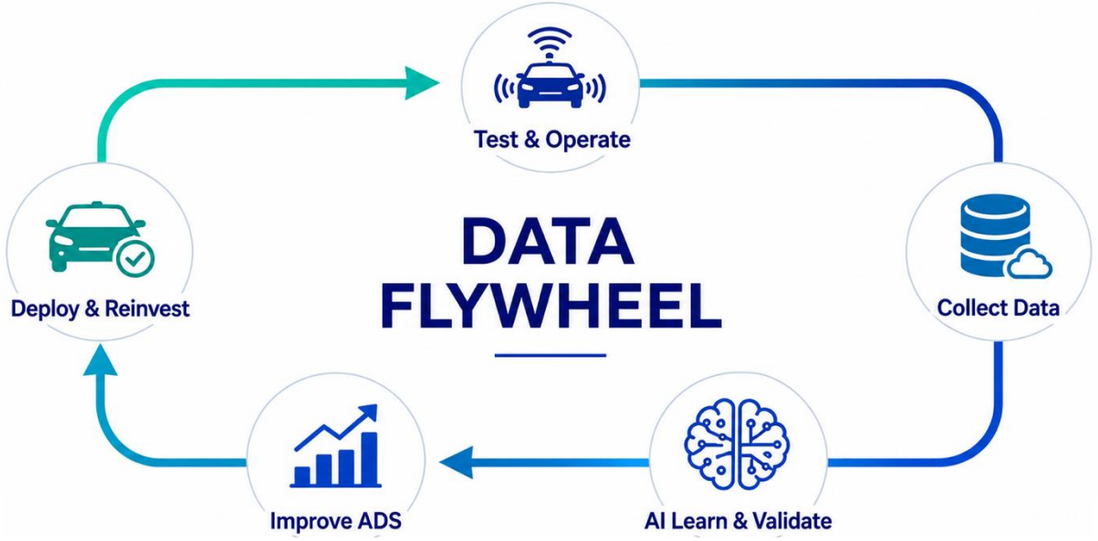
Ⅲ CONCLUSIONS AND RECOMMENDATIONS

Korea Transportation Safety Authority
Korea Automobile Testing & Research Institute

01 Why Start with Real-Road Testing?

Automated driving technology advances through an iterative cycle of collecting real-world data, using it to improve the system, and validating the results on public roads.

- Closed test environments cannot fully reproduce the wide range of traffic conditions and edge cases encountered on public roads.
- Korea has continuously collected real-world operational data through road testing under defined safety conditions.
- These data are used to improve the perception, decision-making, and control performance of automated driving systems and to support safety assurance.
- The improved system is redeployed on public roads, creating a continuous cycle of validation, learning, and improvement.
- This data flywheel provides the foundation for advancing technology development, safety assurance, and regulatory improvement in parallel.



02 Step-by-Step ADS Framework

Korea has progressively expanded its regulatory framework from real-road testing to pilot services, performance certification, and large-scale demonstration.



Temporary Operation Permit

- Technology development and safety verification
- Testing under limited conditions

Pilot Zone (Designated Area)

- Real users experience autonomous services
- Service operation and user acceptance validation

Performance Certification

- Verification of safety and performance requirements
- Establishment of basis for vehicle supply

Multi-vehicle & Multi-stakeholder

- Participation of multiple vehicles and stakeholders
- Validation in real-world service environment

