



SINGAPORE 2019

26th ITS World Congress
21-25 October

Smart Mobility, Empowering Cities

www.itsworldcongress2019.com | #ITSWC19



Organised by



Co-hosted by





Data sharing, Co-operation and Connectivity among Stakeholders, recent Developments in Europe

Joëlle van den Broek

TNO, The Netherlands

**Transforming Freight Movements
through ITS – Part III (SIS35)**

TNO INNOVATION PROCESS

DEVELOPING FUNDAMENTAL KNOWLEDGE



Together with
universities

DEVELOPING KNOWLEDGE



In public-private
collaboration with
partners from the
golden triangle

APPLYING KNOWLEDGE



Contract research for
and with customers

TRANSFERRING KNOWLEDGE



Exploiting knowledge
through spin-offs,
licences, etc together
with other companies

2600 employees world-wide working on applied research with public and private partners

TNO innovation
for life

TRAFFIC & TRANSPORT @ TNO

**Safe, efficient, sustainable and comfortable
traffic and transport**

can only be established by

balanced interaction between humans,
vehicles and their environment.



› TRANSITION IN MOBILITY

TOWARDS SMART AND SUSTAINABLE MOBILITY

Transition in Mobility:

- › Digitalization: IoT, “data economy”, TaaS
- › Automation: Connected Automated Driving
- › Electrification: Energy transition, Zero Emission, H2

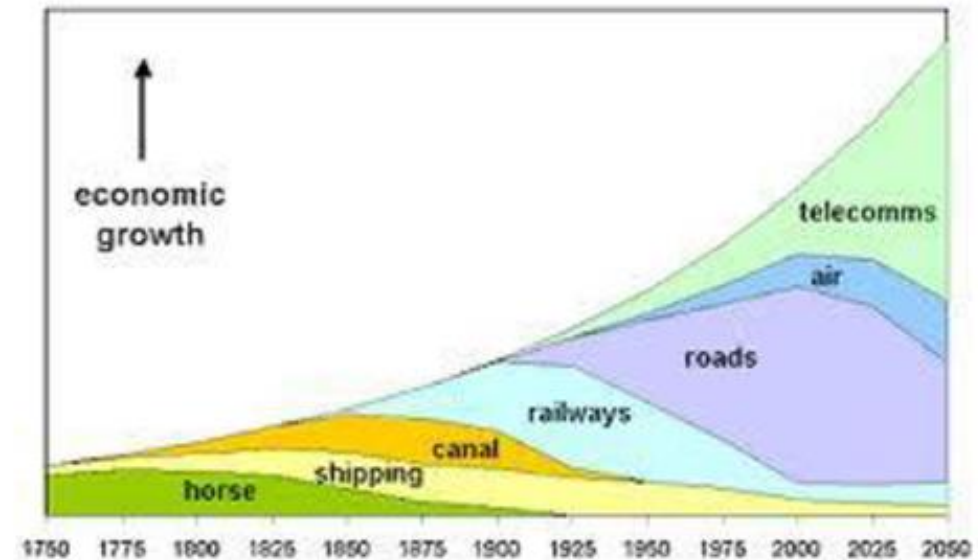
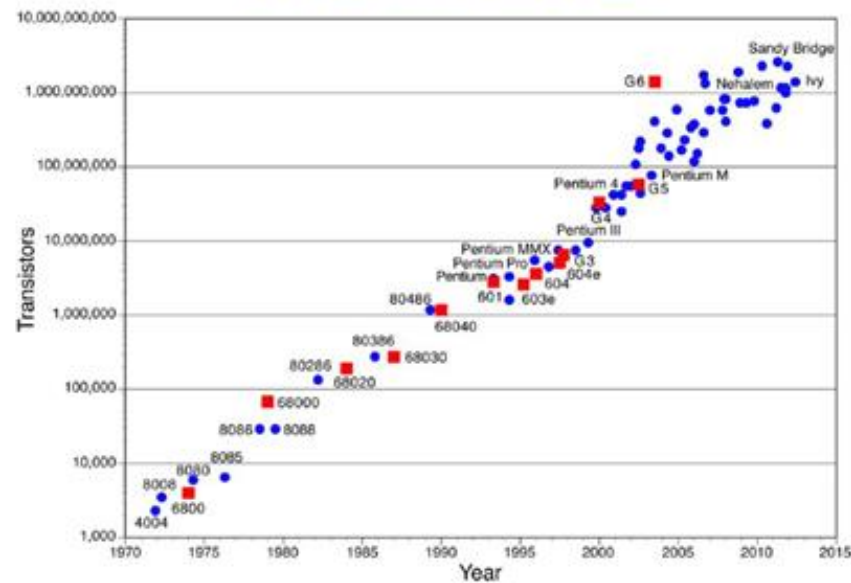
**THE WORLD
OF MOBILITY
IS CHANGING**



