



Ministry of Infrastructure and the
Environment



Rijkswaterstaat
Ministerie van Infrastructuur en Milieu



**Gemeente
Amsterdam**



Provincie
Noord-Holland



Amsterdam Practical Trial (APT) on innovative networkmanagement

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Road Network and Traffic Management in the Netherlands (1)

- One of the most intensively used road networks in the world
- Mobility is crucial for economic growth and quality of life
- Building new infrastructure, active traffic management (since 1980's) and roadpricing (?) as main pillars
- 7 February 2013: new policy on traffic information and traffic management

<http://www.rijksoverheid.nl/documenten-en-publicaties/kamerstukken/2013/02/07/beter-geinformeerd-op-weg-koersbepaling-reisinformatie-en-verkeersmanagement.html>



Road Network and Traffic Management in the Netherlands (2)

Letter to Parliament , 7 February 2013 “Better informed on the road”. Main goals:

1. Contribute to the Dutch goals of more efficient, safer and more sustainable traffic and transportation
2. Better service for the road user with reliable, multimodal travel information
3. More efficient and (cost)effective public traffic management
4. Challenge the private market companies to strengthen there national and international market position

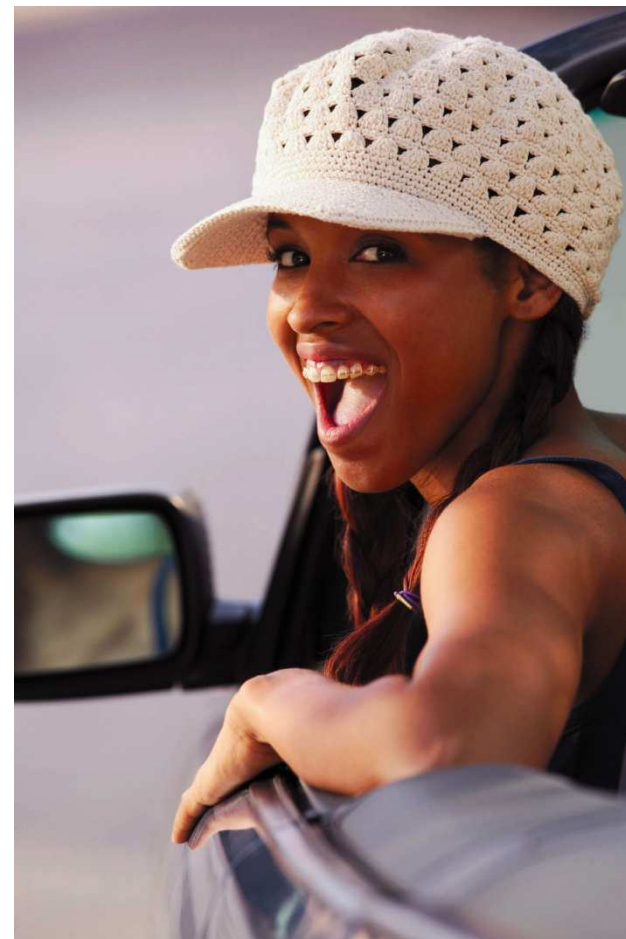
Policy Framework for Amsterdam Practical Trial



