



Intelligent Road Asset Management Platform

Decision Support System for highway maintenance planning



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**OLD ROADS,
NEW TECHNOLOGIES**
safe and intelligent road asset management

Decision Support improves road maintenance planning

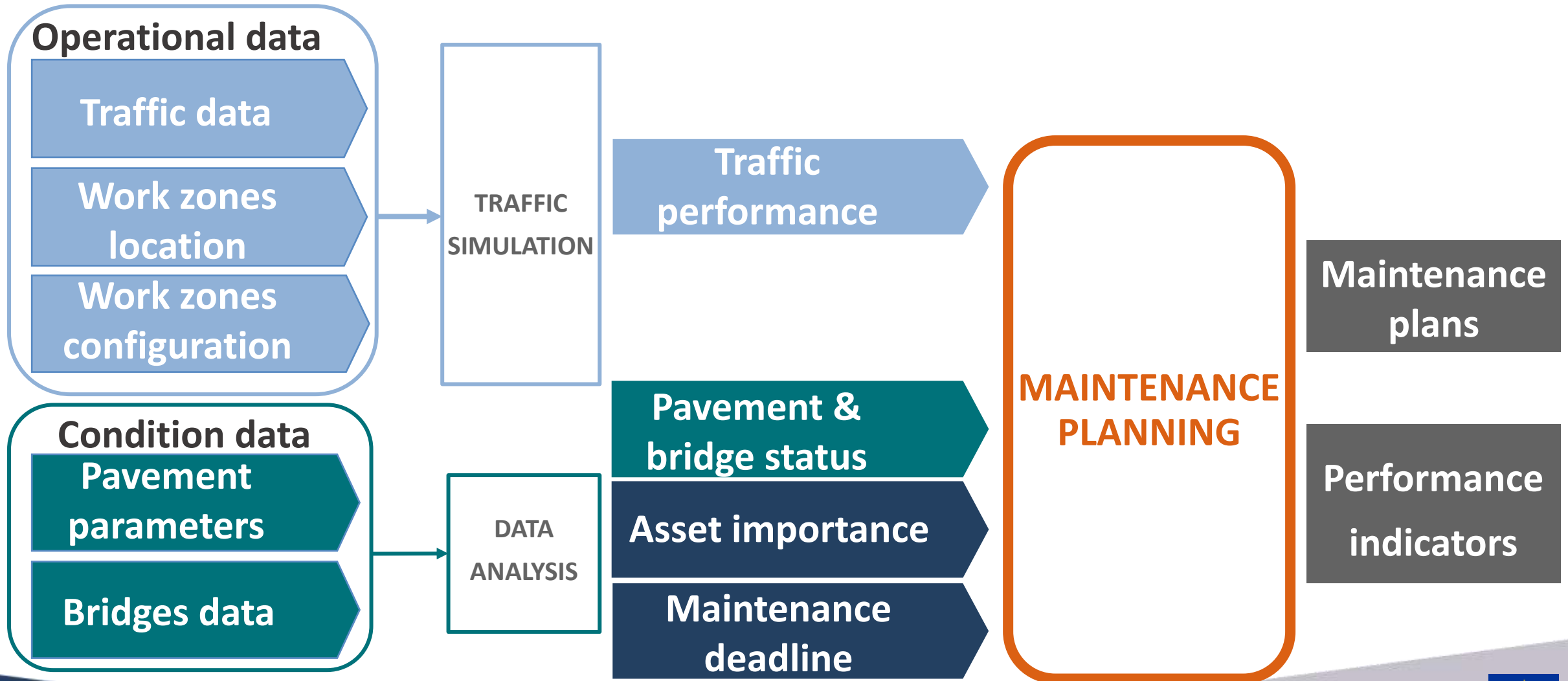
- *Provides condition analysis*
- *Aids predictive maintenance prioritisations*
- *Optimises maintenance plans, also taking traffic data into account*