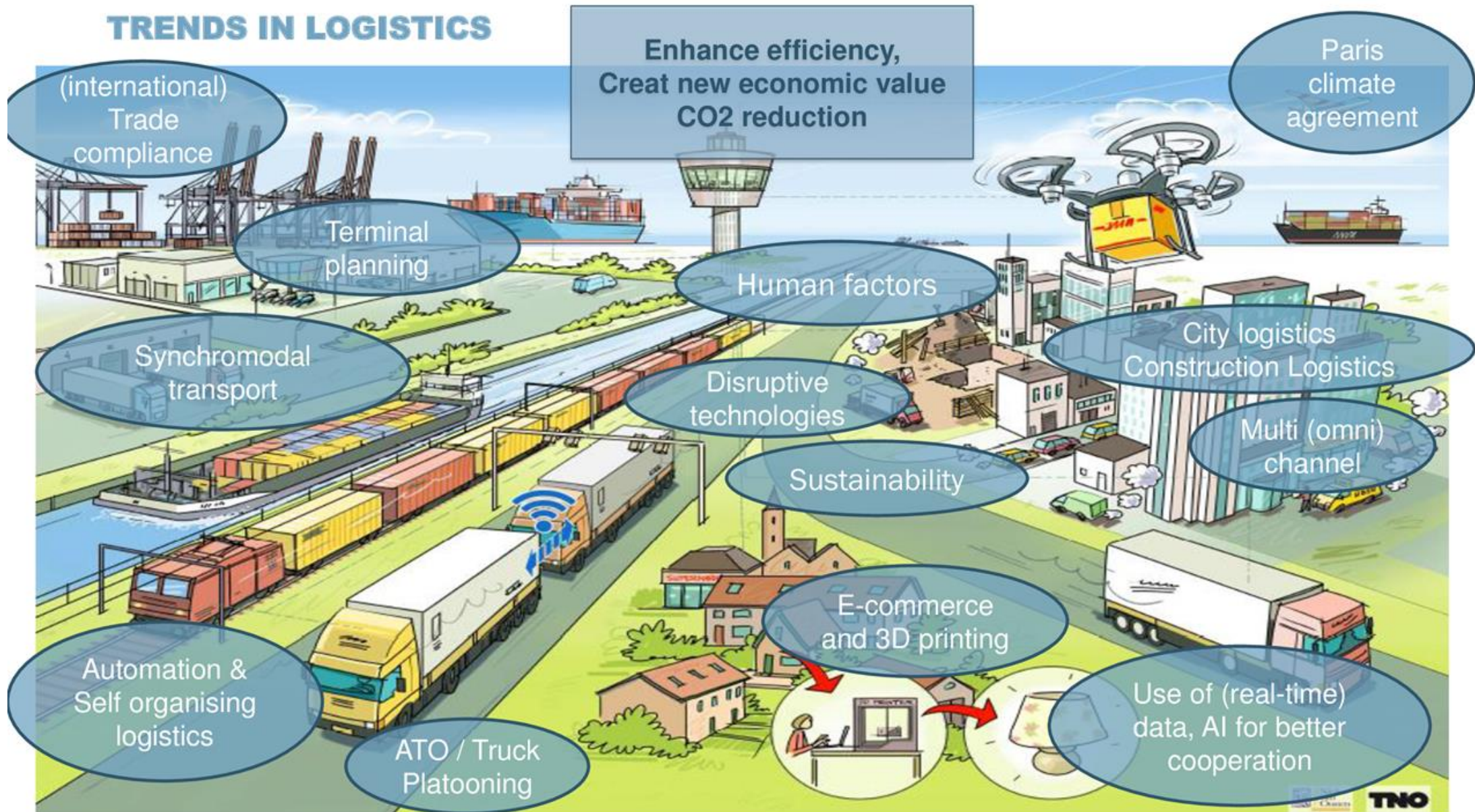
› DIGITALISATION: VERY FAST ACCELERATION IN INNOVATION

Each two year the extent of the digital innovation is as big as the total of the innovations in all the years before

