



DEVELOPMENT OF C-ITS SERVICES IN TUNNELS A23 GARDUNHA TUNNEL

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Co-financed by the European Union
Connecting Europe Facility

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Development of C-ITS services in tunnels - A23 Gardunha Tunnel

C Summary:

C Beira Interior Concession

C A23 Gardunha Tunnel

C Gardunha Tunnel pilot

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C Beira Interior Concession

- 33 years Concession (1999 - 2032);
- 177,5 km extension;
- It is the fastest route from Lisbon to north Iberia and north Europe;
- 4 Tunnels (~5 km)
 - Alpedrinha (0,30 km)
 - Gardunha (1,62 km)
 - Ramela (0,29 km)
 - Barracão (0.33 km)



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A23 Gardunha Tunnel

- Construction year (N/S - 1997) (S/N – 2003)
- 1620 meters long
- 2 tubes with 2-way unidirectional traffic
- 1,7% longitudinal slope
- 10 meters platform width
- 4,5 meters maximum height
- 80 km /hour maximum speed

Characteristics

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A23 Gardunha Tunnel



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- Evacuation lighting installation
- Changing lighting control
- Lighting reinforcement
- Fire network expansion
- Evacuation signs reinforcement
- Traffic lights and megaphone system installation
- Emergency Communications Network implementation
- Smoke extraction system reinforcement

Improvements

~ 500k € Investment

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- Emergency plans implementation
- Operational structure coordination
 - Identification of mobilizable resources
 - Coordination with external resources
- Improvement of response times in emergency situations