History Practical Trial

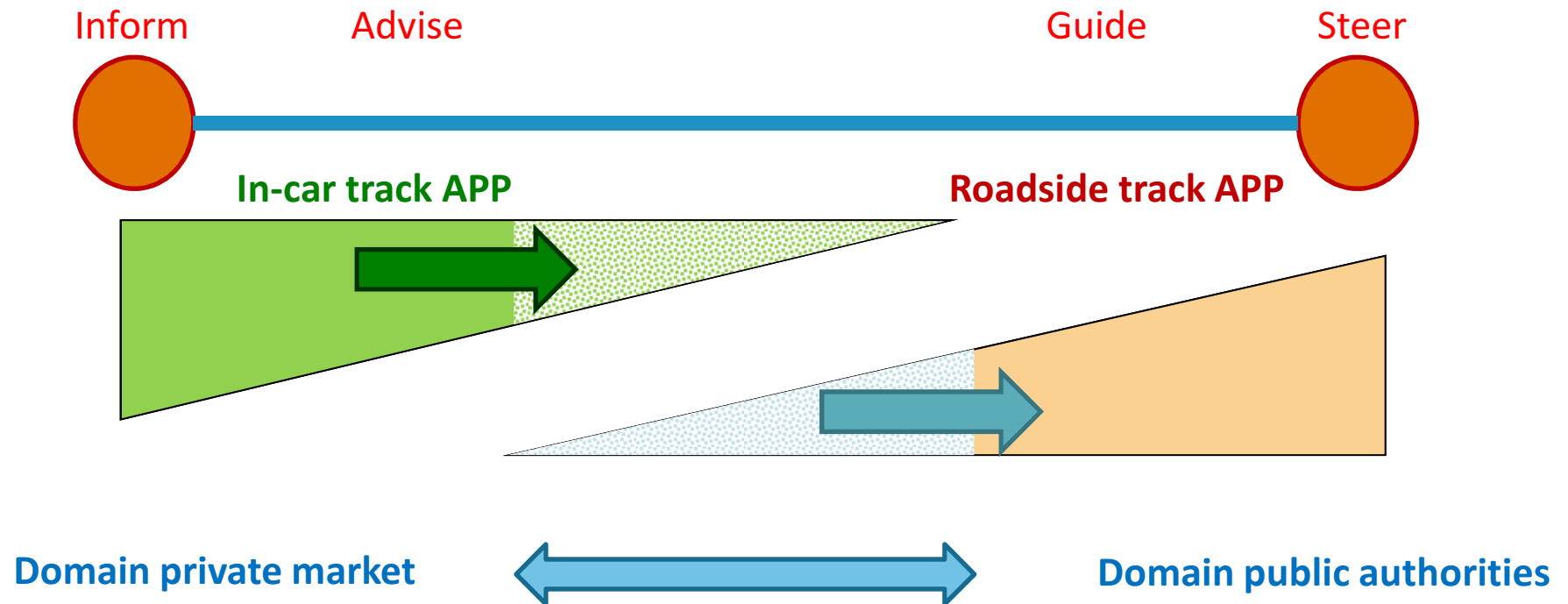
- Rijkswaterstaat Traffic Management Strategy 2020 (2007): user oriented network management
- Innovative part concentrated in the Amsterdam region: large scale testing of innovative techniques on the road and in car (cost-effectiveness)
- Public-private cooperation
- Current planning:
 - 2012: start realization Phase 1
 - 31-7-2014: go-no go Phase 2

Happy road users!