50 year Moore's Law



TRENDS IN LOGISTICS



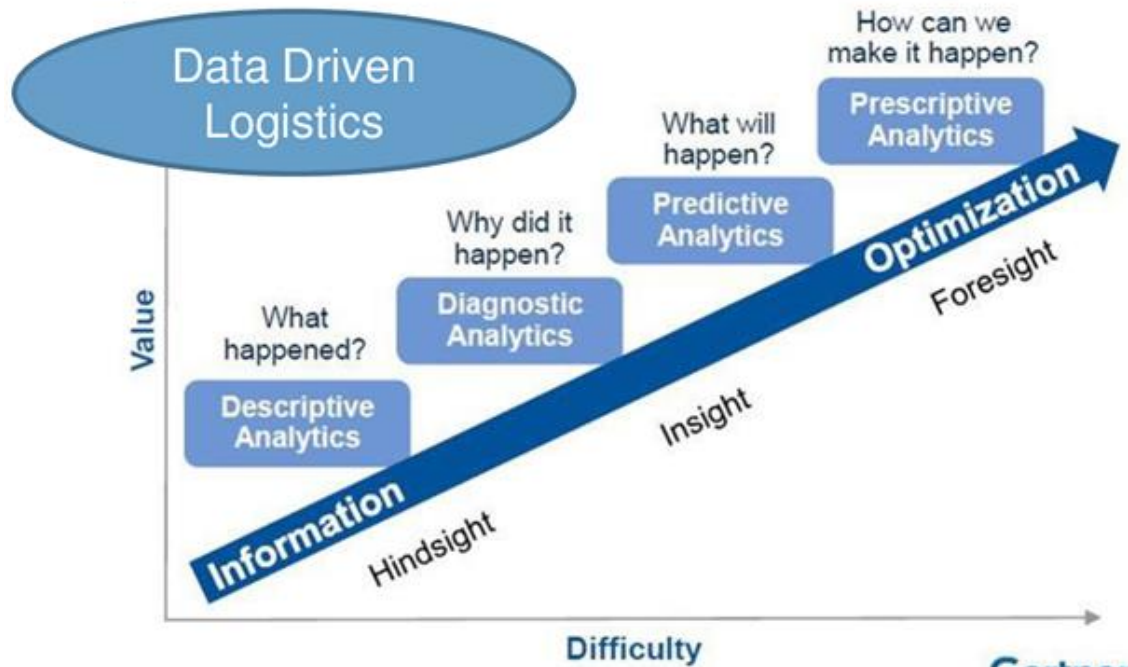
› TRAFFIC & TRANSPORT

Mission

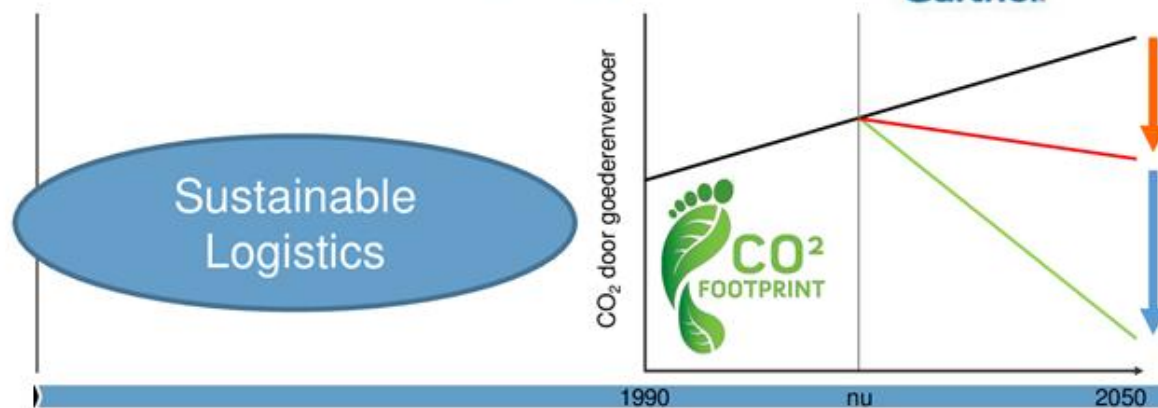
Working towards:

