

# SmartRail Ecosystem

With Co-Innovations towards global markets.

# SmartRail Ecosystem

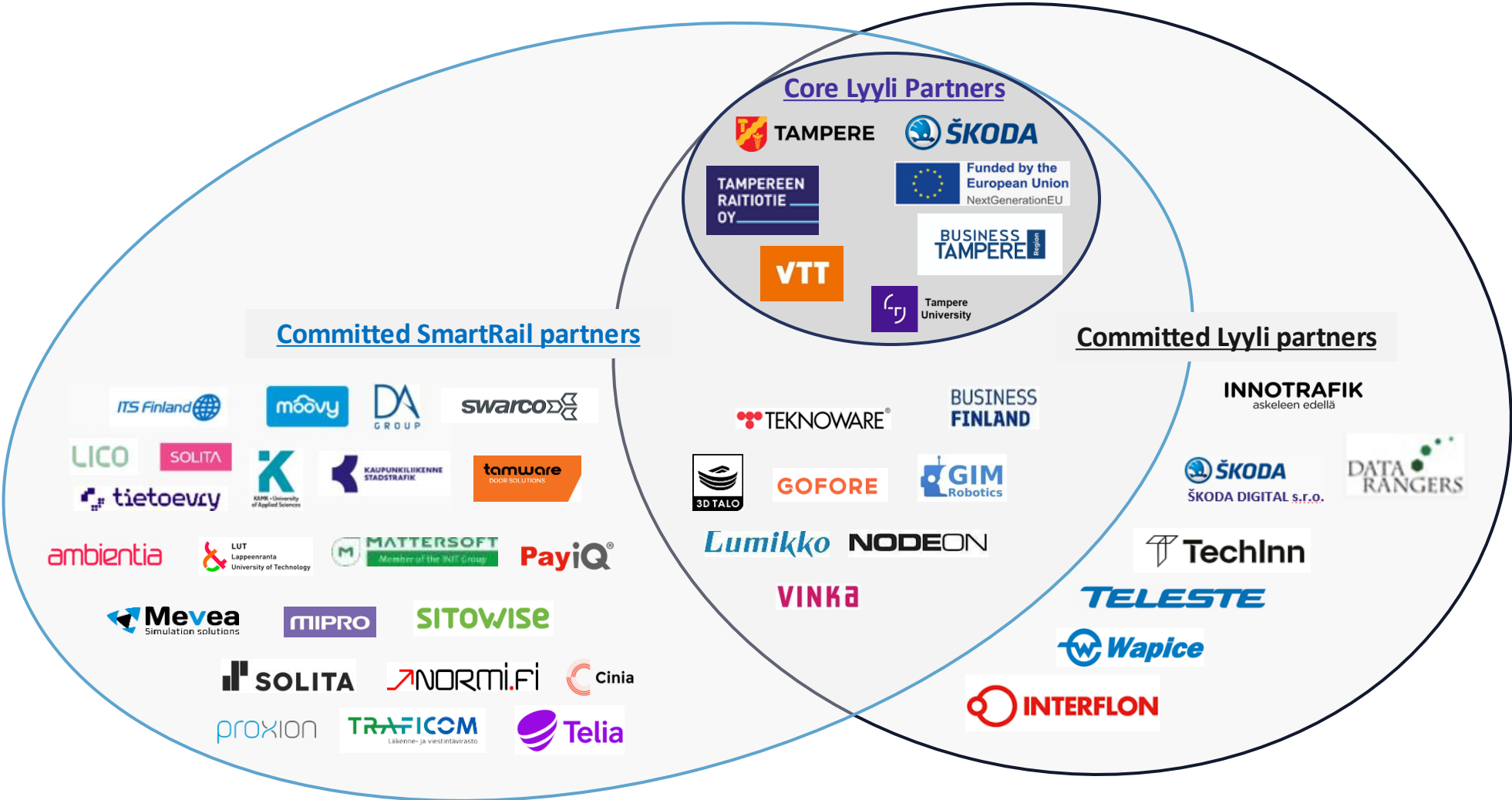
- SmartRail intends to become the market's most attractive provider of services integrated into tram systems
- We are targeting at sustainable mobility, seamless travel chains and user-centric services
- The technological focus is to deliver the best tram in the world in terms of passenger and life-cycle services
- SmartRail provides solutions that improve tram safety and flexibility as we move towards autonomous traffic
- Increasing ecosystem promotes competitiveness and creates new business by means of systematic co-creation
- R&D&I is accelerated through agile experiments in the Lyyli Living Lab environment
- <https://smartrailecosystem.com/>
- <https://www.tampereenratikka.fi/en/a-unique-urban-mobility-environment-for-tampere/>