Integrated platform tested with real data

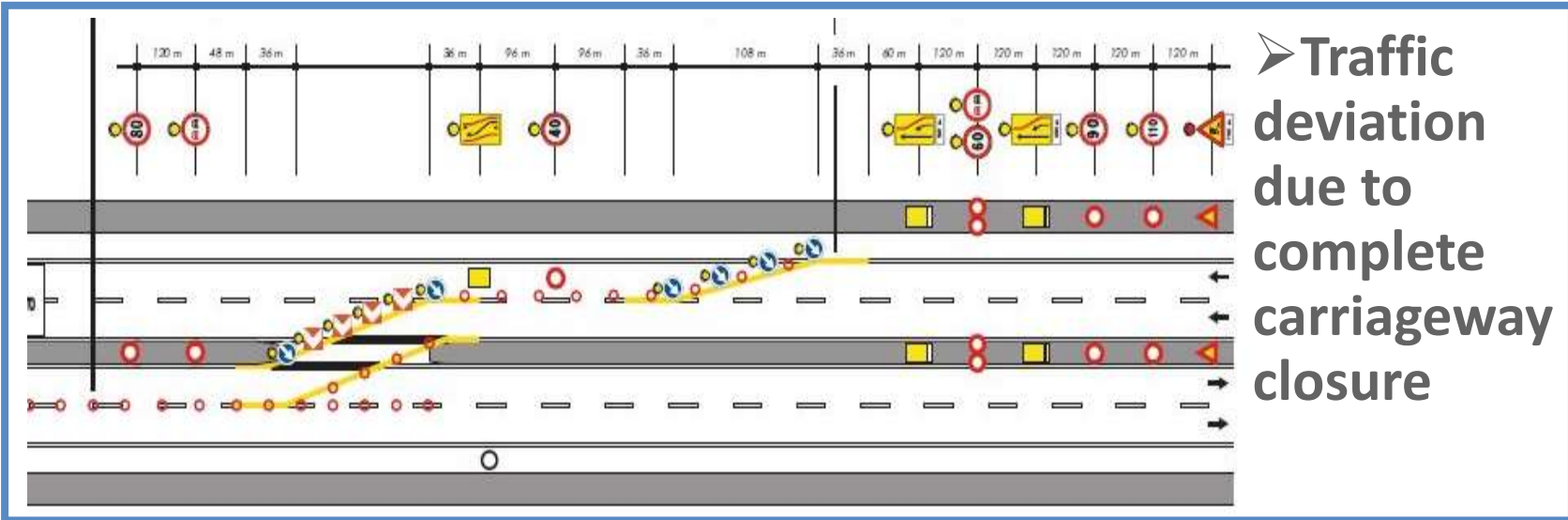
KPIs:

- 14% reduction - impact on traffic
- 43% reduction - major intervention volume
- 8% improvement of network availability
- 31 % reduction - maintenance costs
- 40% reduction - road hazard index