Commercial Deployment

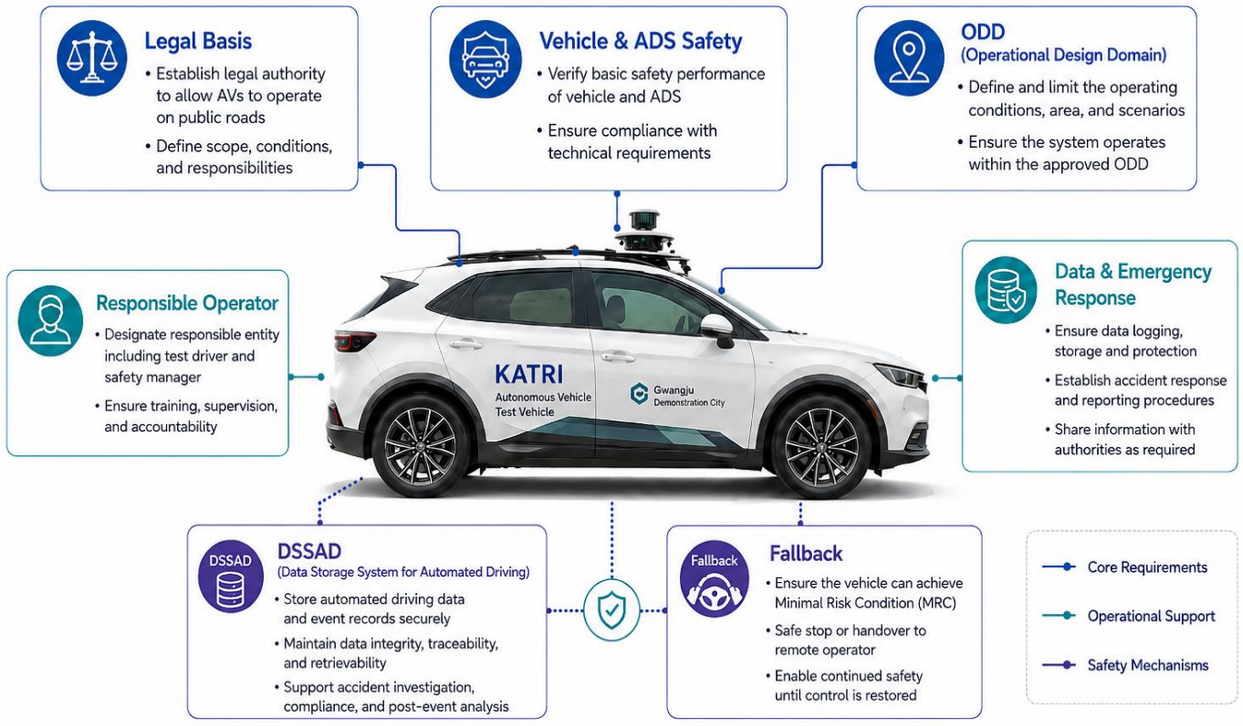
- Scalable and sustainable service operation
- Expansion to wider areas and services

03 Testing Permit Enabling Real-Road

Rather than waiting for a complete regulatory framework,

We verified minimum safety requirements and enabled controlled testing on public roads.

- Korea established the temporary operation permit as the legal basis for testing automated vehicles on public roads.
- The permit process reviews the basic safety and technical suitability of the vehicle and automated driving system.
- Testing conditions are defined in advance, including the operational design domain (ODD), operating area, speed limits, and weather conditions.
- Safety drivers and other responsible personnel are designated, with their roles and responsibilities clearly defined.
- Incident response procedures and systems for collecting and retaining operational data are established in advance.



04 Pilot Service Demonstration

ADS pilot service district validates not only vehicle technology, but also service performance and user acceptance in real operating conditions.

- A defined area is designated as an automated driving pilot service district, with its traffic environment and service conditions managed accordingly.
- Regulatory exemptions enable the demonstration of passenger, shuttle, demand-responsive, and freight services.
- Local governments and service operators build operational experience by providing services to real users.
- Evaluation covers not only vehicle performance, but also punctuality, service continuity, user convenience, and complaint handling.



Seoul (Cheonggyecheon)
Driverless Shuttle



Seoul (Gangnam)
Autonomous Taxi (Night)



Seoul
New BRT Autonomous Bus





Gangneung
Autonomous Shuttle



Chungcheong Region
Autonomous Bus (Oseong ~ Sejong)

