


DRIVE:SWEDEN



Drive Sweden Lunch & Learn Global insights on digitalisation and AVs in freight transport

17 January 2025

Elisa Alaiso, Project Manager, Business Sweden

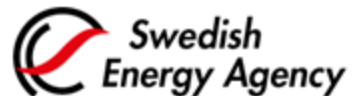
Jessica Olsson, Head of Energy and Transport Europe, Business Sweden

Raymond Jiang, Transport Industry Technology Researcher, Scania Innovation Center, China

Moderated by Malin Andersson, Drive Sweden

Drive Sweden - a national program for next generation mobility

With support from



Strategic
innovation
programmes



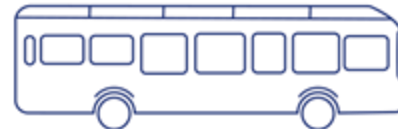


Vision

Sweden takes a leading role in leveraging digital technologies to shape more sustainable transport systems

Digital technology as leverage for

- efficient use of vehicles and infrastructure
- equal access to mobility and deliveries
- increased environmental performance and traffic safety
- a strong Swedish industry
- new actors within mobility services



Vinnova call is open!



- Closes 4 March 2025
- Totally ~20 million SEK
- Project which, in broad stakeholder collaboration, addresses system issues deemed necessary to enable shared, connected and automated mobility and transport.

DRIVE:SWEDEN

GLOBAL INSIGHTS ON DIGITALIZATION AND AV IN FREIGHT TRANSPORT

Business Sweden Executive Global Insight

17 JANUARY 2025

[BUSINESS-SWEDEN.COM](https://www.business-sweden.com)

The study aims to provide insights on key opportunities and strategic recommendations for Swedish companies on key freight transport markets

PURPOSE

Identify business opportunities for Swedish companies aiming to enhance their role in the global road and freight transport sector

MARKETS IN SCOPE



European Union



United States



China



India

METHODOLOGY

12 interviews with international transport industry associations and market experts





8 interviews with Swedish companies representing the transport value chain

The Executive Global Insight addresses key industry challenges, ongoing key developments, and how Swedish companies shall grasp global opportunities

INDUSTRY CHALLENGES

-  High Co2 emissions
-  Road safety
-  Public policy and infrastructure
-  Cost pressures and operational efficiency

KEY DEVELOPMENTS

-  Decarbonization
-  Charging infrastructure
-  Vehicle-to-infrastructure connectivity
-  Data sharing and interoperability