- Seamlessly **connected, autonomous, adaptive** logistics system
- for Roads, Waterways, Rail and Air
- that enhances the **efficiency** of logistics
- Creating new economic **value**,
- while significantly reducing its **carbon footprint**

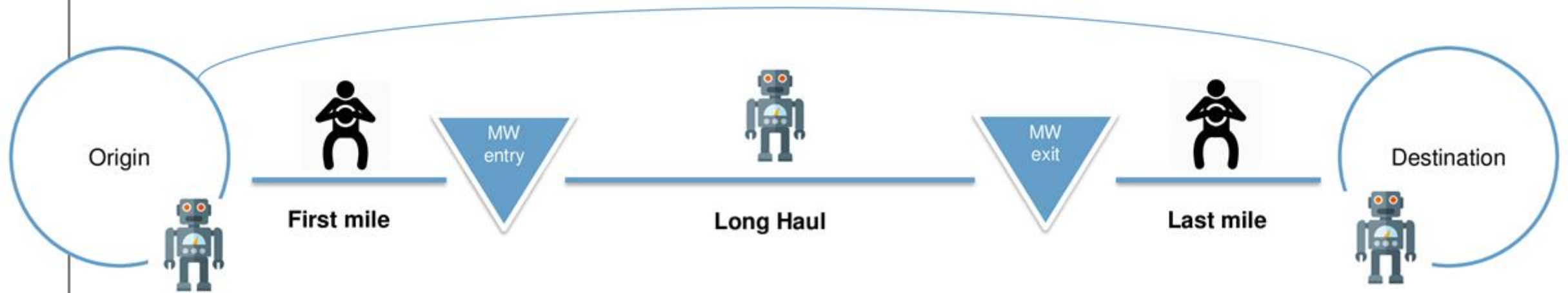
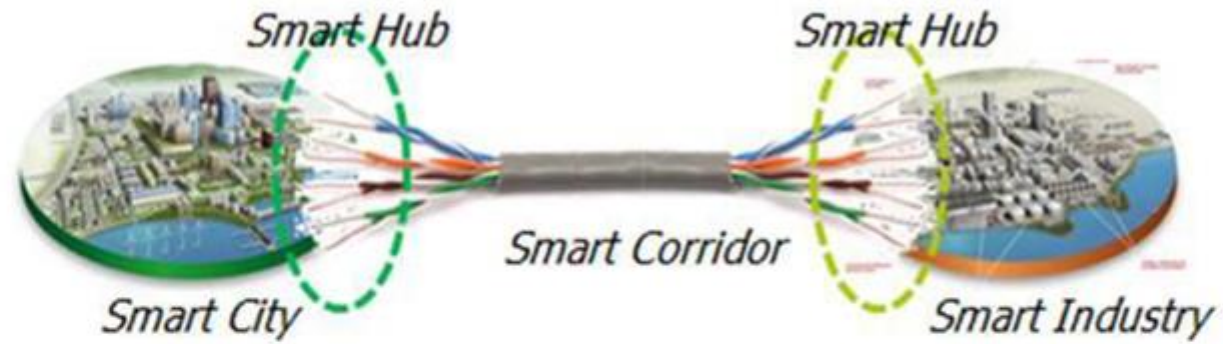
TOWARDS A SEAMLESS ADAPTIVE LOGISTICS SYSTEM