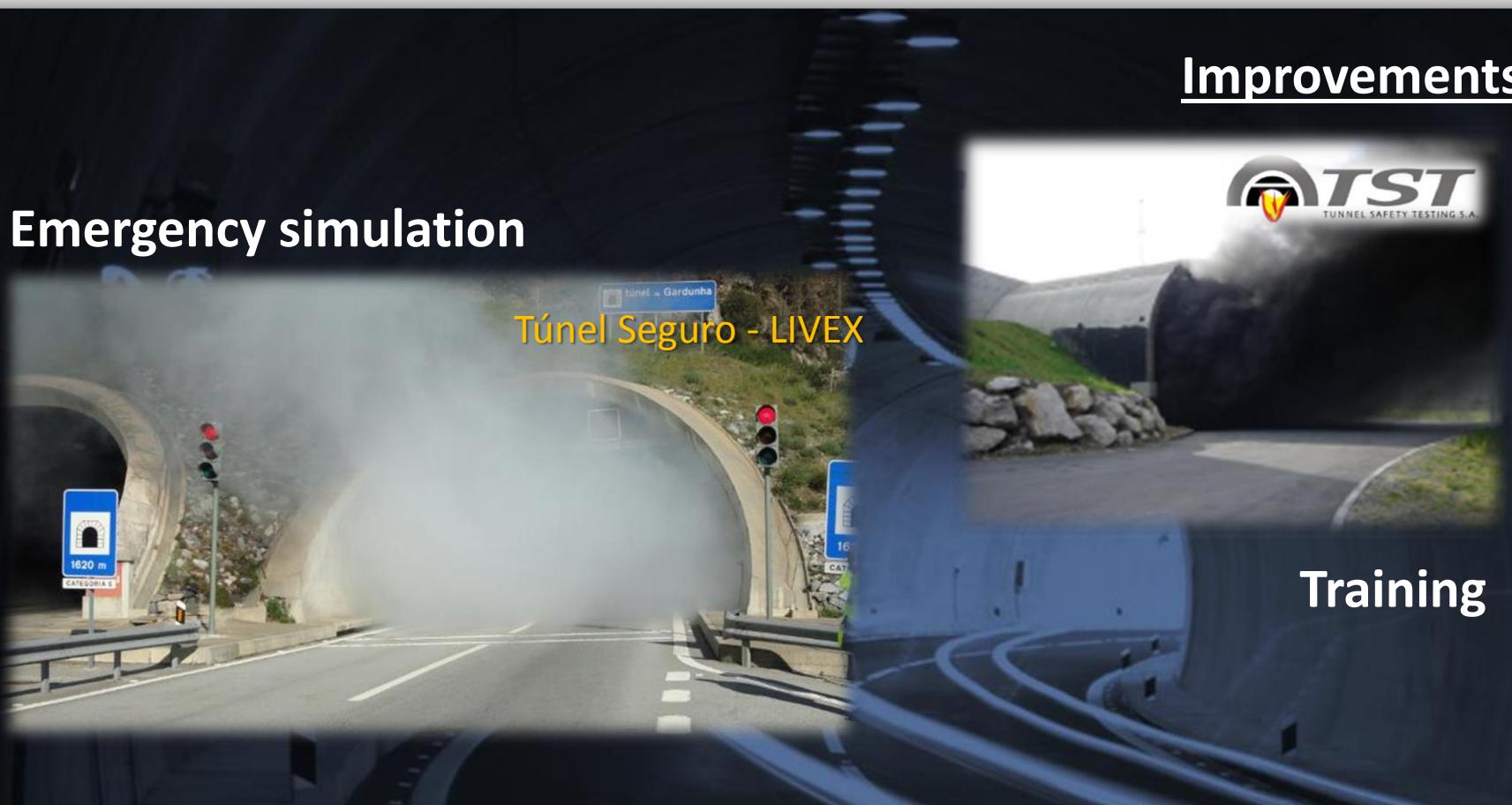
Improvements

Operation



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A23 Gardunha Tunnel

What are we going to do next?

- Being a part of **Cooperative Intelligent Transport Systems (C-ITS)** that allow effective data exchange through wireless