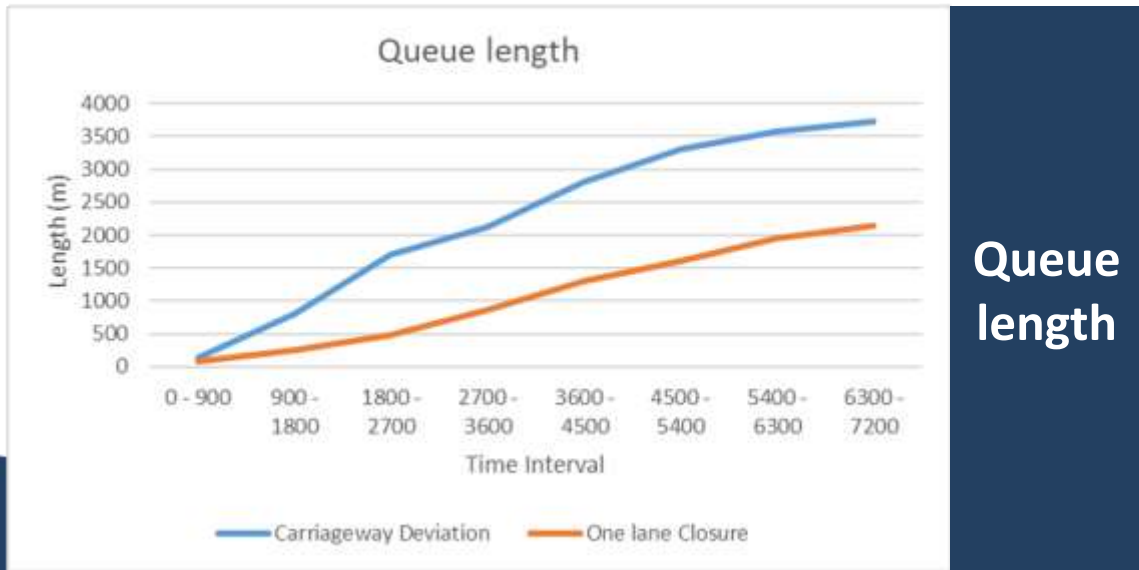
DSS: Maintenance plan optimisation



DSS: Traffic simulation