GRASPING THE OPPORTUNITIES

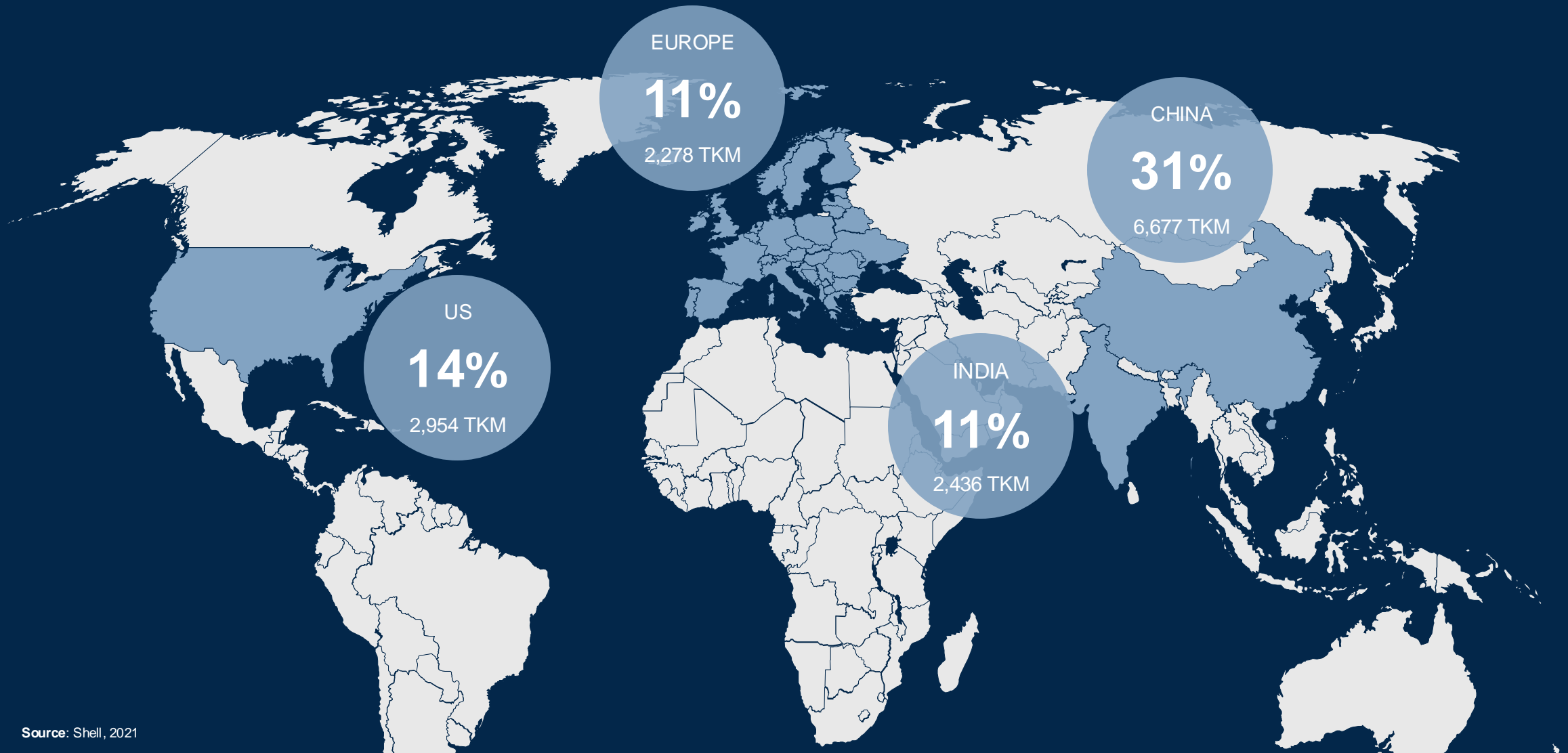
Collaborative business models



Shifting roles in the value chain

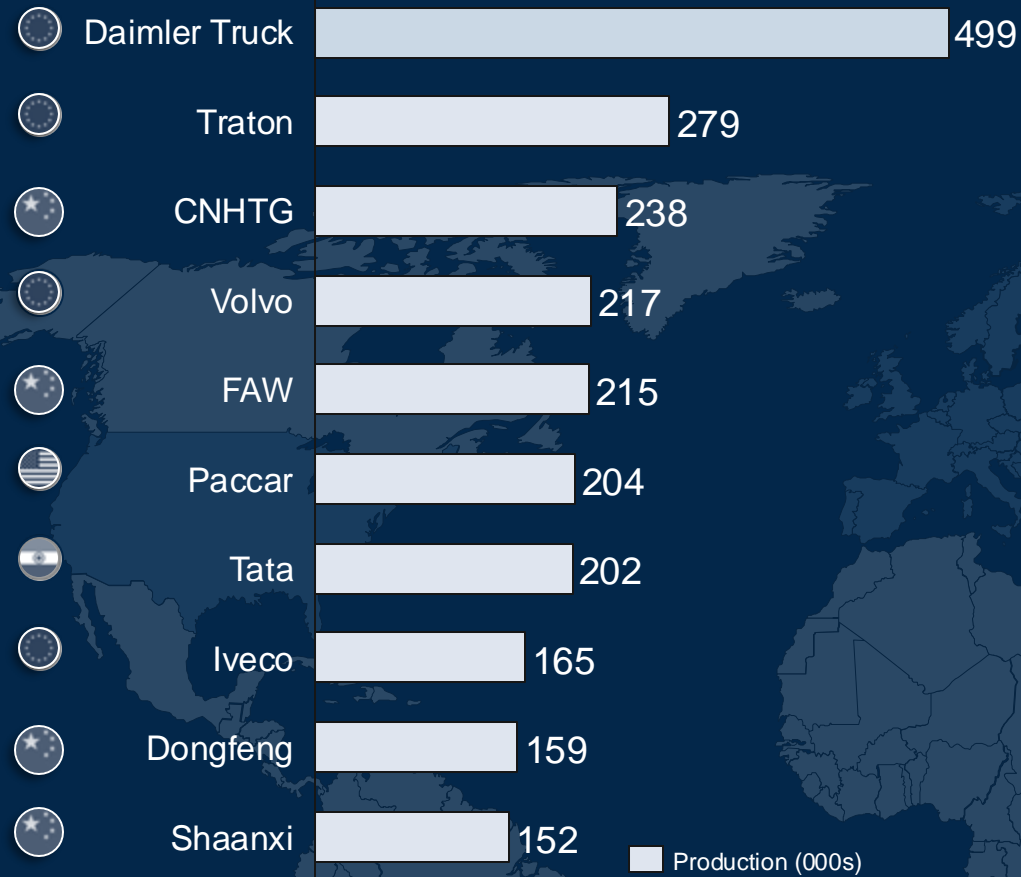
Multi-stakeholder approach

A global perspective | US, EU, India, and China stand for largest road freight volume

