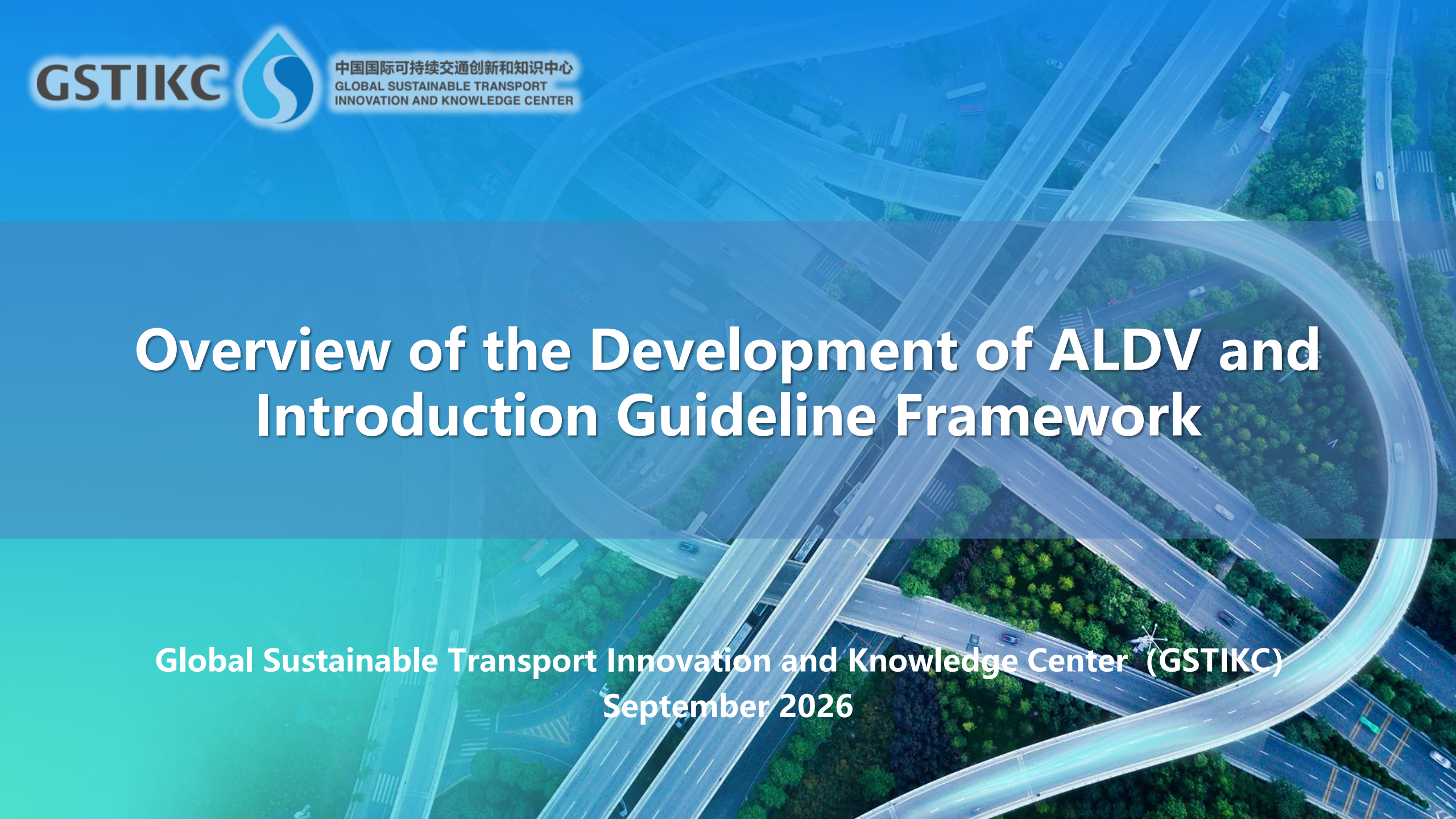
GSTIKC 中国国际可持续交通创新和知识中心
GLOBAL SUSTAINABLE TRANSPORT INNOVATION AND KNOWLEDGE CENTER

