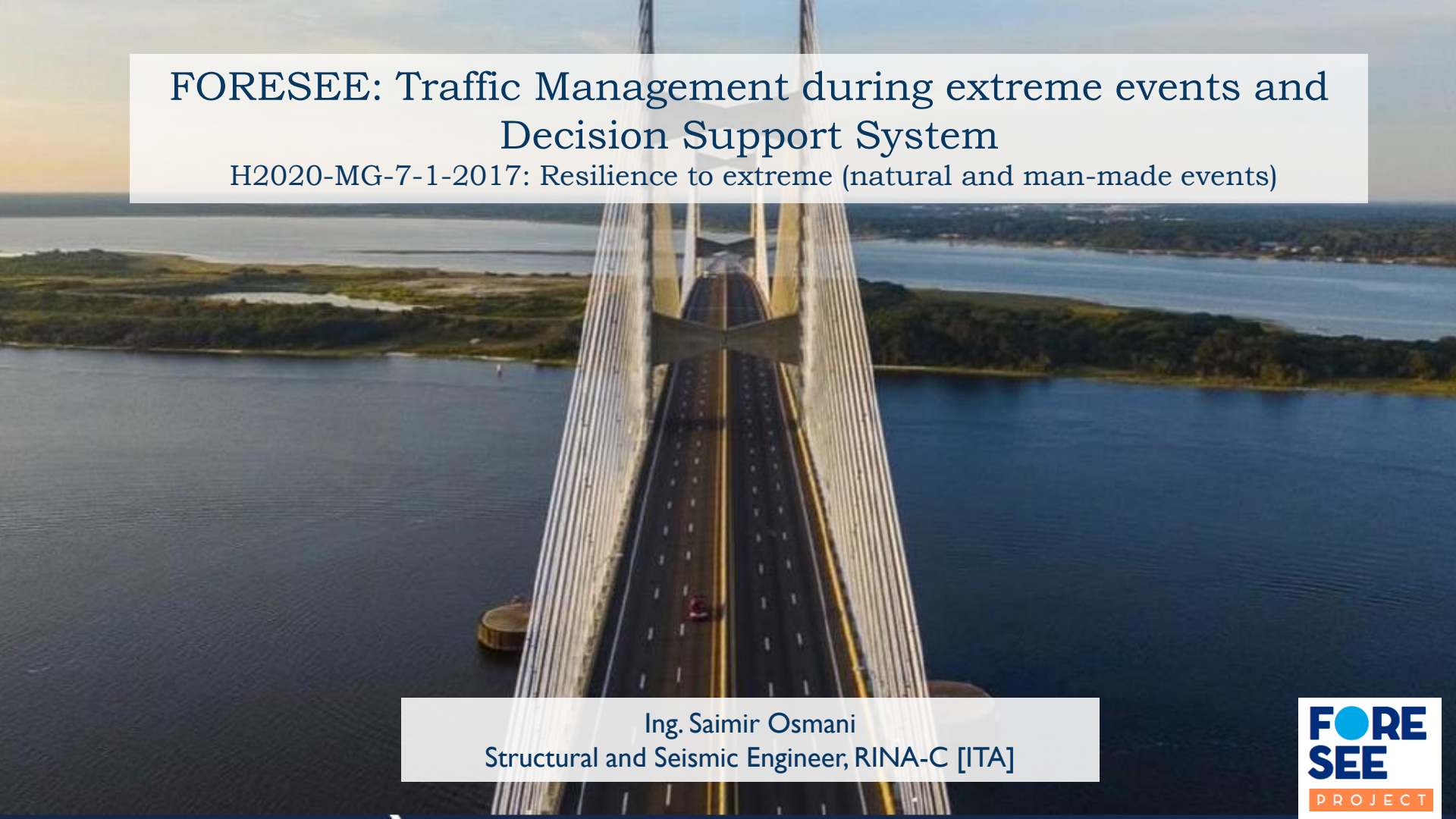

FORESEE: Traffic Management during extreme events and Decision Support System

H2020-MG-7-1-2017: Resilience to extreme (natural and man-made events)

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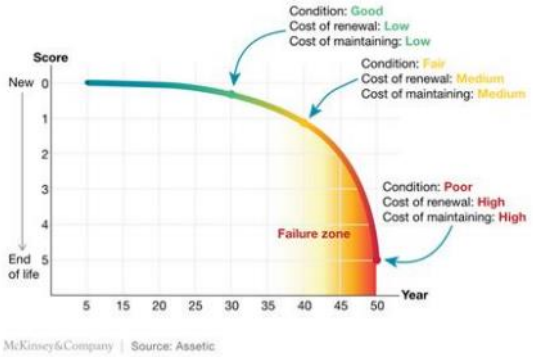
Structural and Seismic Engineer, RINA-C [ITA]

FORESEE PROJECT

Problems…

1. **Frequency** and **impact** of **Natural events** are liked to **increase** due to **climate changes**
2. **Damages** to e.g. **Transport Infrastructures** induced by climate change could **increase** by **50% by 2040***
3. With a 50-years design life, a **large** part of the **existing EU Infrastructure** have reached the **end of their lifetime**
4. Current practices **for ASSET Management** are **not fully catching the needs of asset owners**