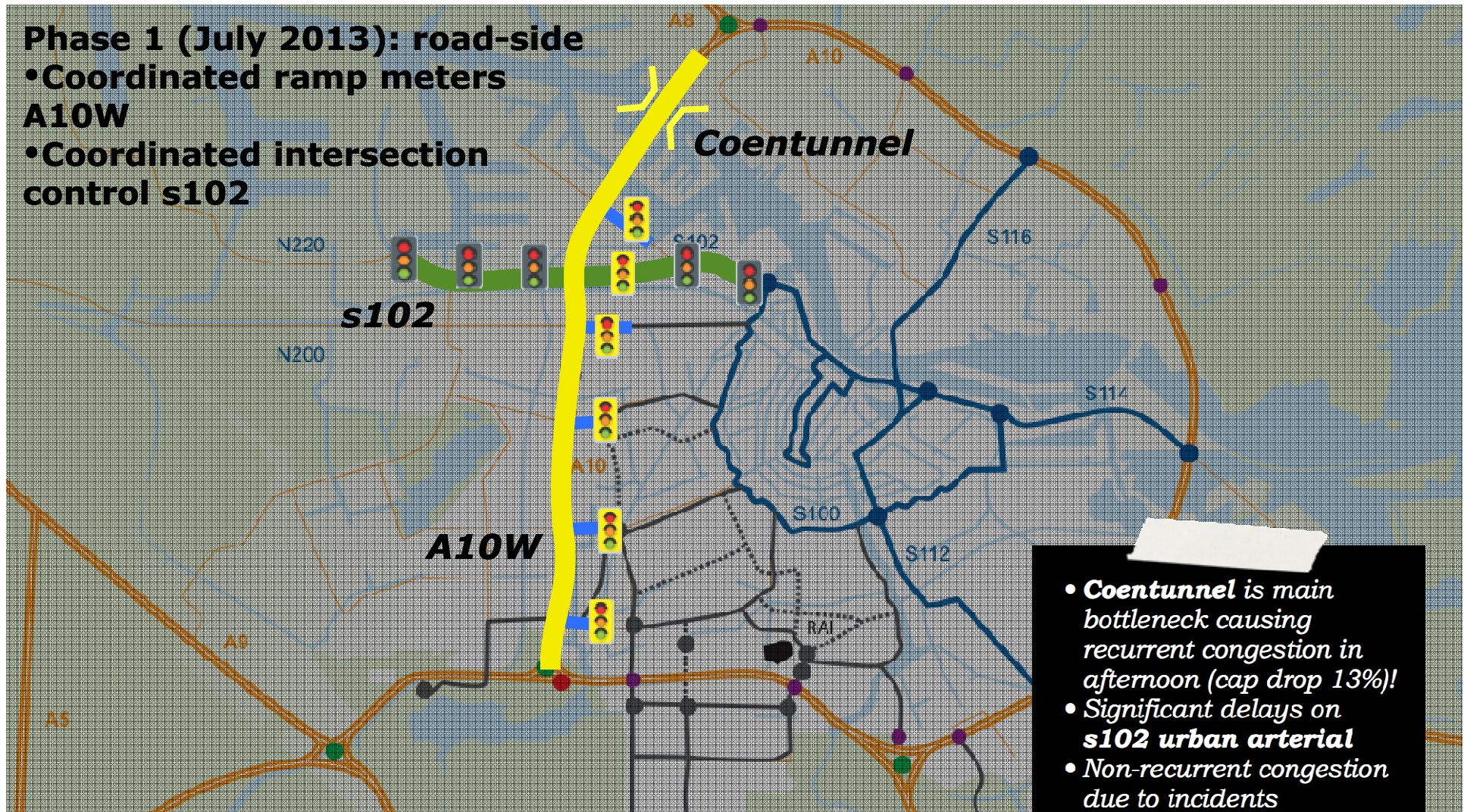


Coherence and interaction in-car and roadside



Phase 1 (July 2013): road-side

- Coordinated ramp meters
- Coordinated intersection control s102



- **Coentunnel** is main bottleneck causing recurrent congestion in afternoon (cap drop 13%)!
- Significant delays on **s102 urban arterial**
- Non-recurrent congestion due to incidents

- Phase 1 focus on A10W and s102
- Phase 2 considers ringroad + connecting urban arterials
- Phase 3 considers entire regional network
- Stepwise development and application of flexible, generic approach

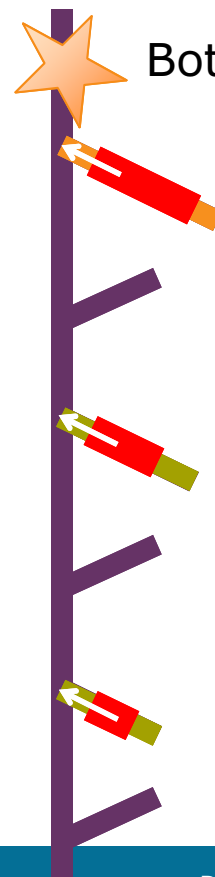


Example of Proactive Coordinated ramp-metering:

- Use storage space on upstream ramps to meter longer
- To fully use storage space, all buffer space (on-ramps) needs to be depleted at the same time

Master ramp starts with metering (postpones congestion or removes it), but bufferspace is limited

Metering rate of Slaves is chosen such that the metering period of the Slaves = metering period of Master (all buffers filled up at same time)



Bottleneck

Based on bottleneck location controller chooses Master ramp

Controller chooses Slaves that will support metering

Slaves create space on the freeway allowing the Master to meter longer



Using bufferspace elsewhere in the network (automated, proactive and predictive)

- Use storage space on upstream ramps to meter longer
- Use storage space on urban arterial

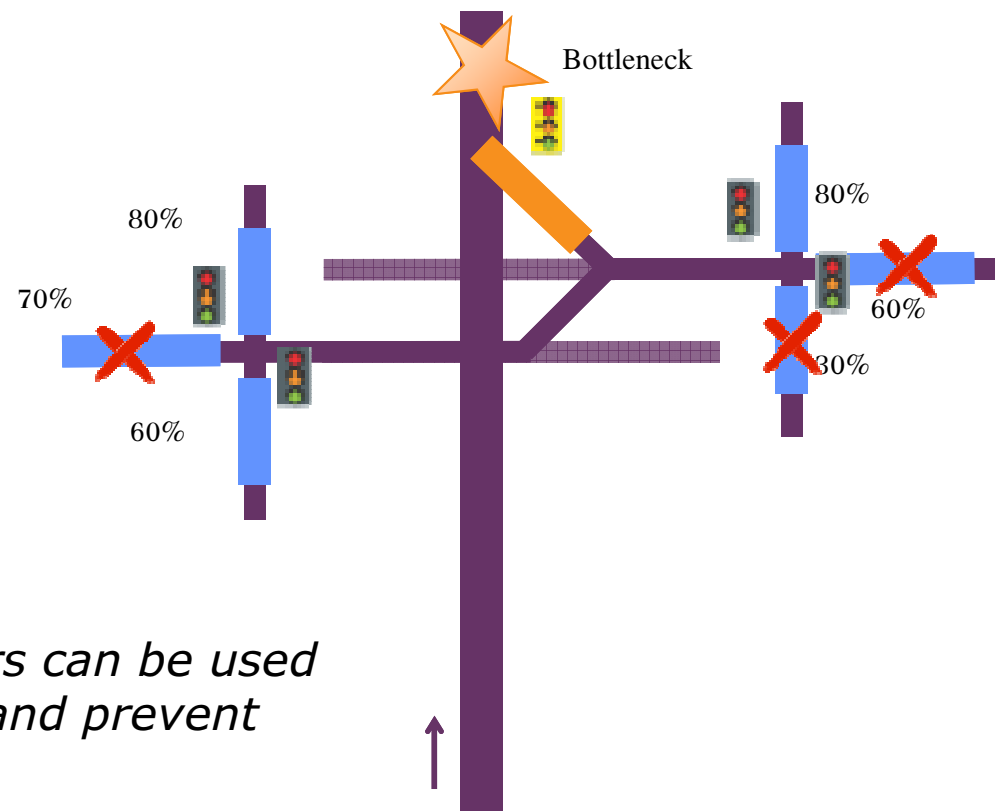
Storage space on urban arterials is used based on:

- relation with bottleneck (indicated by %)
- policy objectives (function of road, public transit, etc.)