Overview of the Development of ALDV and Introduction Guideline Framework



Global Sustainable Transport Innovation and Knowledge Center（GSTIKC）

September 2026

About GSTIKC

GSTIKC 中国国际可持续交通创新和知识中心 GLOBAL SUSTAINABLE TRANSPORT INNOVATION AND KNOWLEDGE CENTER

- October 14, 2021—Announcement of Establishment

At the opening ceremony of the 2nd United Nations Global Sustainable Transport Conference (2021, Beijing), President Xi Jinping announced China will set up Global Sustainable Transport Innovation and Knowledge Center to make a contribution to global transport development

- October 14, 2022—Official Establishment

GSTIKC is affiliated with the Ministry of Transport of P.R. China



Aiming to accelerate the implementation of global development initiatives and the United Nations 2030 Agenda for Sustainable Development

Building a high-end think tank, co-operation and exhibition platform, and a high ground for humanistic exchanges for global sustainable transport development

Co-operation to jointly promote sustainable transport, sustainable development

Background

Autonomous Logistics Delivery Vehicle (ALDV)

Functional Unmanned Vehicle, RoboVan

- **Operating environment:** roads, enclosed parks, urban and suburban areas, ports, etc.
- **Autonomous driving level (SAE level):** L4 or L5
- **Application fields:** cargo transportation, express delivery

E-commerce logistics



Food delivery service



Express mail service





On-demand delivery



Fresh produce delivery



Rural logistics

Background

ALDVs are core drivers for sustainable logistics transformation

Core challenges for the logistics systems globally

01. Transportation Efficiency Constraints
Infrastructure bottlenecks and complex procedures hinder global logistics flow

02. Global Driver Shortage
Severe shortage of qualified truck drivers due to aging workforce and low job attractiveness

03. Escalating Logistics Costs
High logistics costs squeeze corporate profits and cause supply-demand mismatches

04. Urgent Green Transformation Pressure
Stricter international carbon regulations force industries to accelerate low-carbon upgrades

Cost Reduction:
Significantly cuts labor expenses and optimizes energy use through autonomous technology

Efficiency Enhancement:
Enables 24/7 operations in logistics hubs, improving transfer efficiency and handling peak demands

Last-Mile Delivery Solution:
Automates delivery in residential and commercial areas, enhancing service experience