- peseta.jrc.ec.europa.eu/transport

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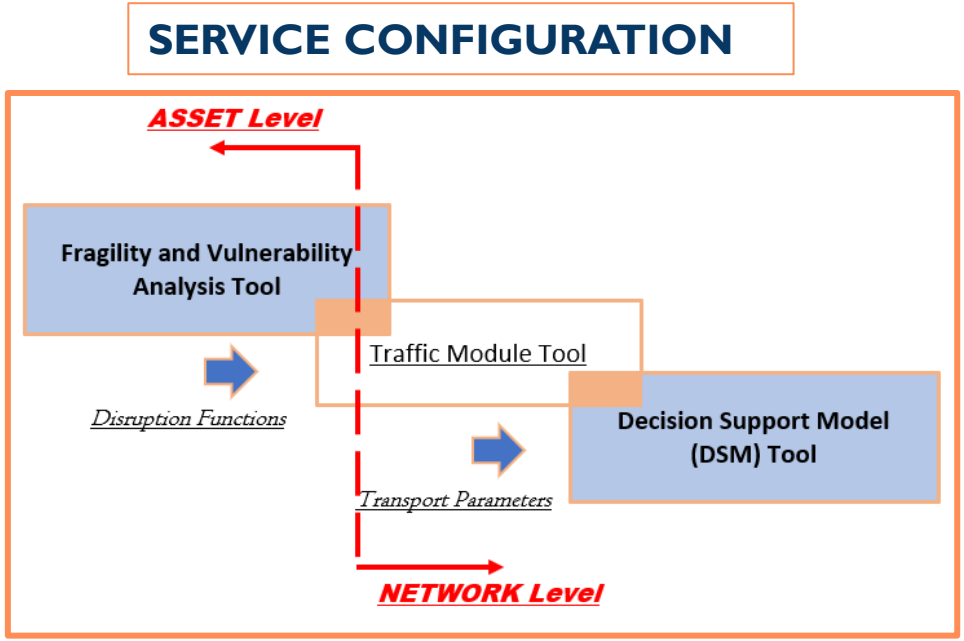
Service and resilience Solution

The Fragility and Vulnerability Analysis Tool:

1. Fragility and Vulnerability Functions
2. Operativity curves: illustrate the infrastructure operativity during/after the event occurrence
3. Probability of occurrence of specific extreme events
4. Loss functions: estimate losses induced by extreme events
5. Disruptive functions: characterize the interruption scenario after extreme events

Traffic Module:

1. Transport assessments: calculation of Traffic volumes, travel speeds, travel time and level of service **before/during/after** the extreme event different scenarios



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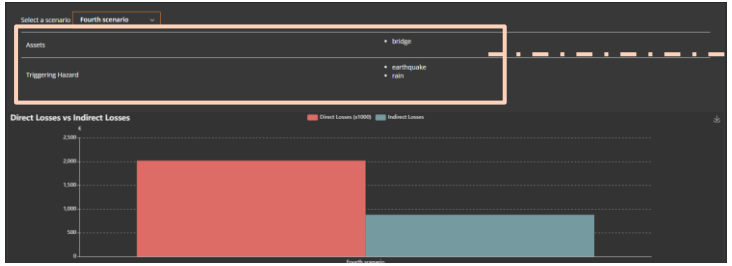
Service Results

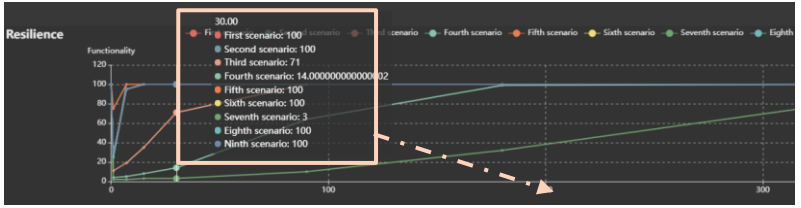
From FORESEE TOOLKIT

Decision Support Module:

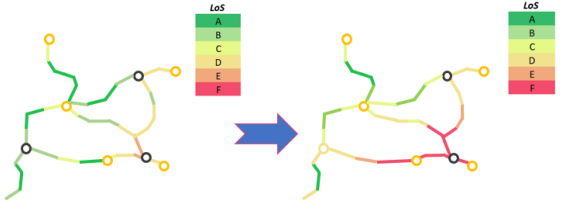
1. Direct Losses: losses derived from structural damages
2. Indirect Losses: losses induced by the service interruption
3. Resilience Assessment: description of the infrastructure recovery phase day per day after the extreme event occurrence
4. Level of Service: description of the infrastructure level of service before and after the event



Scenario description



Network Operativity for each scenario



***Before* the event** ***After* the event**

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Next Steps

- Service to be expanded to system of Transport Networks (interconnection between transport networks)
- Adaptation to incoming National Guidelines (e.g. Italian Ministerial Guidelines for the Risk Assessment of Existing Infrastructures)
- Allocation of resilience funds to maximize resilience (reduce the total impact of natural hazards, reduce infrastructure's life-cycle costs etc.)
- Adoption of Harmonized risk management approaches