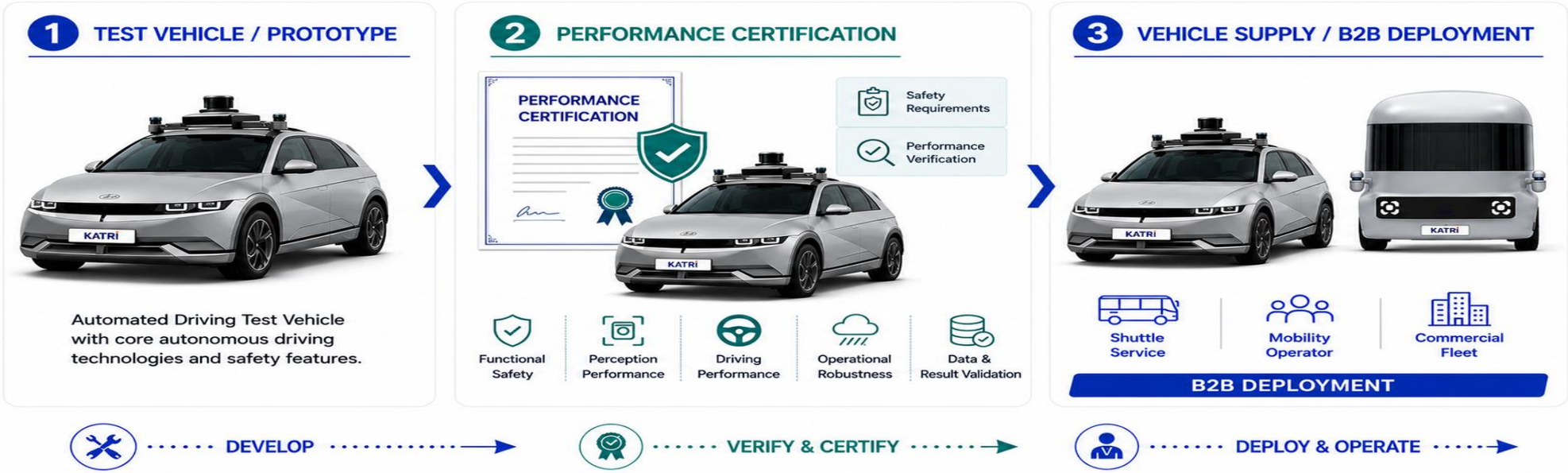


Jeju
Autonomous Shuttle (Airport ↔ Downtown)

05 Performance Certification for ADS

Performance certification converts demonstration-based safety findings into a reliable basis for B2B supply and deployment of automated vehicles.

- Safety assurance experience accumulated through testing and service demonstrations is incorporated into a formal vehicle performance certification system.
- The system provides objective verification results for vehicles that meet defined performance and safety requirements.
- Certified vehicles can be supplied and deployed by transport operators, mobility companies, and other business users.
- Performance certification supports the transition from prototype-based development to the supply of vehicles intended for commercial use.



06 Large-Scale ADS Demonstration

As the ADS fleet grows, safety assurance must expand from individual vehicles to the full operating system.

- As the fleet expands, vehicle scheduling, dispatching, monitoring, remote operations, maintenance, and charging become increasingly complex.
- An issue affecting a single vehicle presents a different level of risk and requires a different response from an issue affecting multiple vehicles simultaneously.
- Accidents and abnormal situations require rapid coordination among ADS developers, vehicle manufacturers, transport platform operators, insurers, local governments, and other relevant institutions.
- Verification must cover not only vehicle performance, but also service continuity, operating personnel, communications, data management, and on-site response capability.
- Korea is pursuing a policy to expand the demonstration fleet from approximately 200 vehicles to 3,000 vehicles.