Buffers also depend on:

- Prevailing **network** traffic conditions

Example shows how which buffers can be used to reduce inflow into bottleneck and prevent on-set of congestion





In car field tests – outline

- Competition: 20 private consortia
- Largescale field test on re-routing and traffic information
- Aimed at behaviour changes: human factors
- Private companies responsible for:
 - Development Innovative Information Services
 - Deployment to road users
 - Evaluation
- Boost cooperation between road authorities and private sector
 - Data exchange and data fusion



In car field tests – set up

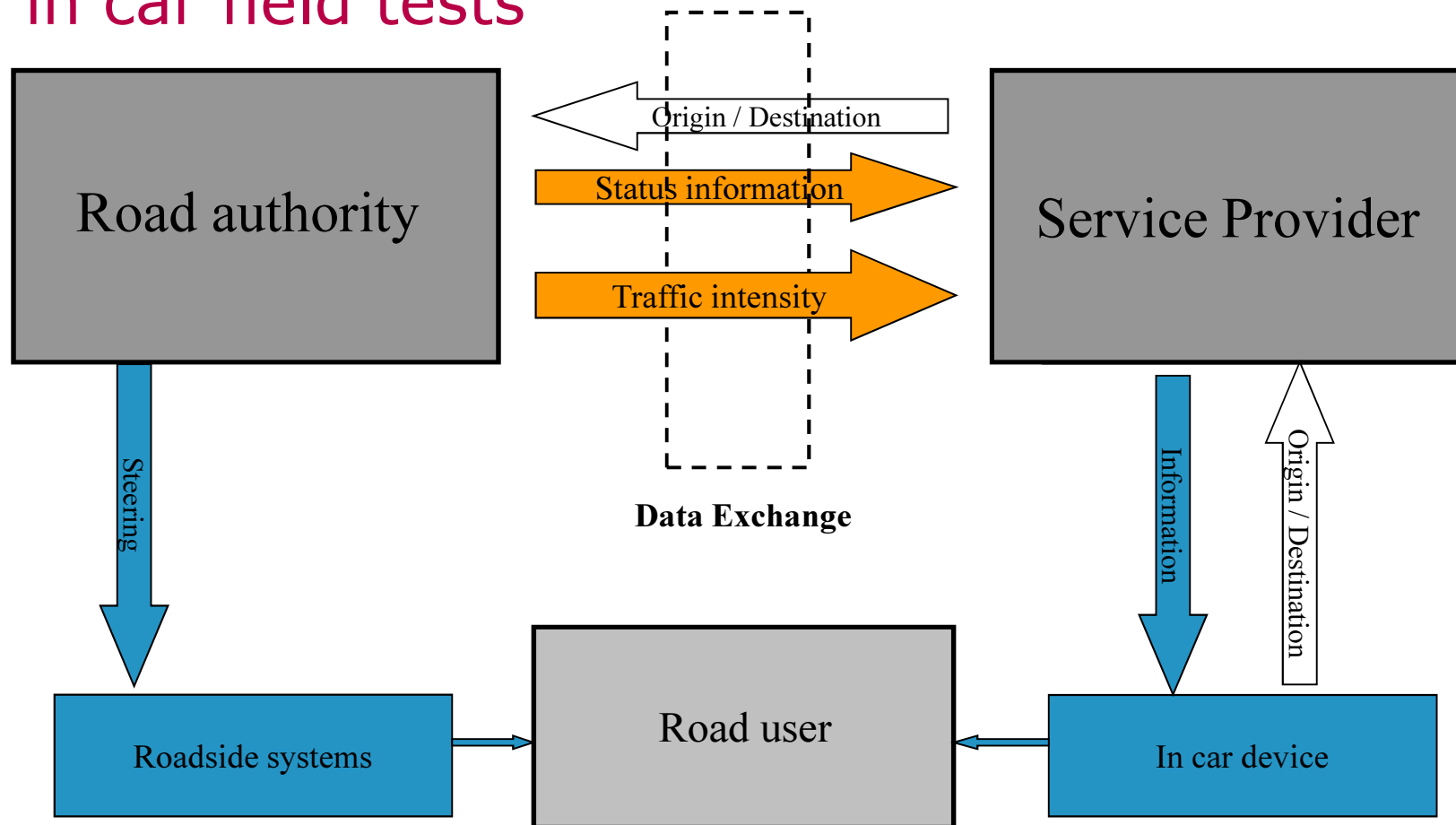
Commuter traffic
9 months test with
20.000+ drivers
(2 consortia)