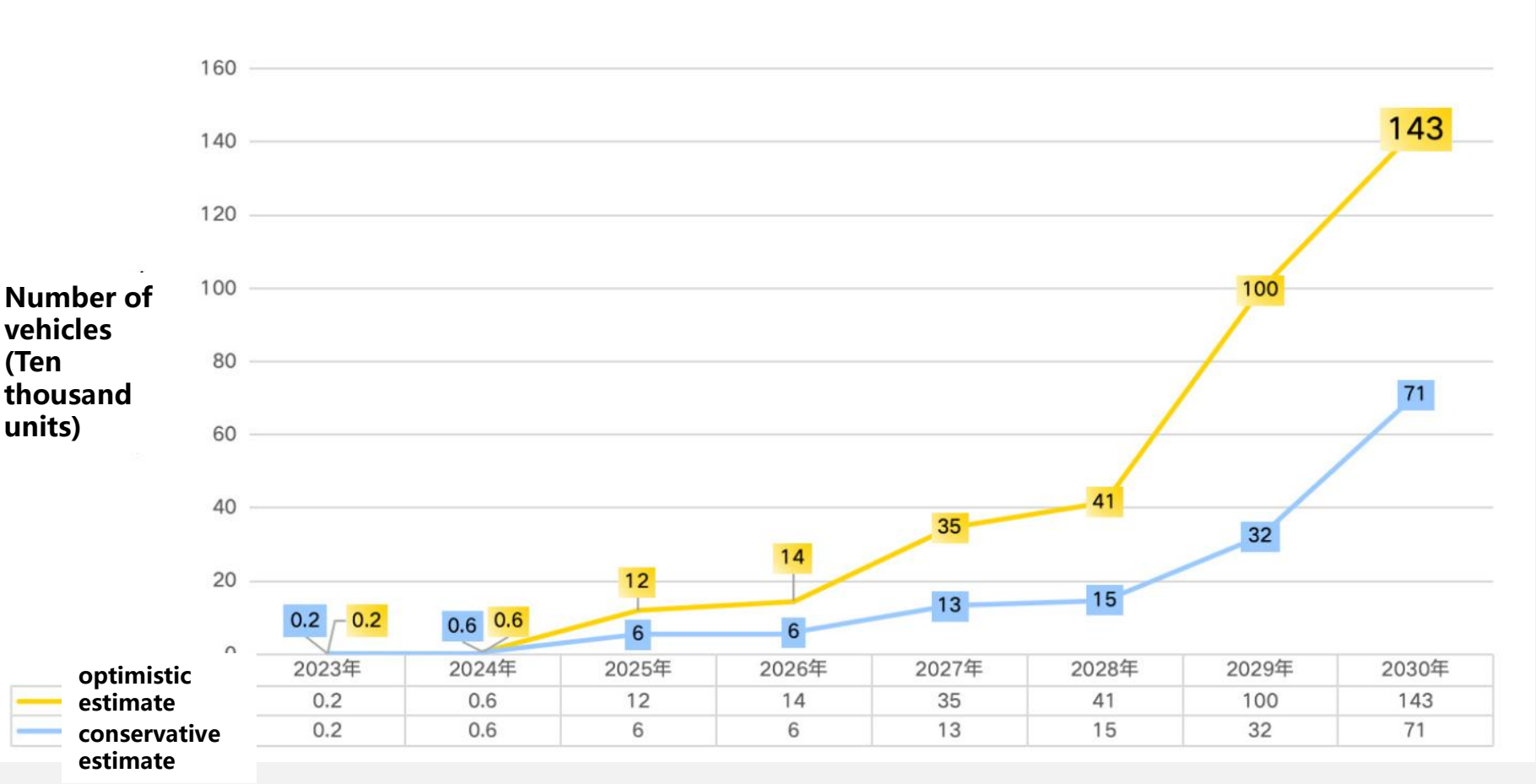
Green & Low-Carbon:
Zero-emission vehicles help meet international carbon footprint requirements

Labor Shortage Solution:
Reduces reliance on human drivers, directly addressing recruitment challenges

Regulatory Synergy:
Participates in local standard-setting, promoting balanced regulations for safety and innovation

Background

ALDVs are entering a critical period of large-scale development, and the potential of the Chinese and global markets is enormous