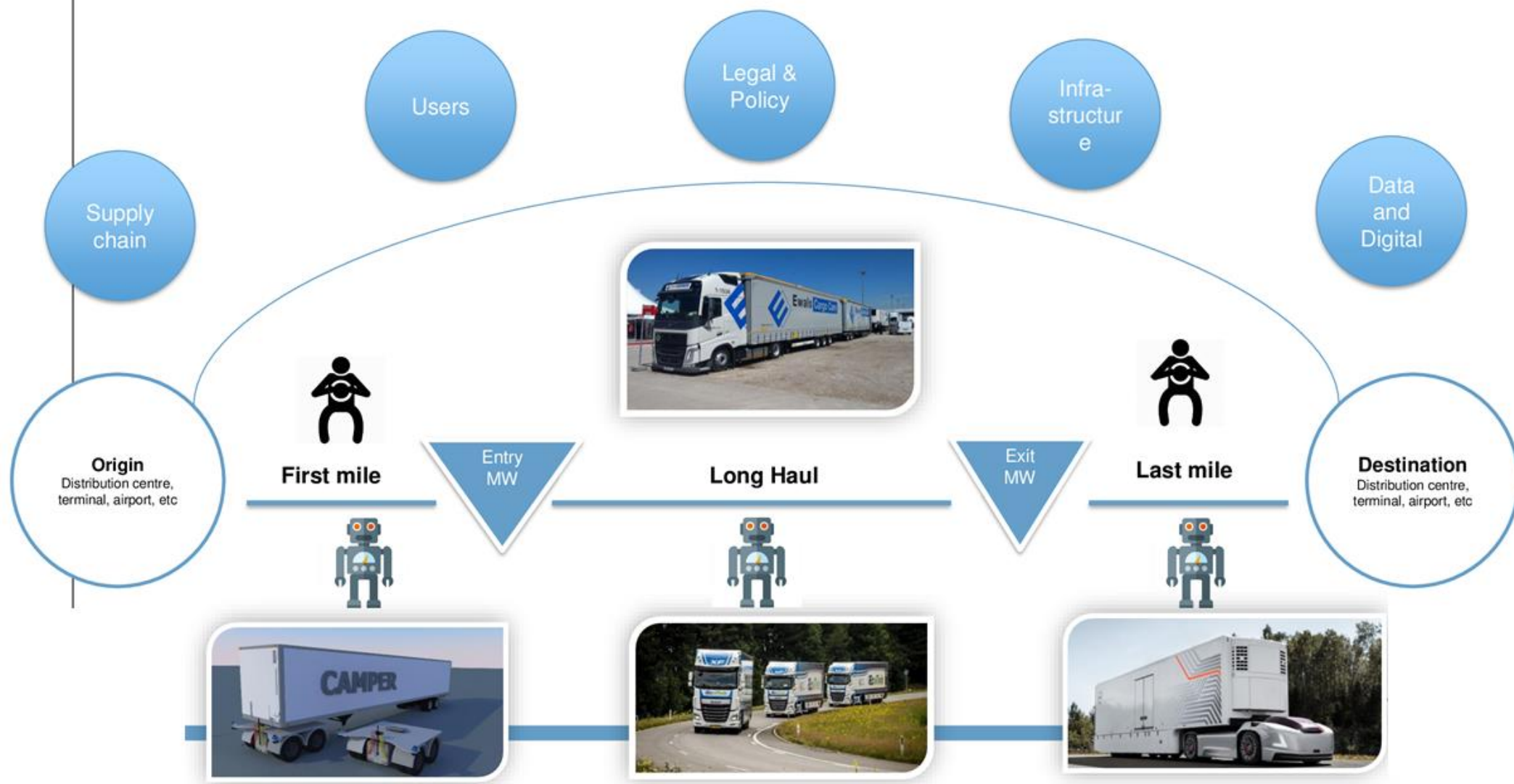
Automated and Self-organising Logistics



VISION ON FUTURE CONNECTED AUTOMATED TRANSPORT



END-TO-END CONNECTED AUTOMATED TRANSPORT

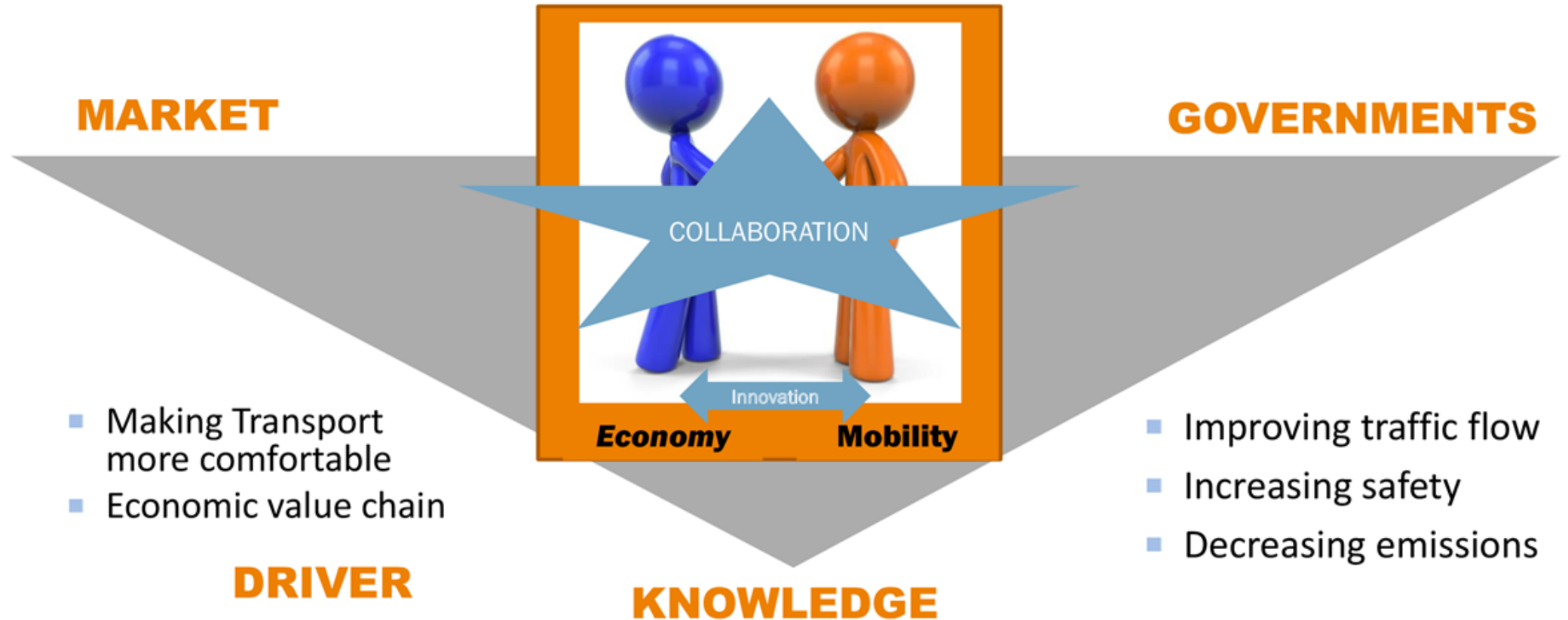


› SO WHAT IF...

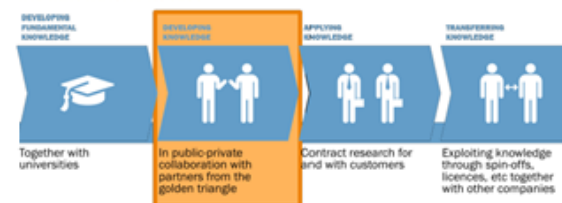
- › *Everything is connected?*
- › *How will goods then flow?*
- › *Will we still be needing large scale DC's?*
- › *Or can future smart solutions in logistics decrease this?*