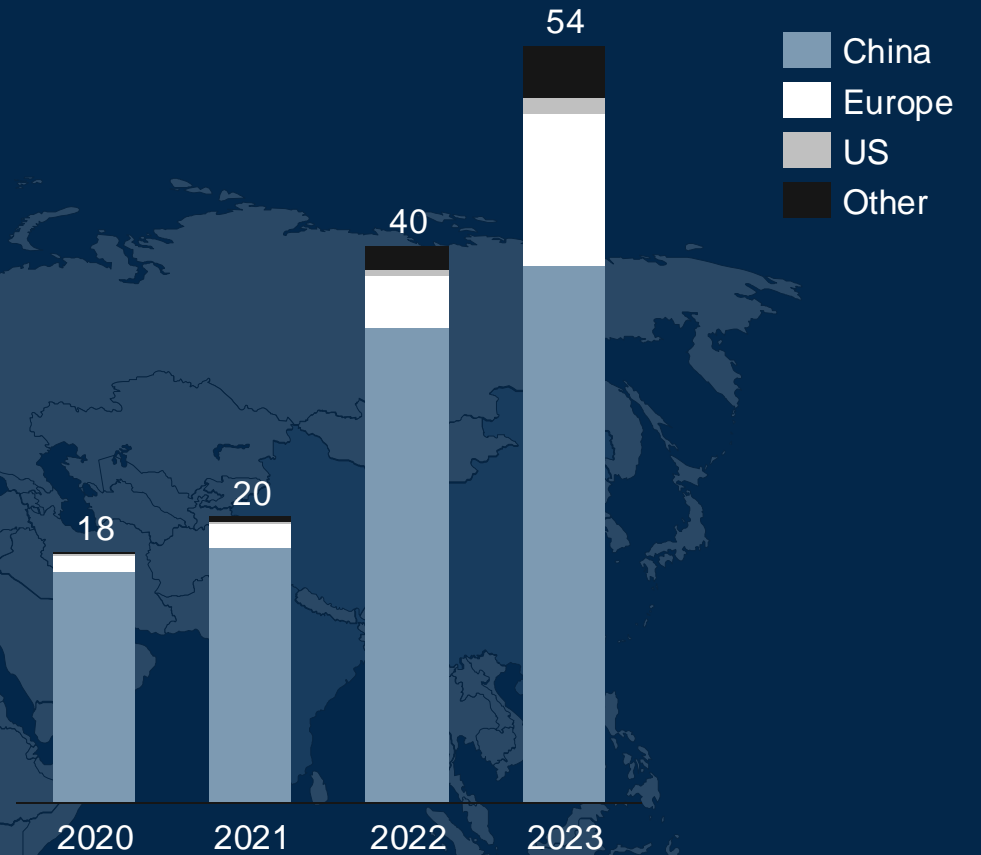


A global perspective | US, EU, India, and China are home to the world's major trucking OEMs with an increase in share of electric trucks

Top 10 largest truck manufacturers by production volume (6t-plus), 2023



Electric truck registrations by region (1000s), 2020-2023



Key challenges | Industry dialogues highlight several key challenges that are driving transformation within the sector, while simultaneously creating new opportunities



**HIGH CO2
EMISSIONS**



ROAD SAFETY



**PUBLIC POLICY
AND
INFRASTRUCTURE**



**COST PRESSURES
AND OPERATIONAL
EFFICIENCY**

Decarbonization identified as main driver transformation in road freight



EU, US, China and India account for more than half of global road freight emissions



Public policy aims to accelerate the deployment of zero emission vehicles



Sales of zero-emission trucks have been increasing but challenges remain in

- Range anxiety
- Costs
- Business models
- Charging infrastructure

“With the new transport ecosystem, there will be a completely new business case and new business models that need to be addressed. There is no single stakeholder that can move the ecosystem”

Charging Infrastructure | Grid capacity, operations & finance, and strategic engagement lifted as key areas



GRID CAPACITY AND TECHNOLOGICAL SOLUTIONS

- Grid capacity and upgrade of grid network reported as one of the main barriers
- A need to balancing the grid load and optimise existing electricity supply and demand
- Data sharing to boost predictability
- Coordination cross jurisdiction to overcome grid capacity and permitting barriers



OPERATIONS AND FINANCE

- Importance of the role of the driver
- Shift in mindset among customers of logistics companies
- Experienced barriers include:
 - High upfront costs in infrastructure and total cost of ownership (TCO)
 - High tariffs at charging stations
 - Range anxiety, and battery fluctuations caused by weather
 - Internet stability



PUBLIC AND PRIVATE SECTOR ENGAGEMENT & COLLABORATION

- Examples lifted on strategic level to facilitate deployment two of which are:
 - US: Federal Highway Administration – Alternative Fuels Corridor & National Zero-Emission Freight Corridor Strategy
 - India: Electric Freight Accelerator for Sustainable Transport (e-FAST)

“Today the planning of the grid is made according to today’s needs and not how it will look like in 10 years and therefore will not be able to accommodate future needs. We need to make sure that in 5 or 10 years we are not stuck in the same situation as today.”

Communication between vehicles and infrastructure was highlighted as key enabler for safety and route optimization for electric and automated vehicles



DIGITALIZATION OF TRAFFIC MANAGEMENT

- Road operators looking to implement V2X (vehicle-to-everything) technology to improve safety and efficiency



DIGITALIZATION OF INFRASTRUCTURE

- Road operators increasingly use connected vehicle data to digitalise asset management including predictive maintenance
- Digitalization of road information needed to enable deployment of autonomous vehicles

KEY ISSUES ADDRESSED

- Data sharing, interoperability, and business models remain challenges in the deployment of V2X technologies
- Better cooperation among stakeholders is needed

“The relationship between transport users and infrastructure providers becomes crucial to enable connected and electrified transport”

The interviewed stakeholders highlighted case examples on public-private collaborations from key markets

High-level overview of key projects



EUROPEAN UNION

- C-Roads project has been active since 2016 to test vehicle-to-infrastructure communication across EU
- Multi-stakeholder collaboration among OEMs, road operators, and technology providers



UNITED STATES

- The Department of Transportation (DOT) released a plan indicating C-V2X as a national priority
- 60 bn USD for *Saving Lives with Connectivity: Accelerating V2X Deployment*