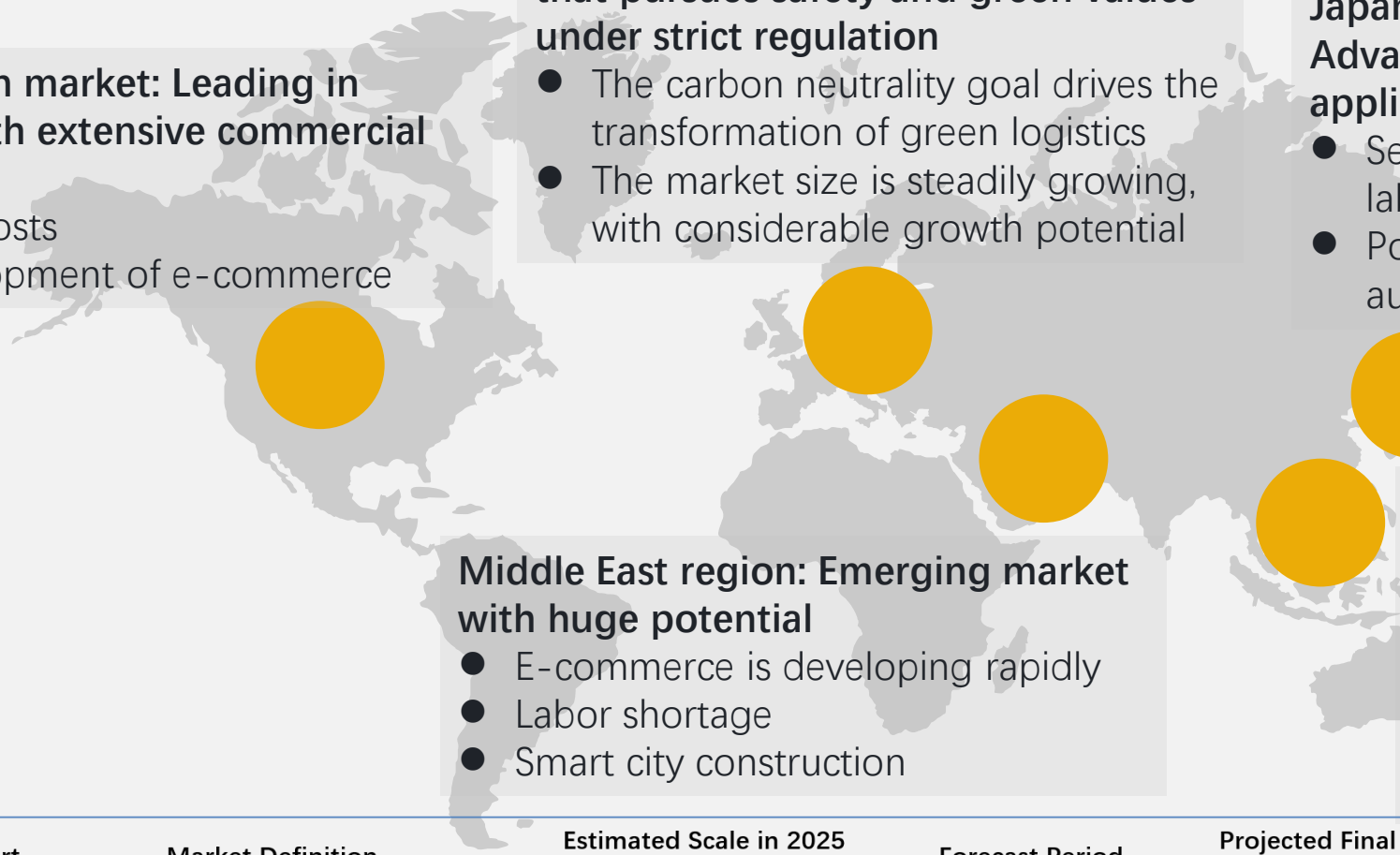


	2023年	2024年	2025年	2026年	2027年	2028年	2029年	2030年
optimistic estimate	0.2	0.6	12	14	35	41	100	143
conservative estimate	0.2	0.6	6	6	13	15	32	71

By 2026 Q1, Chinese market:

- **47,000 units** total number of vehicles in use
- **300 cities** in which ALDVs has been deployed or piloted
- **100 cities** have officially obtained road access rights

Background



North American market: Leading in technology, with extensive commercial applications

- High labor costs
- Rapid development of e-commerce

European market: A mature market that pursues safety and green values under strict regulation

- The carbon neutrality goal drives the transformation of green logistics
- The market size is steadily growing, with considerable growth potential

Japan and South Korea markets: Advanced technology, diverse application scenarios

- Severe population aging, insufficient labor supply
- Policy support, fostering the autonomous driving industry

Middle East region: Emerging market with huge potential

- E-commerce is developing rapidly
- Labor shortage
- Smart city construction

Southeast Asian market: A rapidly growing emerging market

- E-commerce is developing rapidly
- High population density and urban traffic congestion
- Rising labor costs

Source of Report	Market Definition	Estimated Scale in 2025 (US dollars)	Forecast Period	Projected Final Scale (US dollars)	Compound Annual Growth Rate (CAGR)
Research Nester	Autonomous Delivery Robot Market	6.01 billion	2025-2037	184.58 billion	35.2%
Precedence Research	Self-service End-point Delivery Market	6.57 billion	2025-2034	44.56 billion	23.7%
Grand View Research	Self-service End-point Delivery Market	1.96 billion	2025-2030	5.93 billion	24.8%
MarketstandMarkets	Delivery Robot Market	796 million	2025-2030	3.24 billion	32.4%
GlobeNewswire	Delivery Robot Market	400 million	2025-2029	770 million	18%

Objective and Core Function

Why do we need a Guideline for Introducing ALDVs?