Large scale events
20 tests with
1000-2000 drivers
(2 consortia)



Information flow (data exchange and data fusion) – in car field tests





Actual status and planning

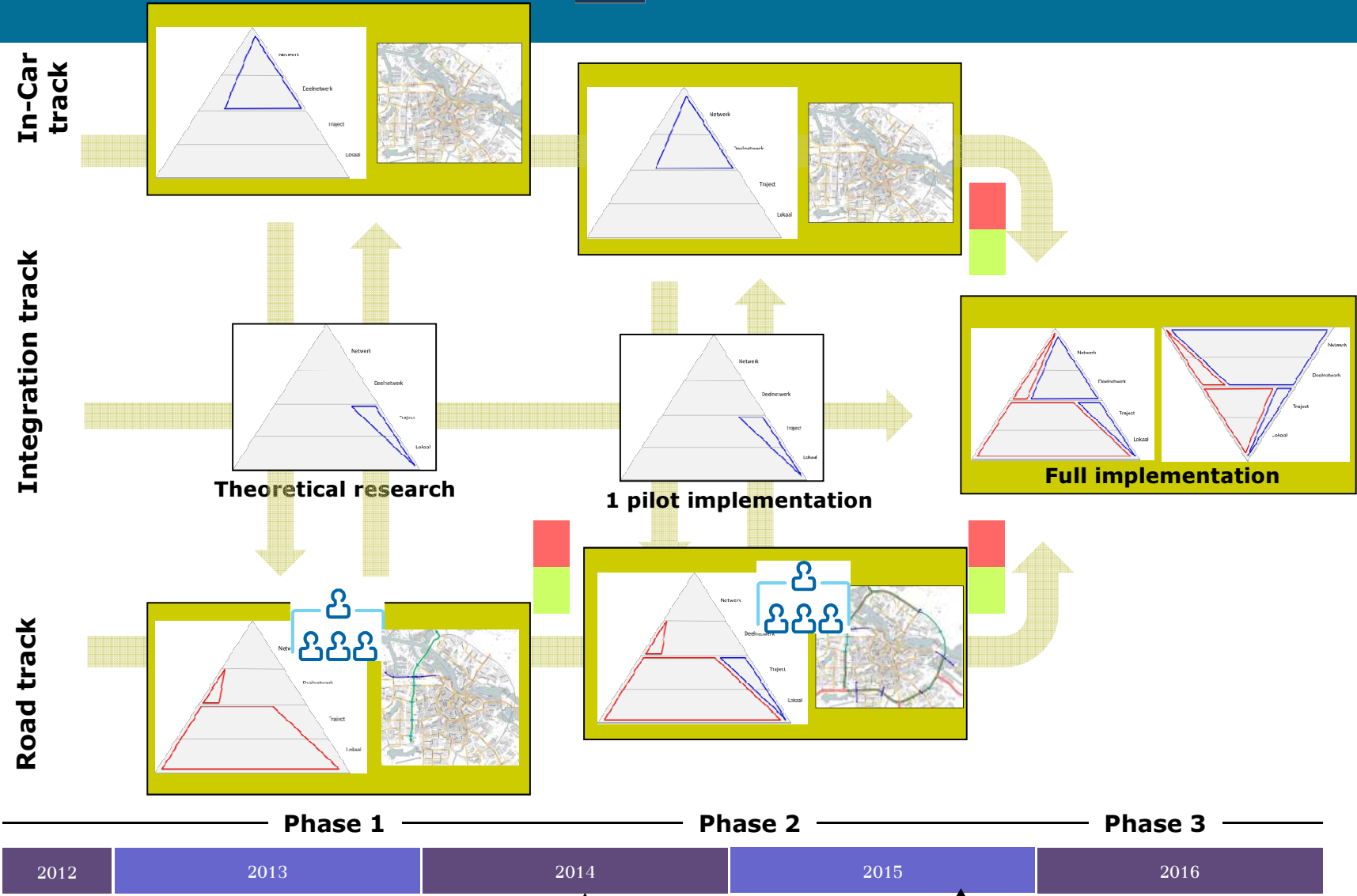
- **Roadside:** prototype and production system. Prototype operational in 2013
- 15-4-2013: first tests on the road. Also test for the cooperation
- 26-7-2013 first integrated system test on the S101
- **In car:** concrete proposals. Awarding procurement to 4 private consortia 11-10-2013
- **31-7-2014:** go/no go for roadside phase 2
- End of 2015: go/no for APT phase 3
- Phase 2 and 3: **integration road side/in car**