CHINA

- The deployment of C-V2X infrastructure and achieving 5G network coverage in pilot areas is currently on-going
- "Vehicle-road-cloud integration" is transitioning from testing and verification to large-scale application



INDIA

- Intelligent Transportation System Endeavor (InTranSE), a program aiming at undertaking R&D project collaboratively with academia and industry players in the country

Advancements in data sharing driven by the need for increased efficiency, safety, and sustainability in the transport sector – legal and profitability concerns remain



INDUSTRY GAINS IN EFFICIENCY

- Enhanced data sharing allows real-time freight tracking, improving logistics and reducing costs



EMERGING BUSINESS MODELS

- Stakeholders emphasise the need for collaboration among OEMs, authorities, and freight providers to agree on standardization
- Emerging business models require collaborative platforms to connect various stakeholders and data



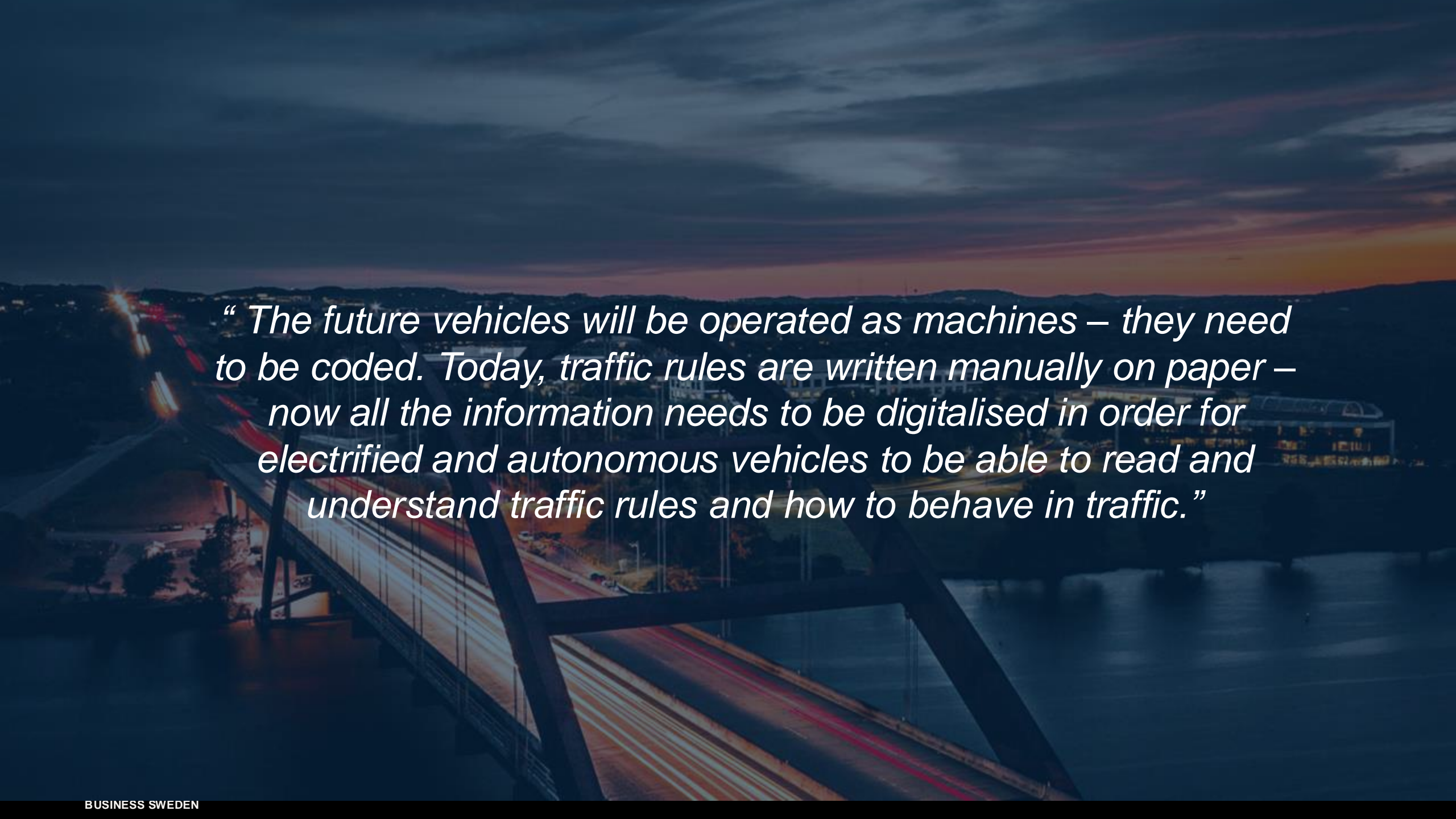
LEGAL AND PROFITABILITY CONCERNS

- The automotive industry is cautious about how interoperability and data sharing technologies can increase profits
- Data exchange raise legal concerns especially in the US

CASE: INTEROPERABILITY IN EU – MODI PROJECT



- Multi-stakeholder public-private partnership involving 34 organisations from 8 different EU countries
- Focus on interaction between vehicles and logistics processes, traffic safety, security, optimal utilization of infrastructure capacity and environment, in order to provide recommendations for the optimal design or adaptations of infrastructure



“ The future vehicles will be operated as machines – they need to be coded. Today, traffic rules are written manually on paper – now all the information needs to be digitalised in order for electrified and autonomous vehicles to be able to read and understand traffic rules and how to behave in traffic.”