communication technologies between components and actors of the transport system.
- Contribute for the deployment of harmonised and interoperable C-ITS services in Europe.

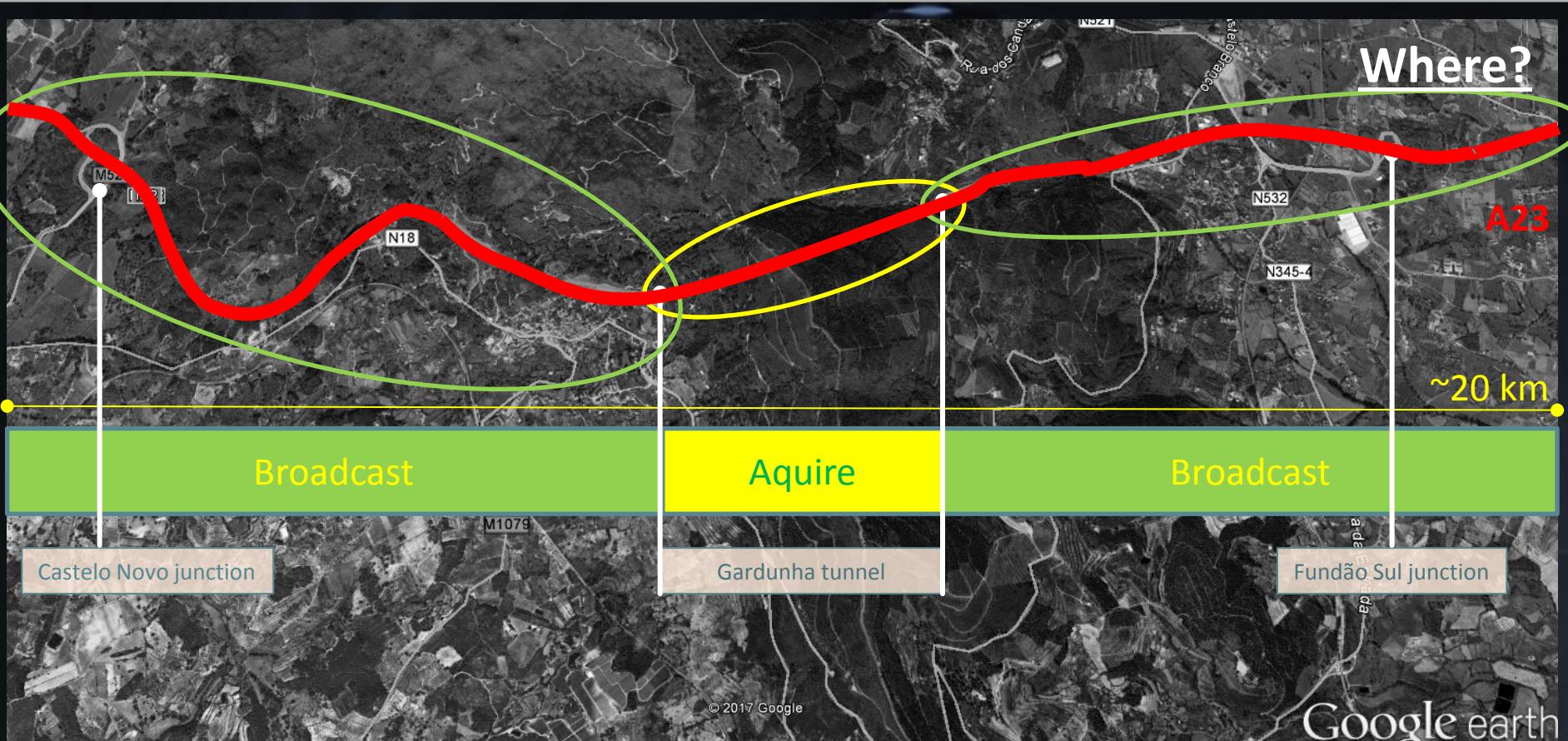
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Gardunha Tunnel pilot