APT - Phases



Coordinated Network-wide Traffic Management



go/no-go
Road track

Rijkswaterstaat
Titel

go/no-go
Integration track



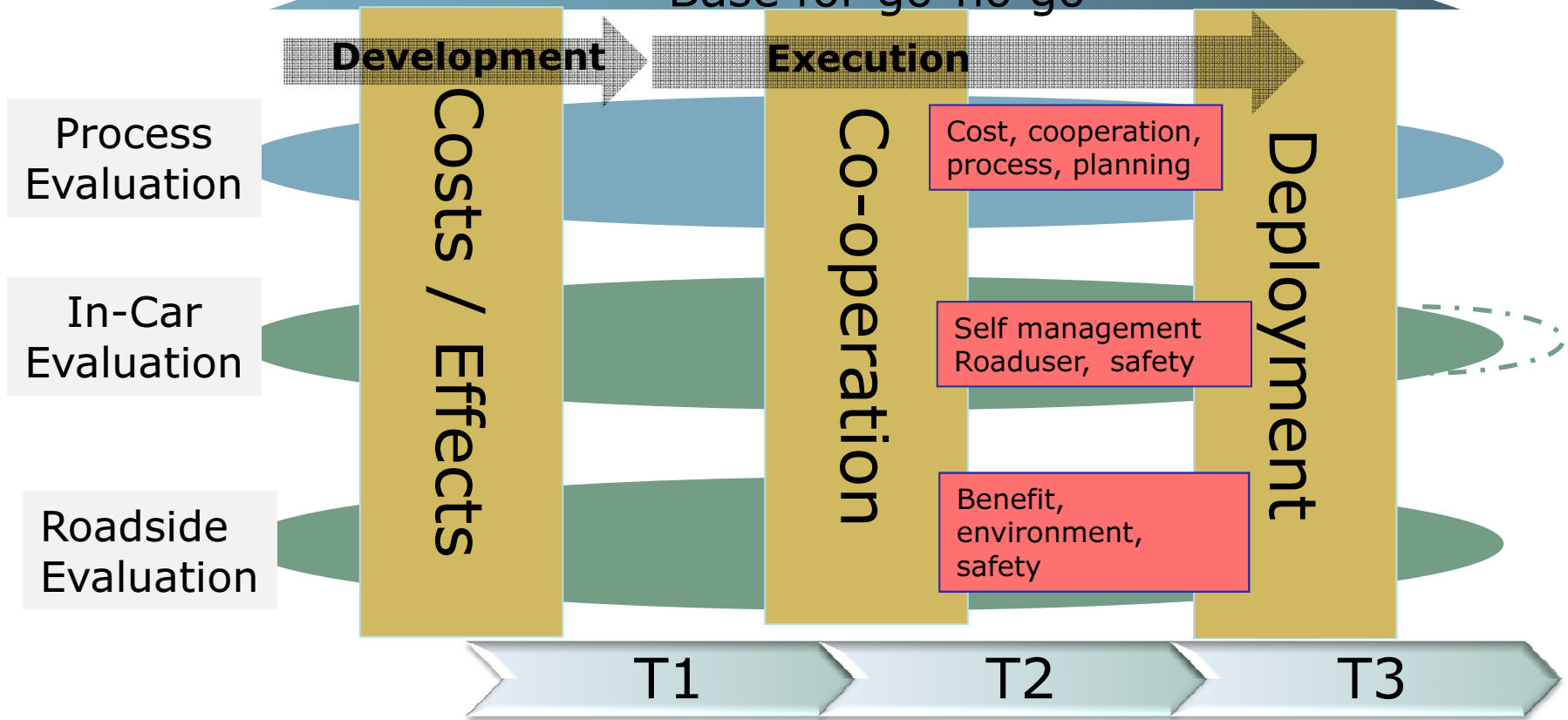
Unique Selling Points APT

- Innovative and unique algorithms enabling automated, proactive/predictive networkmanagement
- Concrete, large scale testing in daily traffic in Amsterdam Region
- Intensive public-private cooperation (roadauthorities, private companies, science)