Grasping new opportunities | Swedish companies can benefit from systemic changes and be the model for successful strategic collaborations

COLLABORATIVE BUSINESS MODELS



Collaborative business models are needed for:

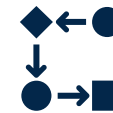
- Shared charging infrastructure
- Data sharing and interoperability
- New technology implementation

MULTI-STAKEHOLDER APPROACH



Sweden can be a model for the establishment of Triple-helix collaboration models

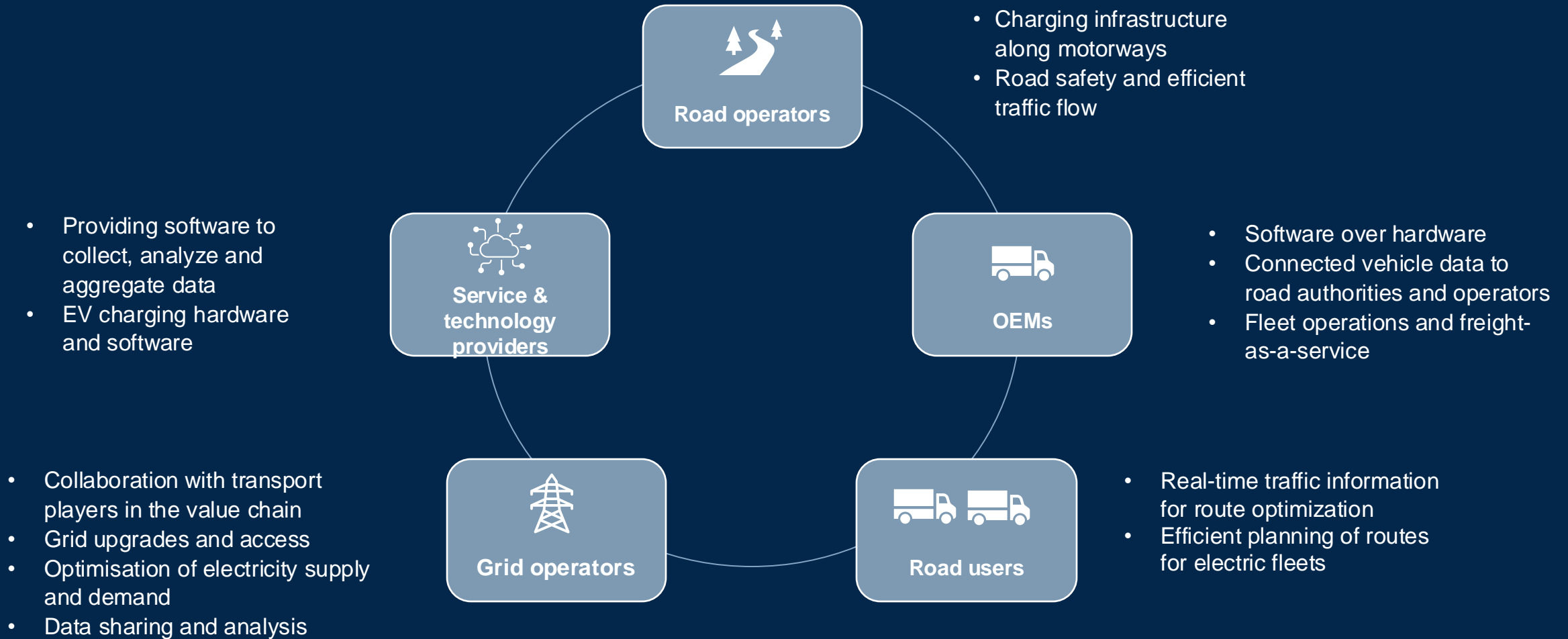
SHIFTING ROLES IN THE VALUE CHAIN

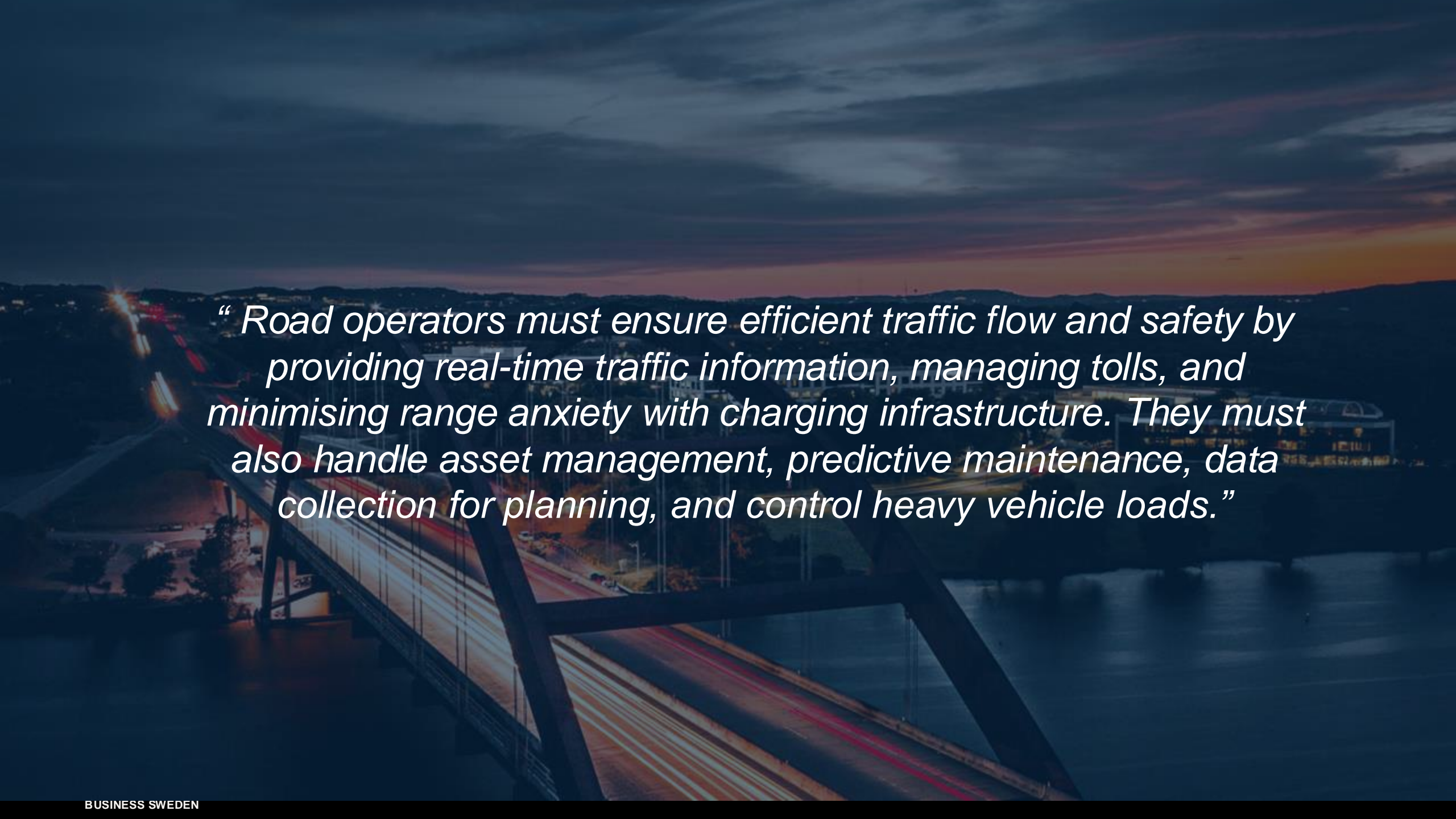


New technology is revolutionizing business models, leading to:

- Shift in role of stakeholders
- Replacement of roles and functions

Shifting roles in the value chain | In an evolving value chain, actors are adapting roles and shifting focus





“ Road operators must ensure efficient traffic flow and safety by providing real-time traffic information, managing tolls, and minimising range anxiety with charging infrastructure. They must also handle asset management, predictive maintenance, data collection for planning, and control heavy vehicle loads.”

Five recommended steps to seize the opportunity



Download the report here

Get in touch with Business Sweden



Jessica Olsson
Head of Energy & Transport Europe,
Business Sweden
jessica.olsson@business-sweden.se
+47 922 33841



Elisa Alaiso
Project Manager
Business Sweden
elisa.alaiso@business-sweden.se
+39 345 397 5211



Ida Knutsen
Project Manager
Business Sweden
ida.knutsen@business-sweden.se
+47 413 42 347



**BUSINESS
SWEDEN**