SMARTRAIL Ecosystem



Picture: Tampere Tramway Ltd.

# SmartRail Ecosystem & Lyyli Living Lab members



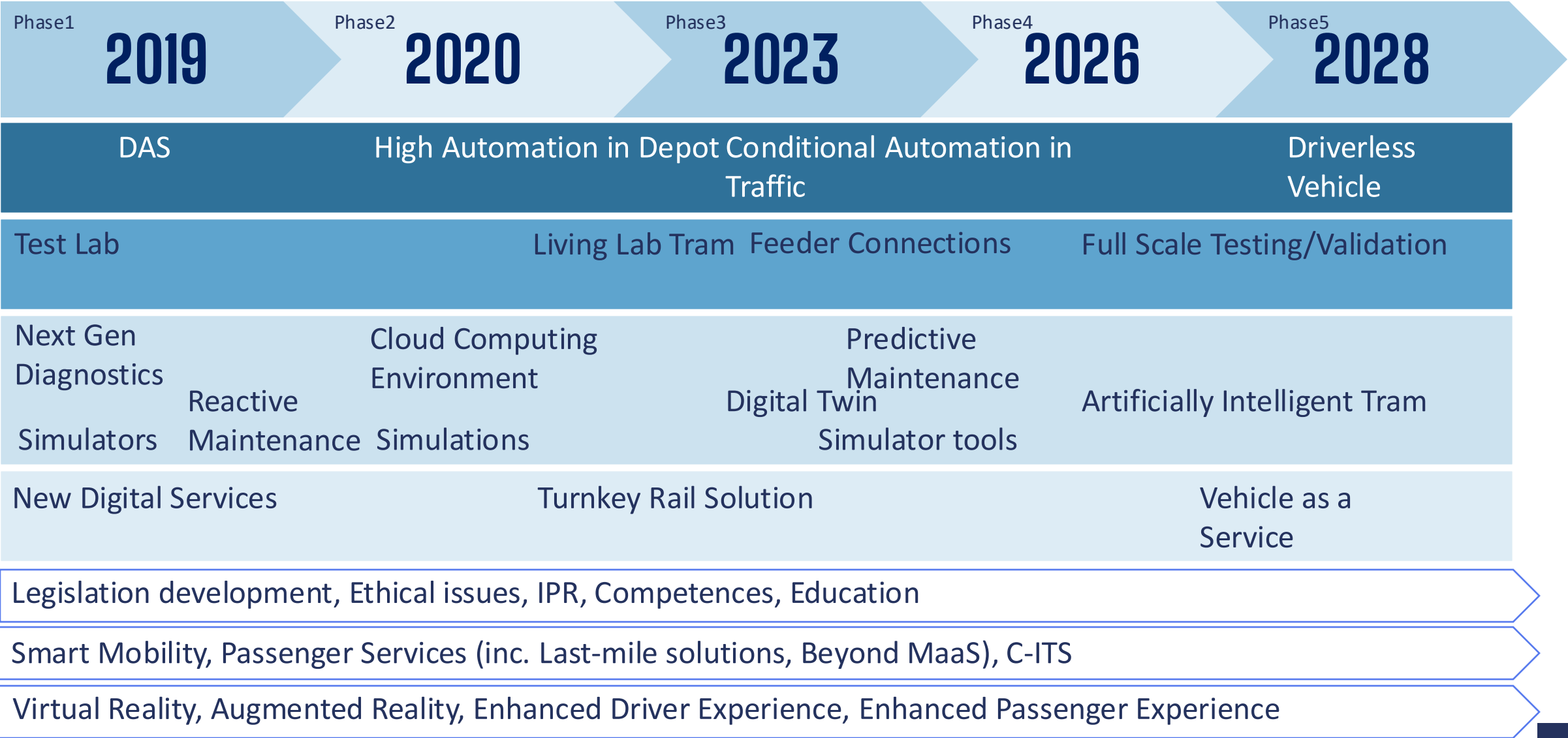
# What is joint offering of an ecosystem?