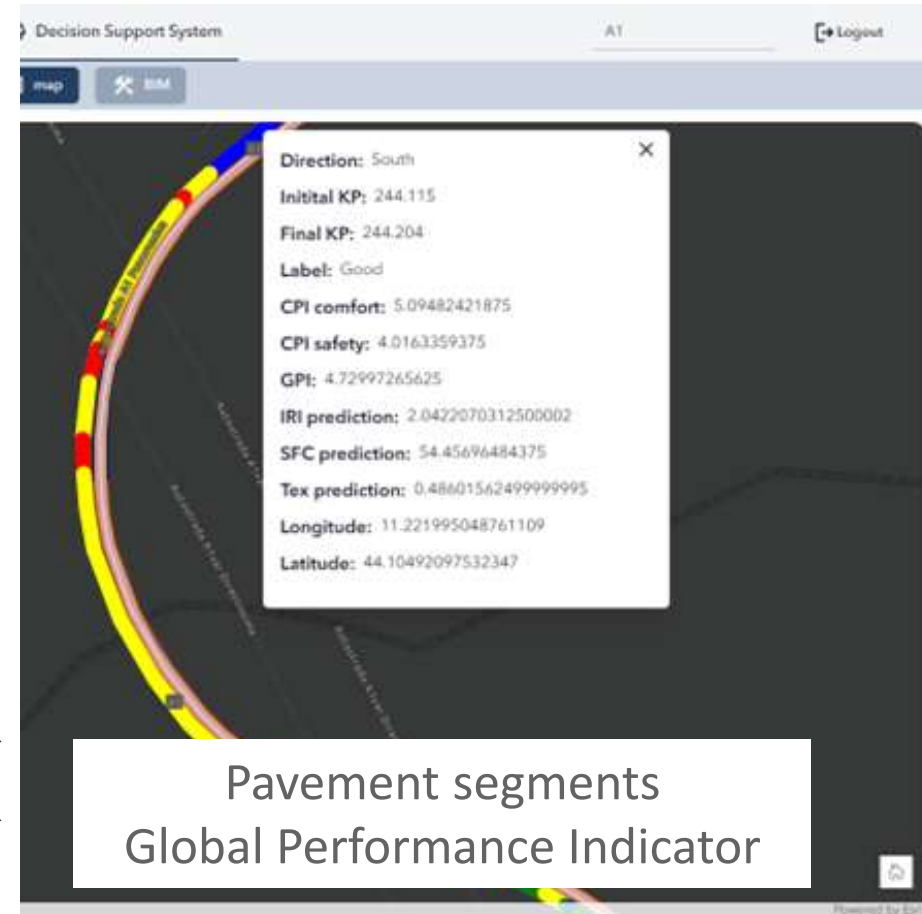
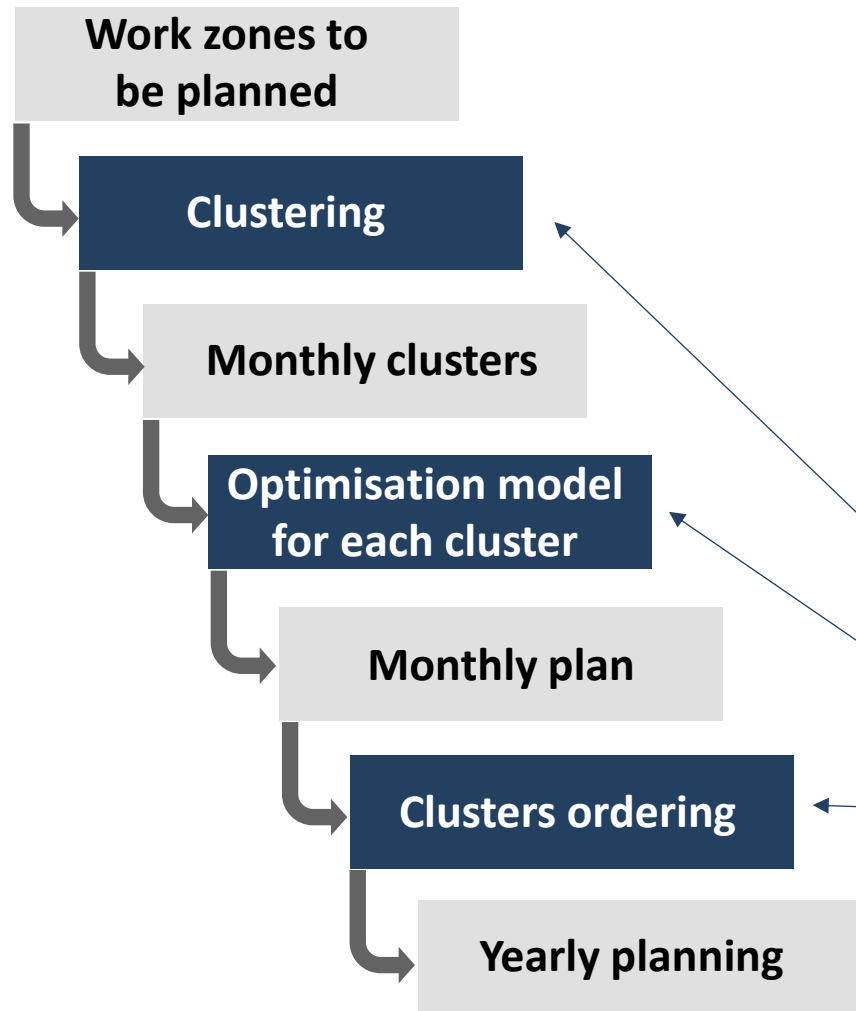