THE SWEDISH TRADE & INVEST COUNCIL

DRIVE:SWEDEN



Vehicle Intelligence / Road Digitalization / Cloud-control Networkization

Vehicle-road-cloud integration strategy in China



OUR PURPOSE 我们的愿景

- Scania's purpose is to drive the shift towards a sustainable transport system, creating a world of mobility that is better for business, society and the environment.
- 不断推动向可持续运输系统的转变，旨在创建一个更有利于企业、社会和环境的移动出行世界。





60 YEARS IN CHINA



Scania Sales (China) Co. Ltd set up as the first wholly owned foreign CV importer in China



Scania Production (China) Co, Ltd was unveiled, Scania becomes one of the first foreign automotive groups to set up 100% owned production in China



Planned to open for business 2025, producing vehicles and powertrains for China and export markets

First timber trucks sold to Chinese Ministry of Forestry

1965

2007

First wholly-owned Scania dealership opened

2013

2020

Scania starts building its third global production base in Rugao

2022

2025



Innovation center china

Scenario planning
deep and
on-the-
ground
integration



未来场景规划深度落地融合

**Deep integration
and bridge**
between
innovation
and local R&D
and industrial capabilities



创新与本土研发和产业能力的深度融合和桥梁

Triple Helix model
of Innovation

政产学研创新合作



Start-up ecosystem building through
collaborations,
scale-ups,
partnerships
and investments



建立自己的初创公司生态系统

Customer insights and ways to **predict the
future needs and requirements**
based on customer and user behaviour



客户洞察以及根据客户和用户行为预测未来需求和要求

Global lead in future digital
platforms and
ecosystems
needed in the
transport industry