The Ecosystem joint offering to be pursued refers to

- 1) A product/solution jointly developed by the parties;
- 2) a joint solution that combines/integrates/utilizes products offered separately by the parties; and/or
- 3) a joint market entry plan for the offer in the previous sections.

An agreement has been reached on the division of responsibilities and costs, risks and benefits of customer relationships

# SmartRail Ecosystem Technology roadmap





# SmartRail Ecosystem evolves in phases supported by Business Finland

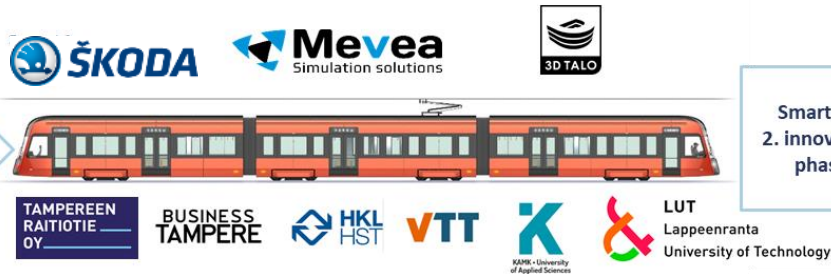
## SmartRail 1. innovation phase 2019-2021

Ecosystem vision and operating model  
Ecosystem-based business  
Autonomous systems  
Simulations  
Information systems

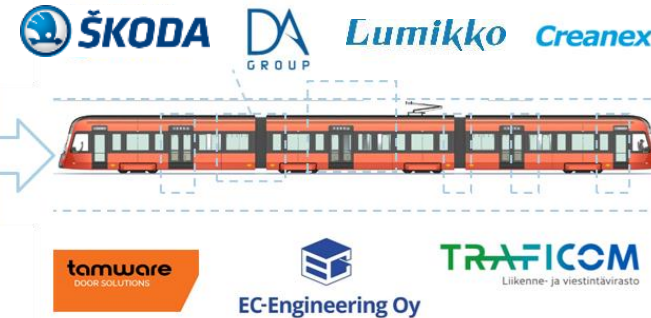
## SmartRail 2. innovation phase 2020-2023

Predictive situation awareness  
Smart sub-systems and structures  
User-focused solutions  
Impact assessments and indicators

