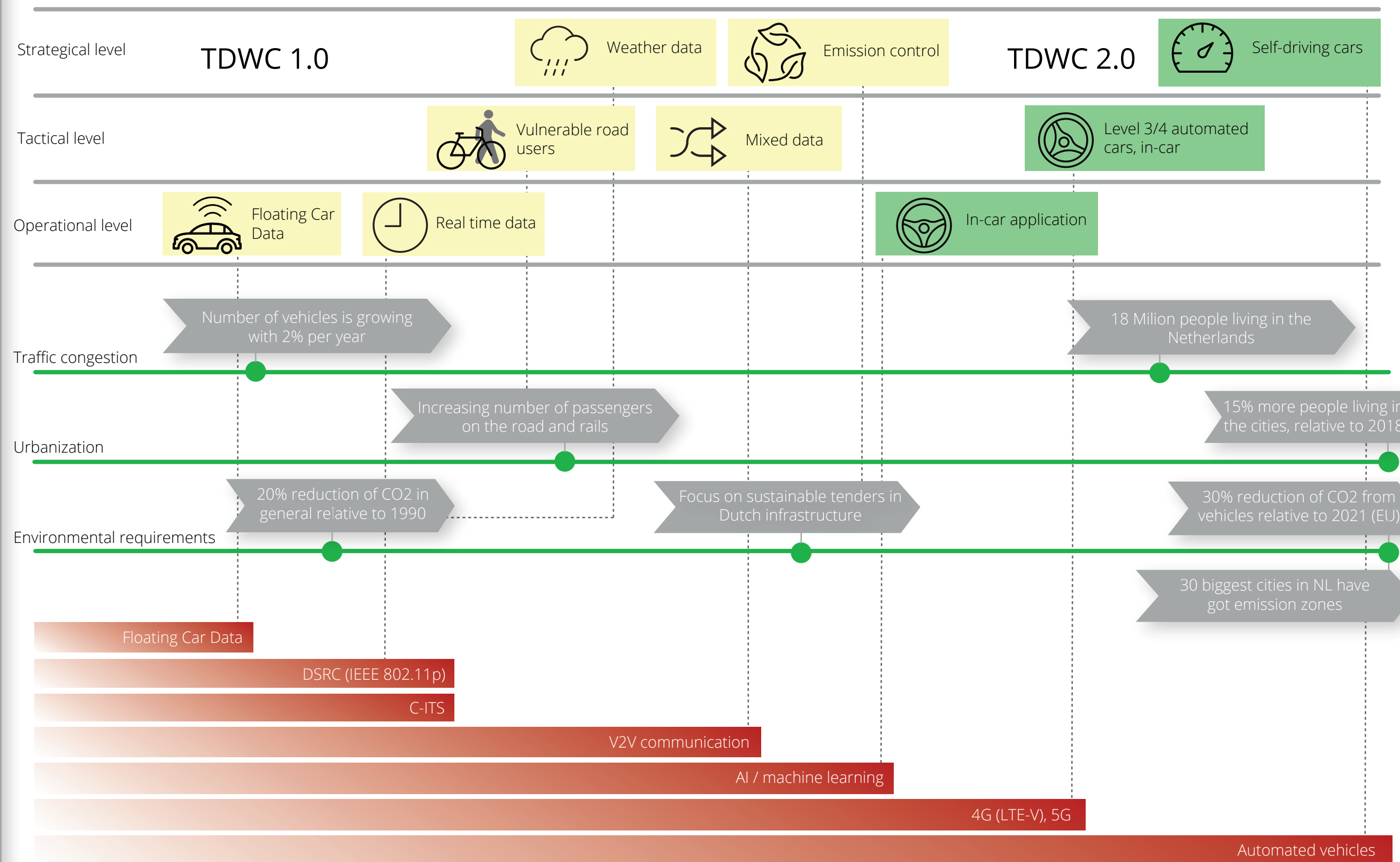# 2018

Product

Market

Technology

Horizon 1
Well deployed stationary sensor network all over the Netherlands. Different types of governmental organisations uses the sensor data. ARS T&TT has good relationships with these organisations and the National Data Warehouse (NDW) centre. Operational control centres take care of traffic management from a distance.

Horizon 2
A transition phase of introducing new hardware and software platforms, targeting increased Business Intelligence (BI). New sensor types (e.g., FCD, Airborne sensors, etc.) and new data processing techniques (e.g., artificial Intelligence and machine learning) are introduced in the product.

Horizon 3
On the road autonomous vehicles and smart cars are common. This type of vehicles have many in-car sensors that gather data to drive the car safely. This data can be collected by external data warehouses to improve the management of the traffic in cities. For governmental organisations safety is still an very important value.

2030

FUTURE VISION

SMART CITY

The smart city is a city which uses technology to improve the quality of life of the citizen. People move via autonomous vehicles through the city. The vehicles are connected with each other, traffic lights and the road, so the traffic managers can control the traffic more efficiently. Most of the data is coming from in-car sensors, but stationary systems are not totally removed.

Strategical level — TDWC 1.0 — Weather data — Emission control — TDWC 2.0 — Self-driving cars

Tactical level — Vulnerable road users — Mixed data — Level 3/4 automated cars, in-car

Operational level — Floating Car Data — Real time data — In-car application

Traffic congestion
- Number of vehicles is growing with 2% per year
- 18 Milion people living in the Netherlands

Urbanization
- Increasing number of passengers on the road and rails
- 15% more people living in the cities, relative to 2018

Environmental requirements
- 20% reduction of CO_2 in general relative to 1990
- Focus on sustainable tenders in Dutch infrastructure
- 30% reduction of CO_2 from vehicles relative to 2021 (EU)
- 30 biggest cities in NL have got emission zones

- Floating Car Data
- DSRC (IEEE 802.11p)
- C-ITS
- V2V communication
- AI / machine learning
- 4G (LTE-V), 5G
- Automated vehicles