运输行业所需的未来数字平台和生态系统

Technology Road Map integration,
localized
(or globalized)
roadmap



技术路线图整合

Strategy input
based on future
policies and
regulations



基于未来政策法规的战略参考建议

Ongoing research
in prioritized
new business opportunities,
technology areas and future trends



新商业模式, 技术发展, 未来趋势的
持续研究

Methods and ways-of-working for using and
scaling **data science and AI** for better decision
making and supporting both research and
innovation initiatives



使用和扩展数据科学和人工智能, 支持决策制定



Intelligent vehicle

Step 1



Single Vehicle Intelligence

Step 2



Intelligent Connected Vehicle(V2X)

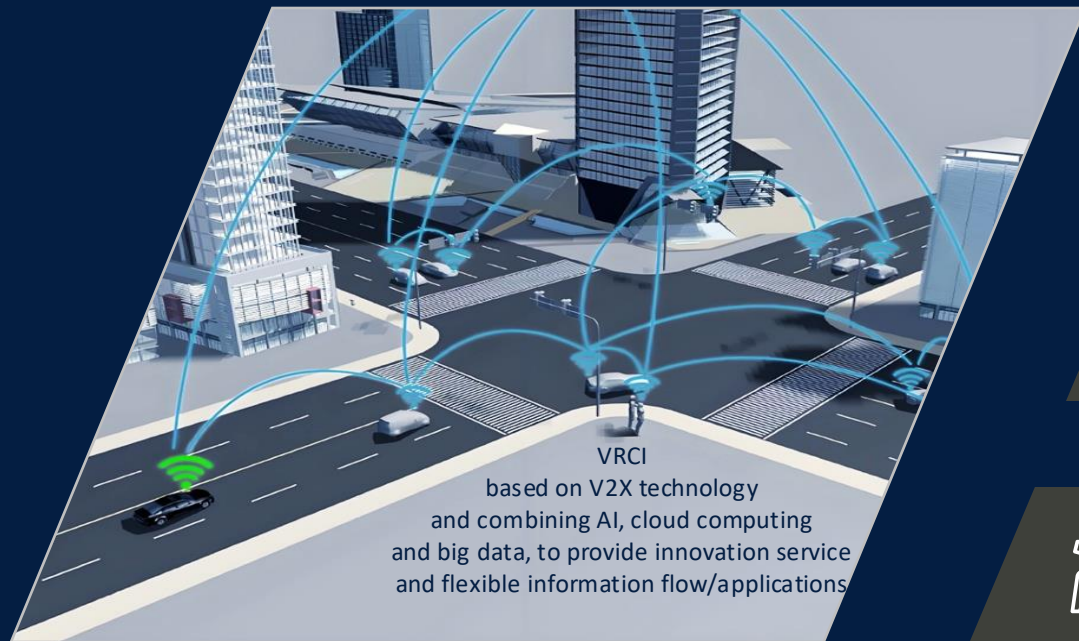
Step 3



Vehicle-Road-Cloud Integration



Vehicle-Road-Cloud Integration



2030