➤ Traffic deviation due to complete carriageway closure



Queue length

DSS: Planning algorithm



Pavement segments
Global Performance Indicator

- Excellent condition
- Good condition
- Poor condition
- Critical condition

DSS: Maintenance plan optimisation problem

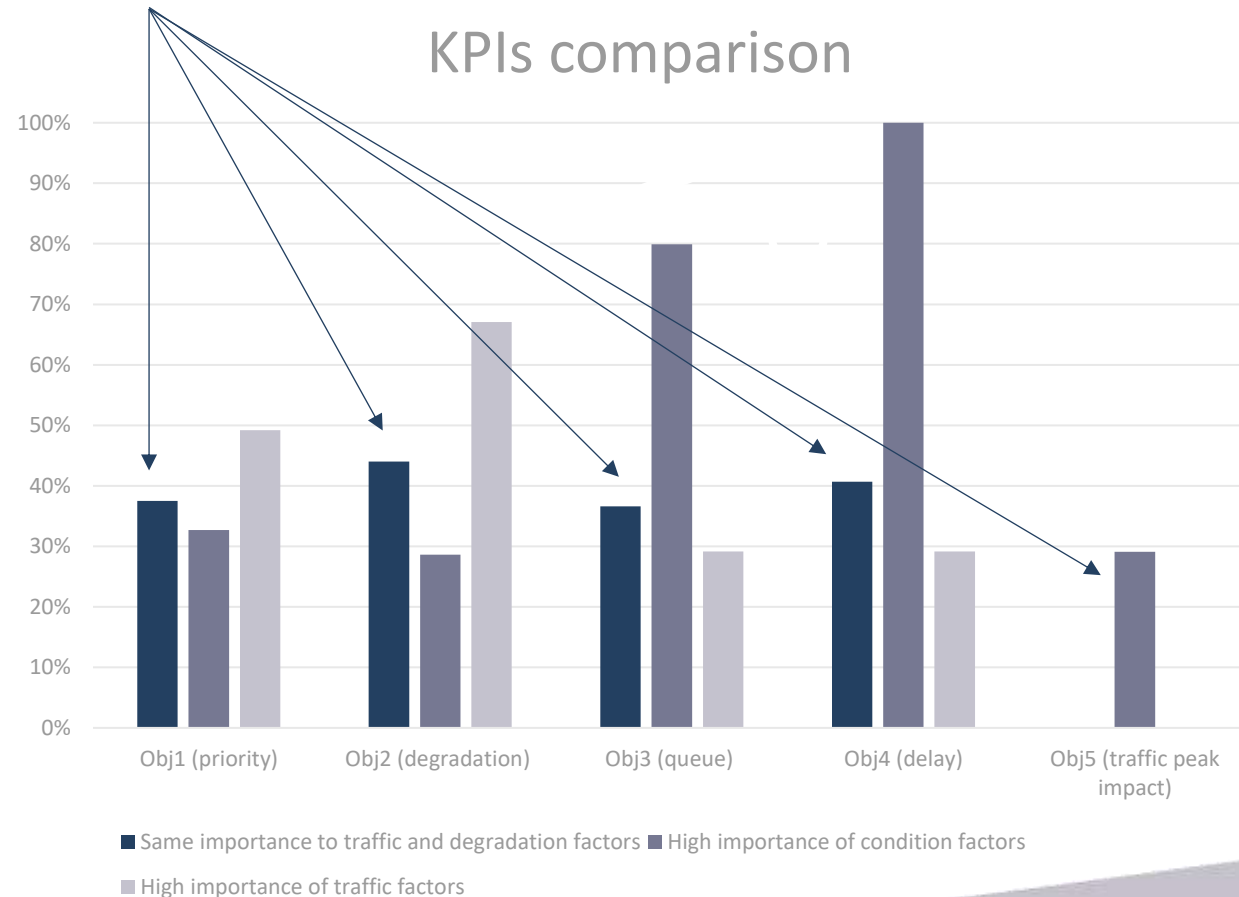
Objectives: multicriteria optimisation

- Obj1 Priority
- Obj2 Degradation
- Obj3 Average queue length during maintenance
- Obj4 Average travel time delay during maintenance
- Obj5 Traffic peak impact