- Development of C-ITS services in Gardunha Tunnel (A23)
- This sub-activity will pilot the provision of Day-1 C-ITS services inside and in the surroundings of the "Gardunha tunnel".
- The sub-activity will cover the following task:
 - Installation of RSUs ;
 - Use of vehicles with OBUs;
 - Tunnel automaton upgrade;
 - Testing and monitoring of the provision of the Day-1 C-ITS.

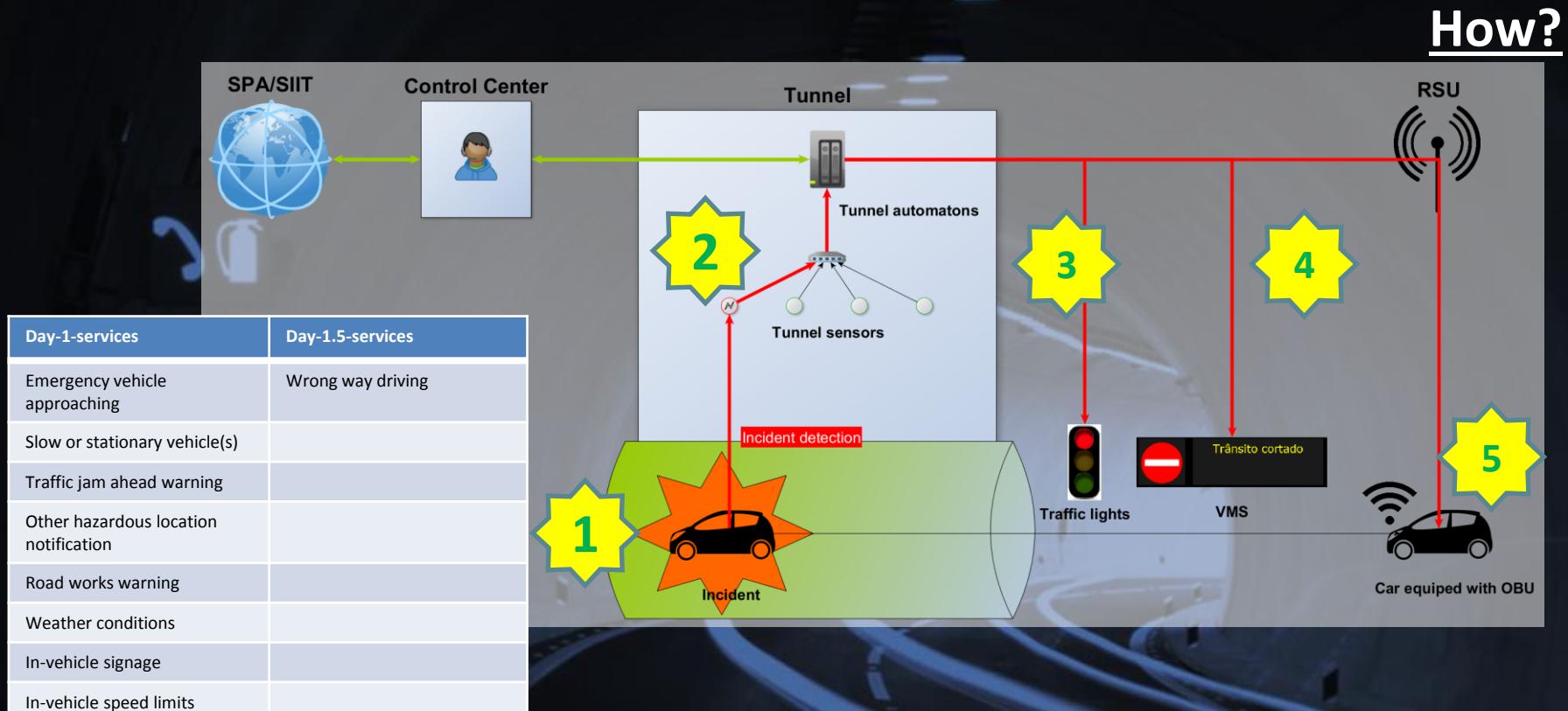
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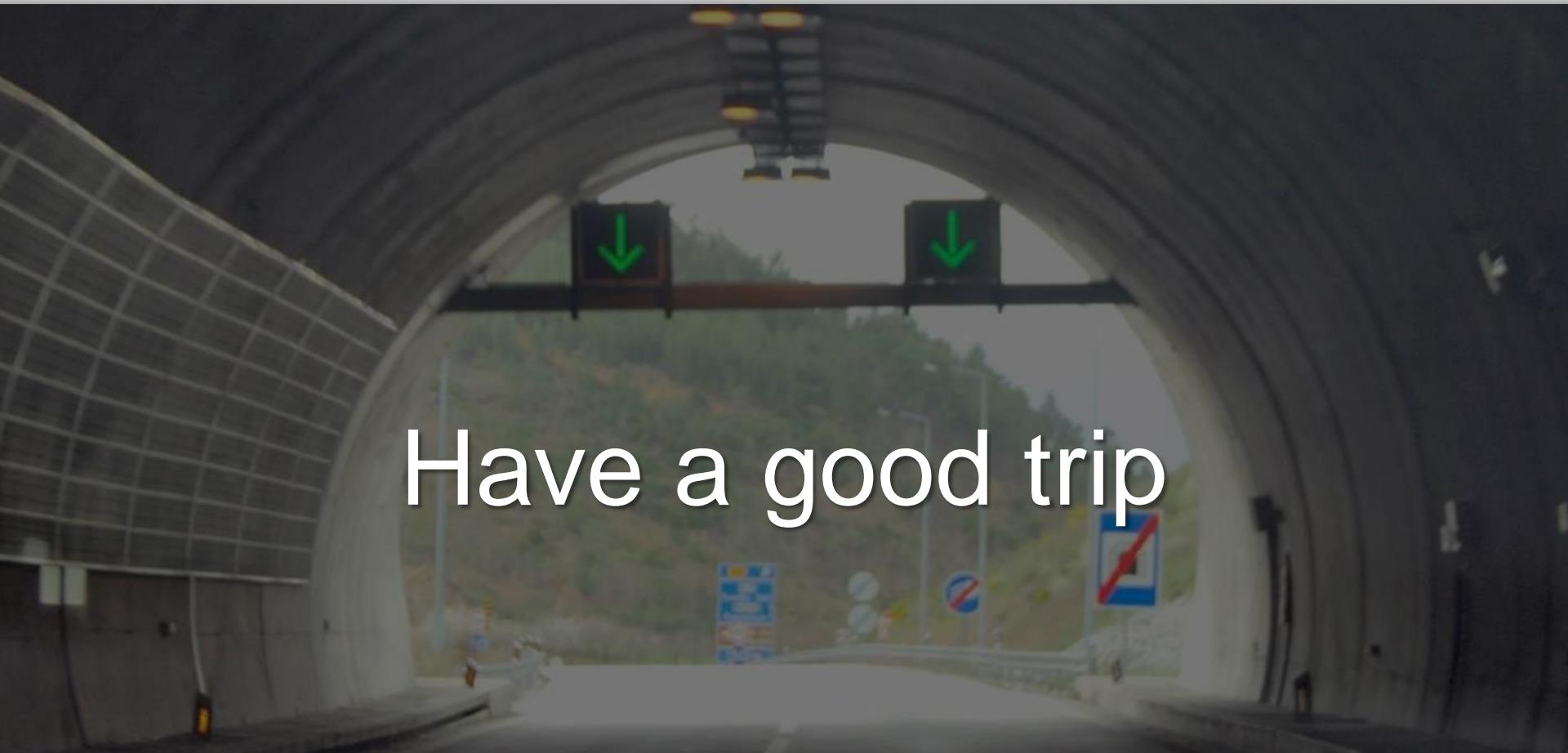


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Have a good trip



THANK YOU!

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IT & ITS Manager



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