Synergy Perception



2035

Synergy Decision-making

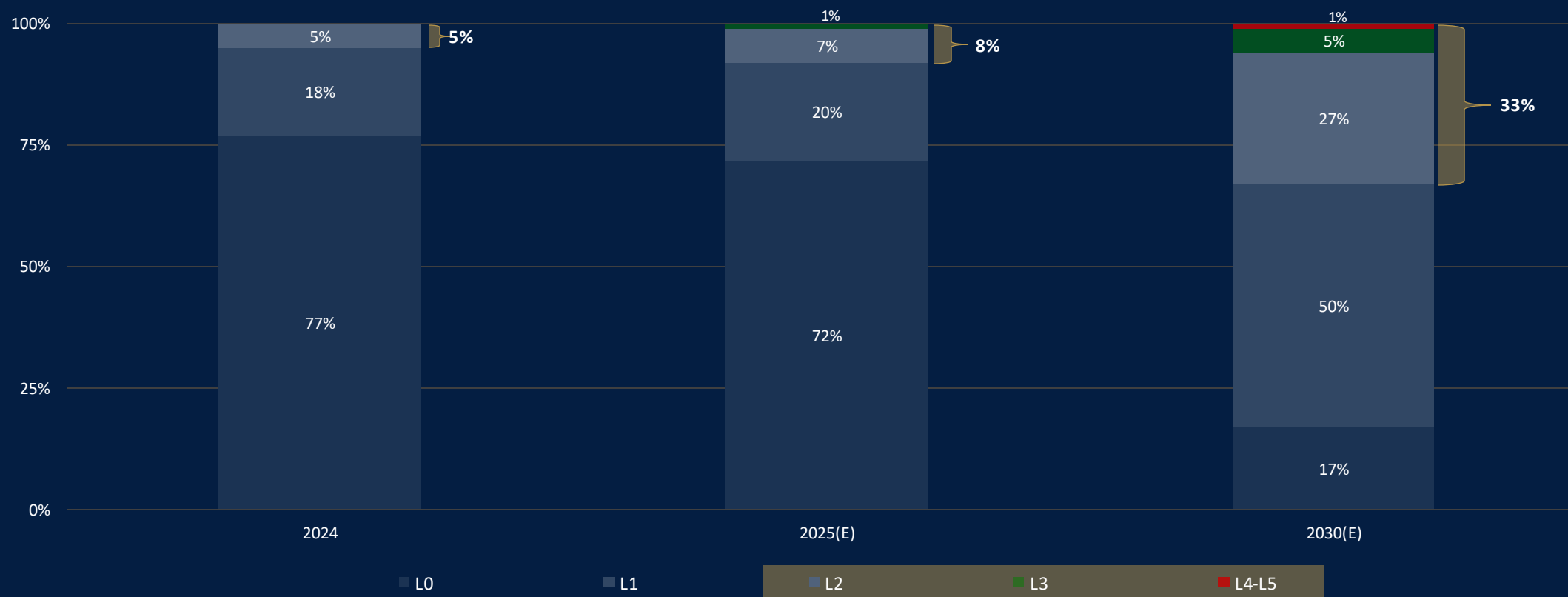


2040

Synergy Control



Commercial Vehicle Market



Source: CAAM / Roland Berger



Scale of VRCI development



Opened 32,000+ kilometers of test roads



Issued 7,700+ test vehicle licenses



Tested 120+ million kilometers mileages



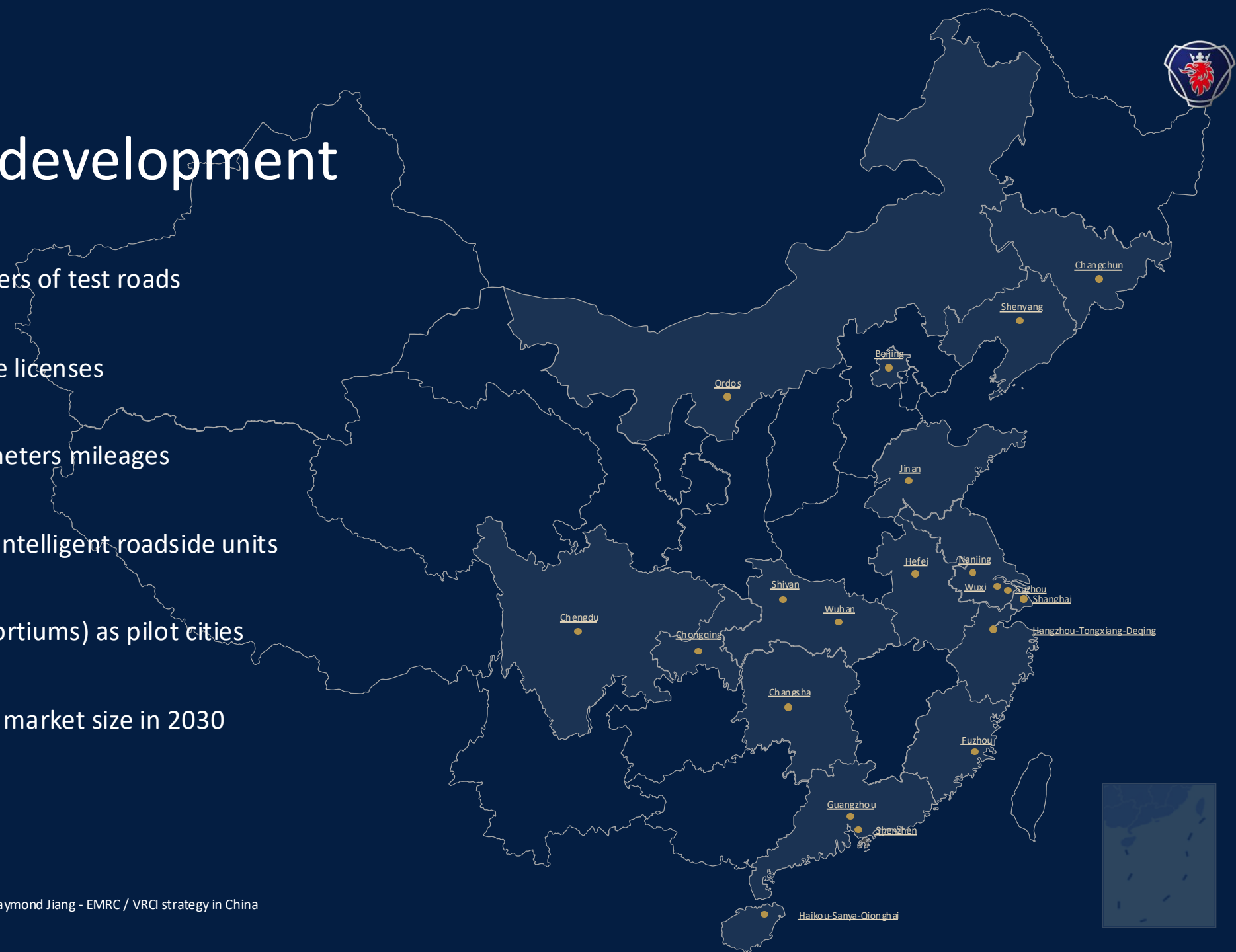
Deployed 8,700+ sets of intelligent roadside units



Identified 20 cities (consortiums) as pilot cities



Expect 14 trillion RMB of market size in 2030





SCANIA

DRIVE:SWEDEN

Thank you!

drivesweden.net

linkedin.com/company/drive-sweden

programoffice@drivesweden.net



Sign up to
receive invitations
and newsletters from
Drive Sweden!



DRIVE SWEDEN