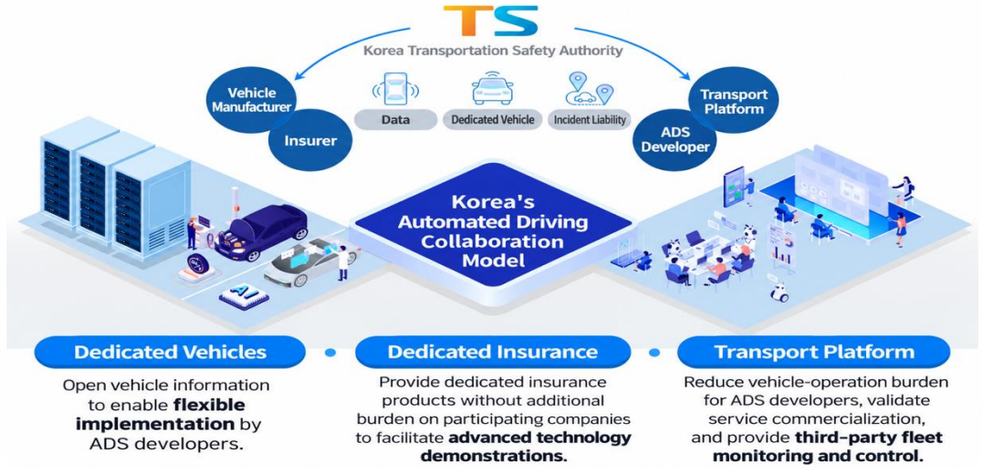


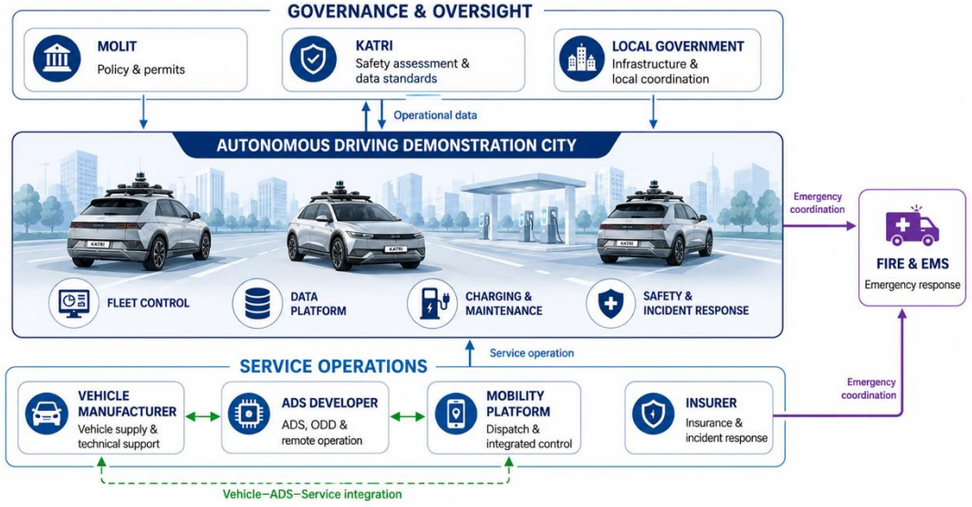
07 Large-Scale Service Operations

Large-scale automated driving services require more than vehicle safety.

They require multiple institutions and operating functions to work as one coordinated system.

- A demonstration city is a large-scale operating model in which multiple automated vehicles and participating institutions work together in an urban environment.
- MOLIT, local governments, KATRI provide overall governance and coordination. Vehicle manufacturers, ADS developers, transport platform operators, and insurers participate according to their defined roles.
- Real-road data are shared and analyzed across institutions through a data pipeline governed by data governance and personal information protection principles.
- The operations control center provides real-time monitoring and remote assistance. Emergency response is coordinated with relevant authorities, while remote control is managed under separate authorization.

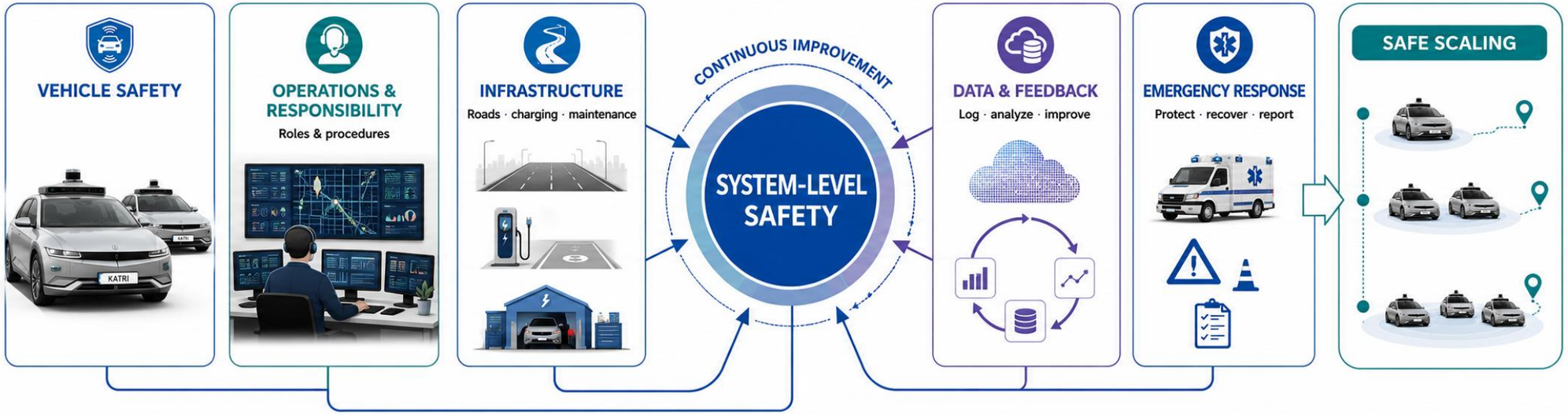




08 Lessons from Demonstration Experience

ADS safety is achieved through an integrated system combining vehicles, operations, infra, data, and emergency response — not through vehicle technology alone.

