



This project has received funding from the European Union's Seventh Framework Programme for research, technological development and demonstration under grant agreement no 608090.



# Estimating the Optimal Maintenance Strategy

## HyRiM in Action!

Alberto Zambrano

Santiago Cáceres

**etra** | +D

2<sup>nd</sup> HyRiM End User Workshop

Barcelona, 15.11.2016



This project has received funding from the European Union's Seventh Framework Programme for research, technological development and demonstration under grant agreement no 608090.

# Index

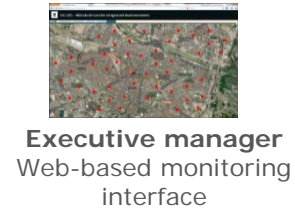


- (Brief introduction to) Maintenance Management Systems
- Current Approach
- Smart SECPLAN
- Online demo

# Maintenance Management System



This project has received funding from the European Union's Seventh Framework Programme for research, technological development and demonstration under grant agreement no 608090.



## Roadside service management

- Digital work orders
- Real-time information
- Geolocation
- Instant (internal) messaging





This project has received funding from the European Union's Seventh Framework Programme for research, technological development and demonstration under grant agreement no 608090.

# Current Approach



- Corrective & Preventive
- Preventive actions are usually based on
  - Expectation of failures
  - Organisation know-how
- Risk assessment not integrated in the loop
- Not always using the optimal amount of resources



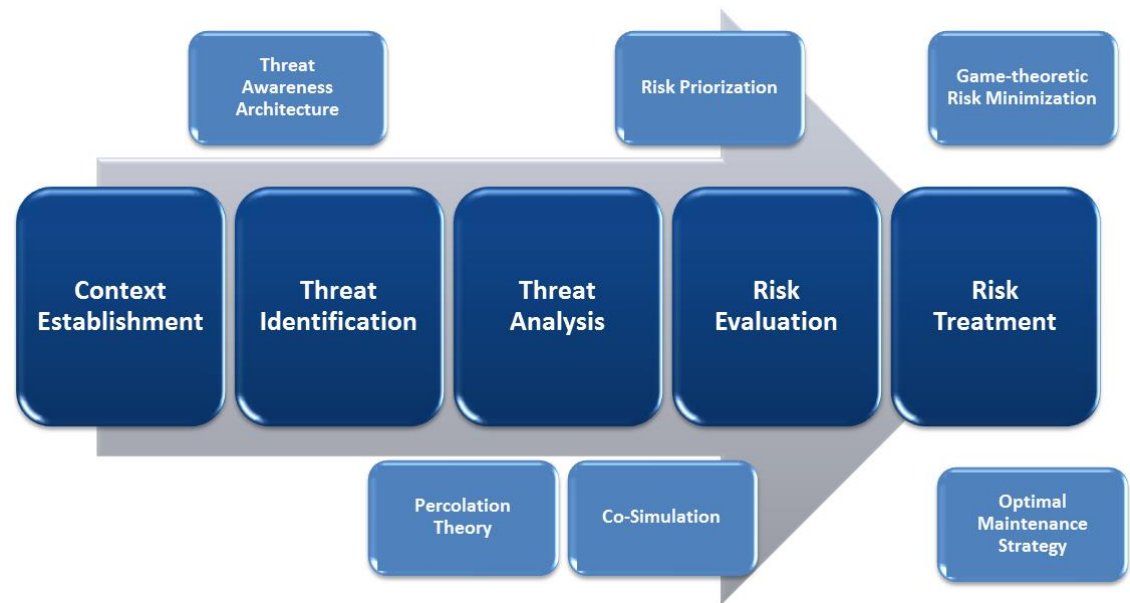


This project has received funding from the European Union's Seventh Framework Programme for research, technological development and demonstration under grant agreement no 608090.

# Smart SECPLAN



- Tool addressed to IT and OT security experts
- Preventive actions scheduling is the result of a risk management process
- Mathematical model of the organisation is used to find the optimum strategy
  - Balanced according organisation goals
  - Optimising available resources
  - Minimising risk level





This project has received funding from the European Union's Research Framework Programme for research, technological development and demonstration under grant agreement no 608090.

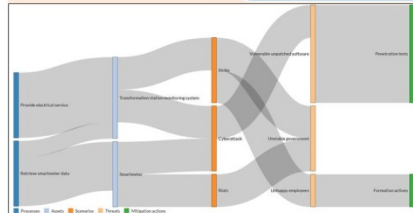
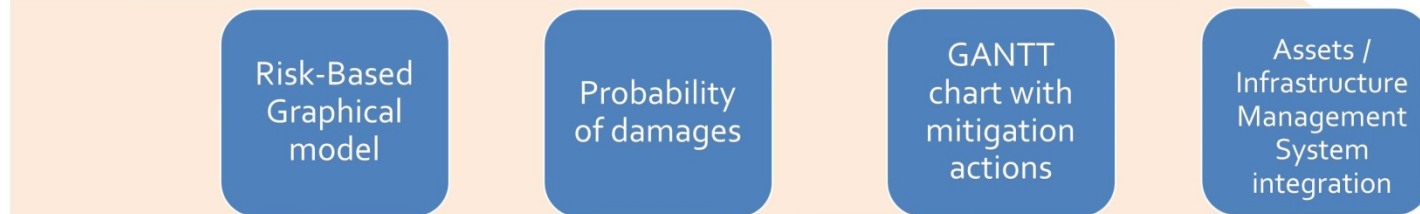


# Smart SECPLAN Demo

## Input



## Output





This project has received funding from the European Union's Seventh Framework Programme for research, technological development and demonstration under grant agreement no 608090.

# Demo!



- Demo available at EUW
  - **Energy Revolution Section – Stand 3C40**



This project has received funding from the European Union's Seventh Framework Programme for research, technological development and demonstration under grant agreement no 608090.

# Thanks for your attention!



- Demo available in stand (**Energy Revolution Section – Stand 3C40**)
- Any questions?

**etra** I+D

Alberto Zambrano [azambrano.etraid@grupoetra.com](mailto:azambrano.etraid@grupoetra.com)

Santiago Cáceres [scaceres.etraid@grupoetra.com](mailto:scaceres.etraid@grupoetra.com)