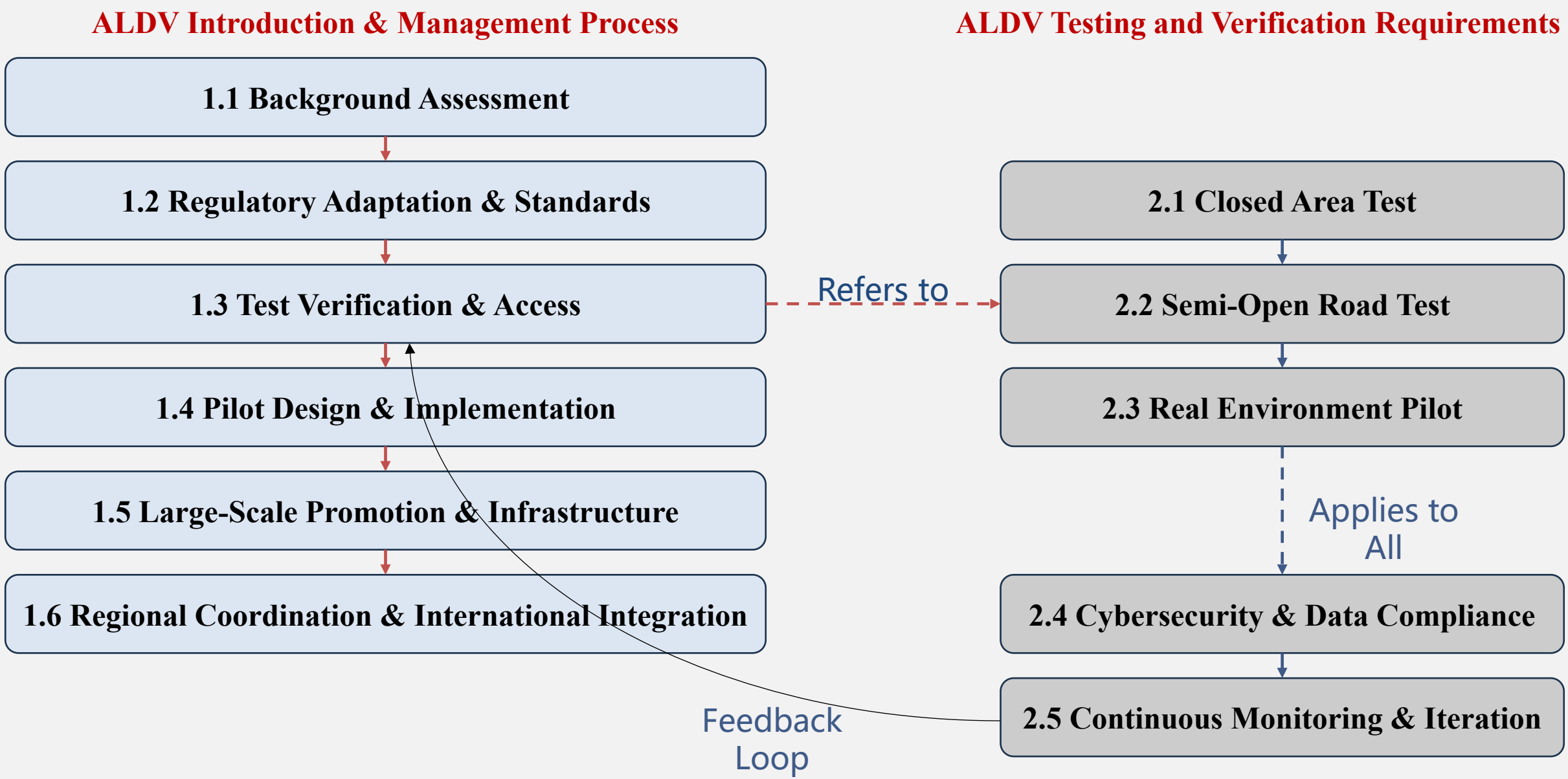
- Many countries lack ALDV regulations, testing standards, and deployment experience
- Blind introduction may cause safety risks, resource waste, or policy conflicts