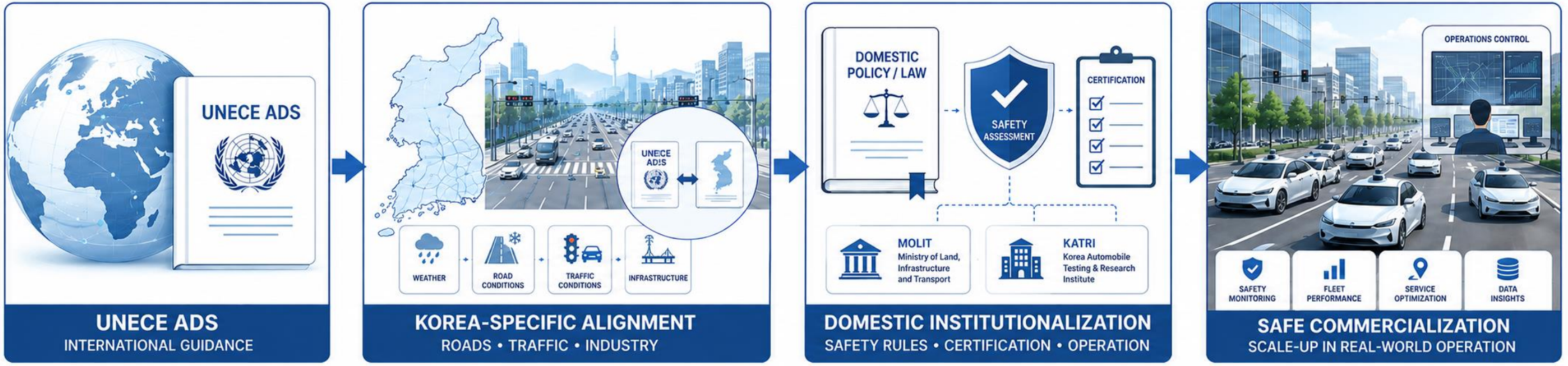
- Vehicle performance and ADS safety must be verified, but they alone cannot guarantee the safety of a real-world service.
- Before operation, the operating area and conditions, vehicle status, communications, and emergency response arrangements must be checked together.
- During operation, the roles and responsibilities of safety drivers, remote operators, transport control operators, and safety managers must be clearly defined.
- Data should support not only accident investigation, but also system improvement, adjustment of operating conditions, and refinement of safety requirements.
- Expansion should be gradual, with the fleet, operating area, and service scope increased only as each stage is validated.



09 Standards-Aligned Commercialization

Drawing on evidence from domestic demonstrations, we plan to align UNECE ADS regulations with Korea's road and regulatory environment as a basis for commercialization.

- (Scale-up) Expand large-scale demonstrations to build practical experience in operating real-world services.
- **(Certification)** Advance the vehicle performance certification system to establish the safety-assurance foundation required for commercialization.
- (Global Harmonization) Participate in the development of UNECE ADS standards and assess their consistency with Korea's domestic regulatory framework.
- (Domestic Institutionalization) Incorporate the findings from domestic demonstrations into Korea's regulatory framework and improve the system in alignment with regulations.



10 Conclusions and Recommendations

Countries launching automated driving pilots should establish minimum safeguards for safety, accountability, and data governance, then scale through real-road operations.

① Legal Basis : Establish a clear legal basis and operating conditions for testing automated vehicles and demonstrating automated driving services.

② Minimum Safety Requirements : Define minimum safety requirements in advance for the vehicle, ADS, operational design domain, testing conditions, emergency stopping, and minimal-risk operation.

③ Responsible Operator : Designate the accountable operator and clearly define the roles, responsibilities, training requirements, and reporting lines of each participating institution.

④ Data & Emergency Response : Establish systems for recording, retaining, and analyzing operational data, together with procedures for incident reporting, on-site response, passenger protection, and vehicle recovery.

⑤ Step-by-Step Expansion : Begin with limited testing and progressively expand the operating area and fleet through service demonstration, performance certification, large-scale operation, and commercialization.

Start small. Learn from real-world operation. Scale safely

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THANK YOU



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