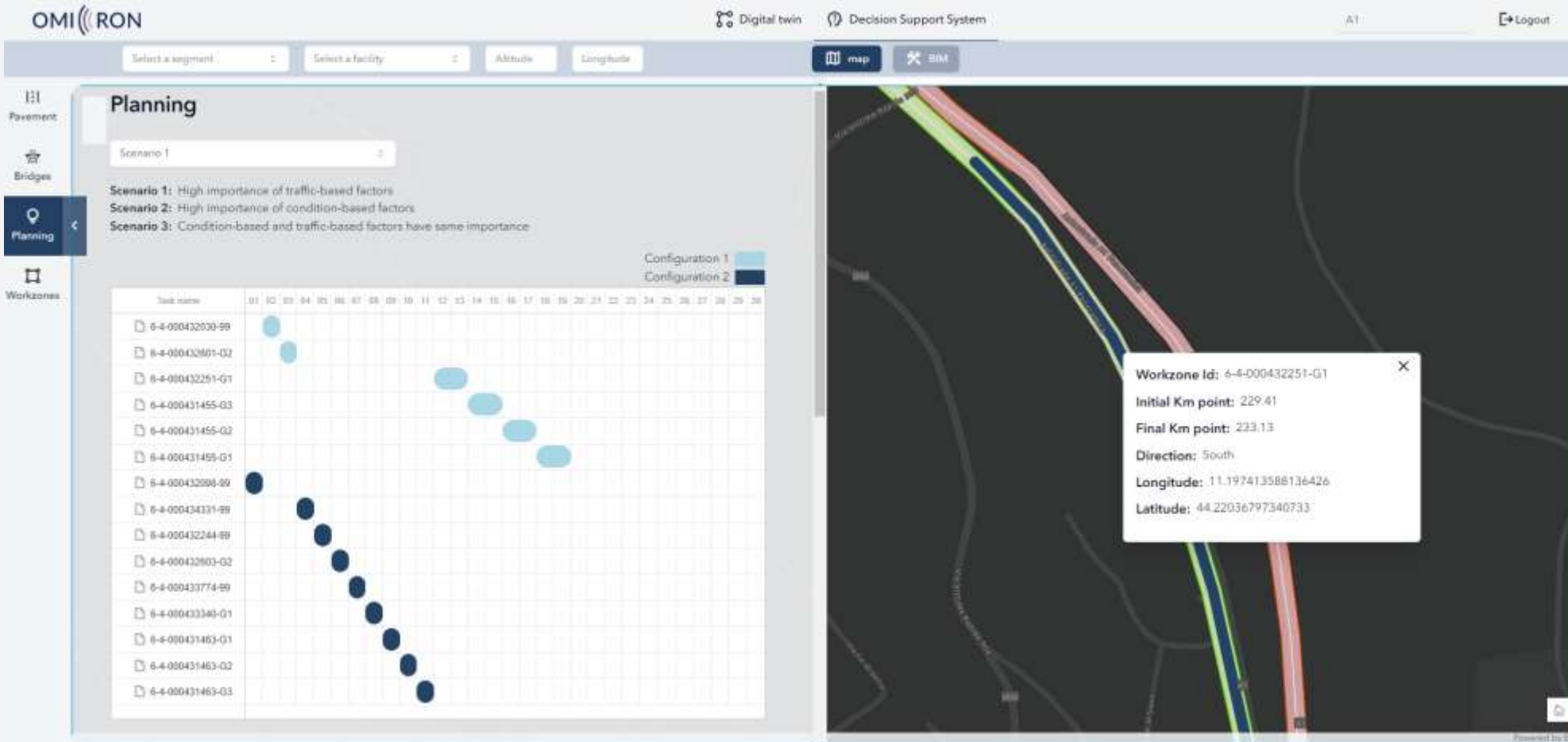
Decision variables:

- Assignment of work zones to time intervals
- Configuration suggestion among the alternatives

KPIs of the complete problem



OMICRON Solution: Decision Support System (DSS)



Maintenance plan
Gantt chart

- Lane closure
- Traffic deviation

Scenarios:

1. High importance of traffic-based factors
2. High importance of condition-based factors
3. Same importance of condition-based and traffic-based factors



Promoting a shift towards user-oriented predictive maintenance

Maintain assets before reaching high degradation levels

Off-peak period planning of work zones

Reduce costs for regular maintenance

Reduce accidents due to bad conditions of road pavement

Contact us to discuss your needs for predictive maintenance!



Intelligent Road Asset Management Platform

Thank you



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