SmartRail  
Preparation  
phase

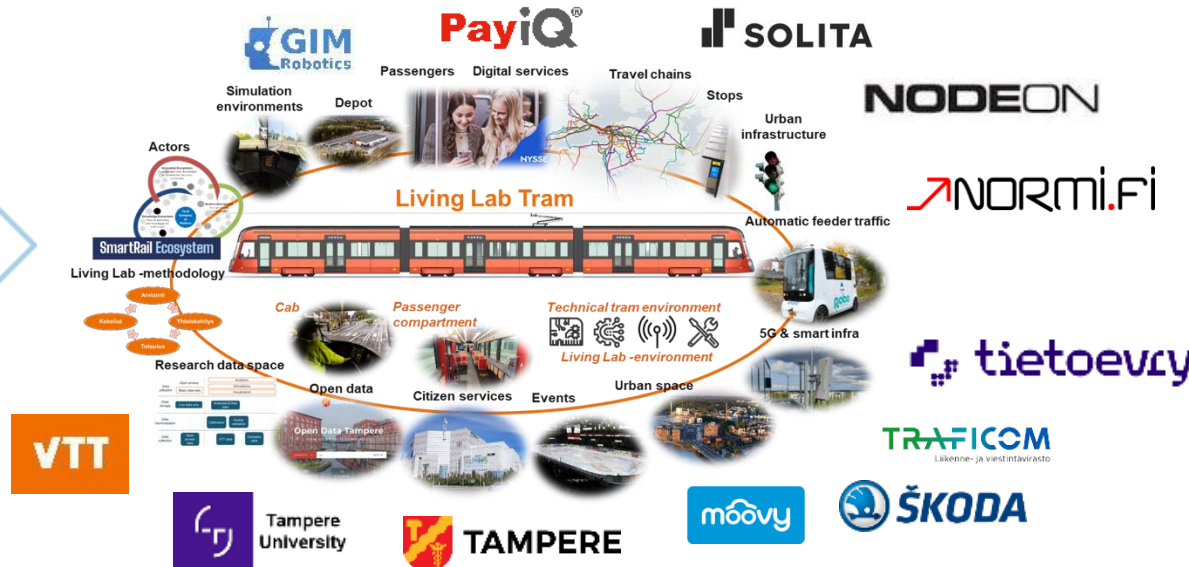


SmartRail  
2. innovation  
phase



Includes background systems such as depot, data, service platforms, calculus, rail infrastructure etc.

SmartRail  
3. innovation  
phase

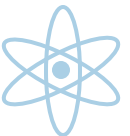


## SmartRail 3. innovation phase 2024-2026

Autonomous systems  
Smart mobility & value-added services  
Traffic management and safety  
Ecosystem-based business

# Why Ecosystem? Benefits of the model

- **Cross-sectoral co-creation:**
  - Customer engagement – benefits also the customers themselves
  - Fast & effective way of work
  - Living Lab activities boosting co-innovation & co-development
  - Wider perspectives and varying innovations
  - Future insights (research)
- **Risk and cost sharing through collaboration & partnerships:**
  - Deepens the understanding of other actors' business
  - Joint offerings
  - Complementing and strengthening one's own skills and competence
- **Resource efficiency & co-specialization:**
  - Access to resources that are out of reach for individual organisations
  - Harnessing underutilized resources for the use by ecosystem actors
- **New revenue and know-how**
- **New customer relations and markets**



# SmartRail Ecosystem boosting experiment-based development

## Companies:

- Partnerships with other companies and cities
- Validated solutions & market references (use-cases)
- Research & Development & Innovation, business growth & exports

## City actors

- Tampere Tramway Ltd., Kaupunkiliikenne Ltd.:
  - Solutions to develop tram functions & operation, travel/passenger experience, and maintenance
  - Tram driver training: training simulator
  - Safe pathway to tram automatization
- City of Tampere:
  - Sustainable, energy-efficient and safely automated urban mobility
  - Fluent & attractive user-focused mobility services to create sustainable modal shift
  - Execution of strategic goals (SUMP, Data-Driven City for Citizens program...)

## Other public organisations

- Traficom: Needs to develop regulation, safe pathway to automated urban mobility & knowledge and capabilities related to requirements of automation and urban rail transport

## Research organisations (VTT, TUNI, KAMK, LUT ...):

- Applied research to solve concrete challenges (e.g. use-cases planned together with cities and companies)
- Competence development, research alignment, utilization of EU funding

EXAMPLES OF BENEFITS  
TO ECOSYSTEM ACTORS



# Key elements for successful ecosystem evolvement

Visions beyond the horizon

- **ambitious goals**

Tight cooperation with the customers and listening their intensions

- **create products your customers want and need**

Commitment of companies' strategy and top management for the common targets

- **resources for collaboration & product development**

Strong support from states level, not only mental but also participation to RDI funding

- **bridging the gap from research to viable business**

Vision and goals divided to short term targets based on the maturity level of the technology

- **low-hanging fruits to enable funding with new products towards final target**

Open atmosphere and well-formed shared benefit models

- **collaboration to create new business through joint offerings**

Research activities to support companies' goals

- **newest knowledge & know-how to create innovations & new business**

Testing areas as near as possible same as real world

- **physical & digital living labs & testbeds enabling rapid testing, productization & commercialization**



# Thank you!

[www.smartrailecosystem.com](http://www.smartrailecosystem.com)

Toni Lusikka

[Toni.lusikka@vtt.fi](mailto:Toni.lusikka@vtt.fi)

+358 40 636 1098

VTT