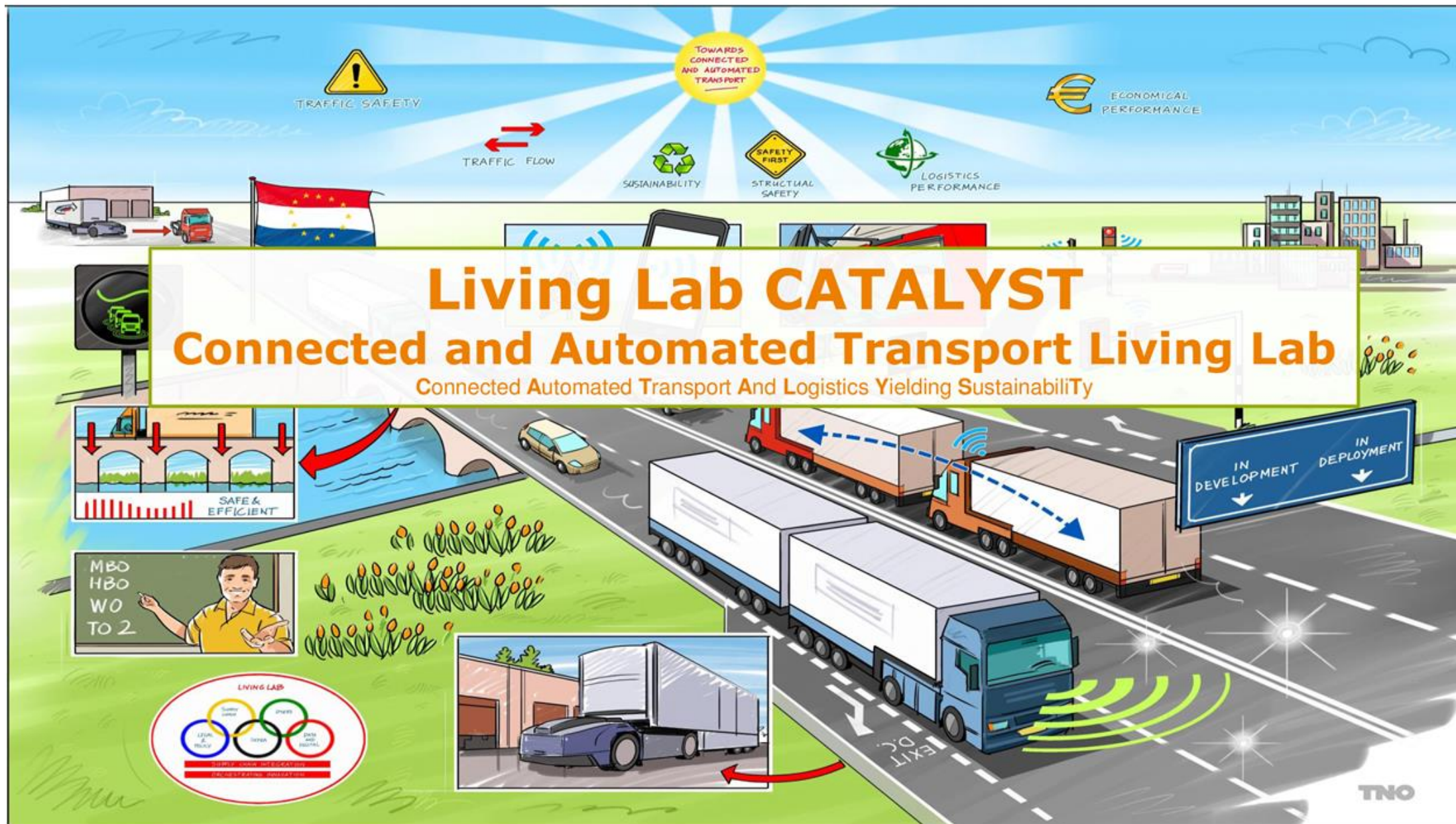
- › *We are in a transition → it is a huge system change*
- › *Learning by doing → adaptive approach*

SEAMLESS ADAPTIVE LOGISTICS SYSTEM- A JOINT CHALLENGE



TNO INNOVATION PROCESS







Ministerie van Infrastructuur
en Waterstaat



TKI DIALOG
Dutch Institute for Advanced Logistics



Netherlands Organisation for Scientific Research



Nationaal Regieorgaan
Praktijkgericht Onderzoek

**CATALYST
partnership**

TNO innovation
for life



Hz UNIVERSITY
OF APPLIED SCIENCES

TU/e
Technische Universiteit
Eindhoven
University of Technology

Hogeschool  van Arnhem en Nijmegen

UNIVERSITEIT
TWENTE.

 **Sectorinstituut**
Transport en Logistiek

 Provincie
Zeeland



**Port of
Rotterdam**



Gemeente Rotterdam



LIOF



JAN DE RIJK
LOGISTICS



Ewals Cargo Care



CORNELISSEN
Groep



here

 **westerman**
multimodal logistics



Vos | Logistics



**CATALYST
supporters**

 **talking
logistics**



evofenedex

IN THE END



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The background features three stylized trees. Their trunks are solid light pink, while their canopies are composed of a dense network of thin, white, branching lines that resemble a circuit board or a neural network. The trees are positioned on the left, center, and right sides of the frame. The overall background is a gradient from a deep red at the top to a lighter orange at the bottom.

Smart Mobility, Empowering Cities