- Integration road-side in car and data fusion
- Cornerstone for innovation of dutch traffic management strategy
- Catalyst for the further improvement of traffic management processes (cost effectiveness)
- Chance for international cooperation

Contributes to all 4 goals of the new “Better informed on the Road Policy” ?

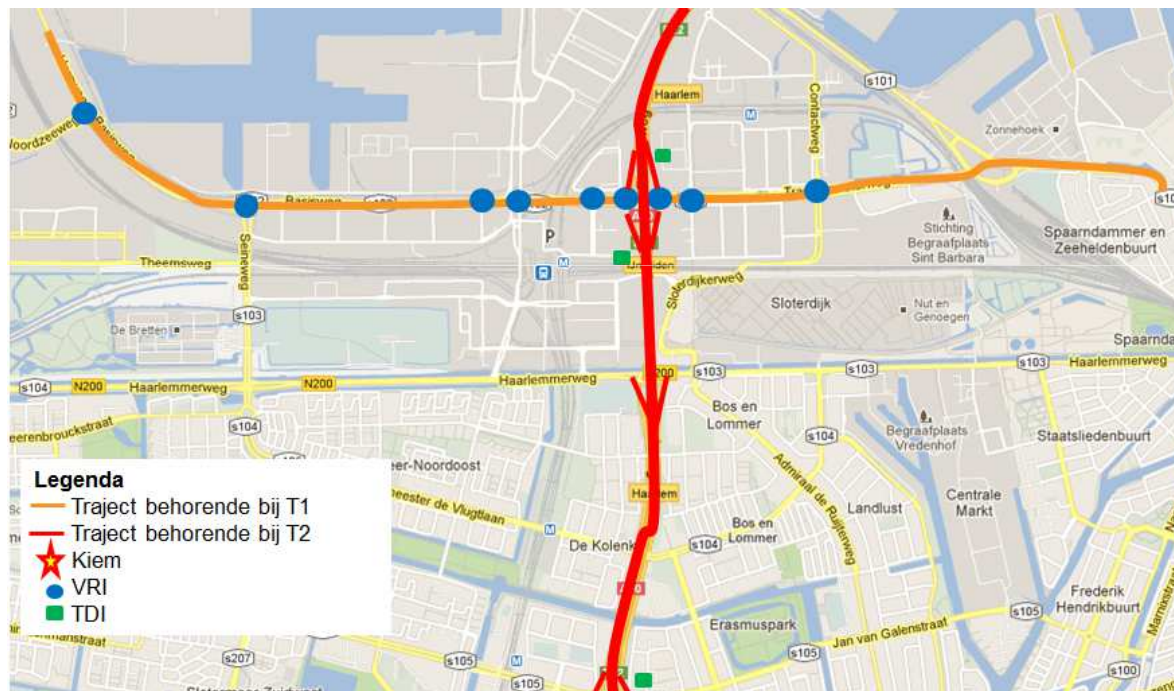


Integrated Evaluation Base for go-no go





Thank you for your attention!



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