- ✓ To clarify the full ALDV introduction process
- ✓ To grasp the core requirements of test verification
- ✓ To objectively assess the value and application boundaries of the equipment
- ✓ To avoid on-site risks and implementation errors
- ✓ To promote regional collaboration and mutual recognition of international rules
- ✓ To assist scientific cost-benefit analysis and decision-making

Objective and Core Function

National/regional Level	• Serve as a reference framework for formulating regulations, technical standards, and testing norms for unmanned logistics vehicles
City/park Level	• Used as an operational guideline for the design, bidding, and acceptance of pilot projects
Enterprise Level	• Used as a checklist for feasibility assessment and preparatory work before introducing Autonomous Logistics Delivery Vehicle (ALDV)

Introduction Guideline Framework



Stakeholder Engagement

Stakeholder	Role	Key Functions
National/Regional Government	Rule-maker	Establish regulations, technical standards, testing & access regimes
City/Park/Logistics Hub	Pilot organizer	Design pilot scenarios, provide infrastructure, organize acceptance
Logistics/Operation Enterprises	Implementer	Feasibility assessment, vehicle deployment, daily operations
Technology Providers (ALDV companies)	Capability enabler	Provide compliant vehicles, technical support, data integration
Industry Associations & Standards Bodies	Standards coordinator	Promote industry self-discipline, international mutual recognition

Call for Participation

Step 1: Establish Expert Group

Form a panel of international experts for exchanging information regarding introducing ALDV

Step 2: Regular Discussion

Schedule periodic online/offline meetings to share insights and review progress

Step 3: Draft and Jointly Issue the Guideline

Jointly compile and release the Guideline that have been generally agreed upon by all parties as a reference for further refinement of local policies and standards

Step 4: Jointly Launch Pilot Projects

Implement ALDV trials in partner countries with the assistance of GSTIKC to validate operational models

Scan the QR code to submit your valuable opinions

Call for Participation

ASEAN-China Autonomous Vehicle Cooperation Capacity Building Workshop

- **Time: 1-7 November 2026**
- **Venue: Beijing**
- **Core Themes: AV technology development, vehicle intelligence and vehicle-road coordination, AV regulatory and standard systems, passenger and freight autonomous mobility scenarios, cross-border supervision frameworks for AV deployment**

Date	Draft Agenda
Day1 (Nov 1, Sun)	• Opening Ceremony • Keynote: Overview of China's AV technology development • Lecture: National supportive policies for AV deployment • Lecture: Core vehicle intelligence technologies • Lecture: Vehicle-road collaborative connectivity technology
Day2 (Nov 2, Mon)	• On-site Industrial Study Tours (AV testing zones, autonomous bus & logistics demonstration bases)
Day3 (Nov 3, Tue)	• Lecture: AV fleet operation & dispatching management • Lecture: AV policies, regulations & standard systems • Lecture: AV passenger transport application scenarios • Lecture: AV freight & logistics application scenarios
Day4 (Nov 4, Wed)	• ASEAN Countries Case Sharing & Exchange • Lecture: Typical Enterprise Case Sharing
Day5 (Nov 5, Thu)	• On-site Industrial Study Tours (AV component manufacturers, connected vehicle cybersecurity labs)
Day6 (Nov 6, Fri)	• Lecture: Typical Enterprise Case Sharing
Day7 (Nov 7, Sat)	• Country-to-Country Government-Enterprise Matchmaking Sessions • Panel Discussion: ASEAN-China AV Deployment Regulatory Framework Initiative • Closing Ceremony



Thank you for your attention

Dr. Tongzhou BAI
Global Sustainable Transport Innovation and Knowledge Center (GSTIKC)
Mobile: +86-15801239719
Email: tongzhou_BAI@gstikc.org.cn