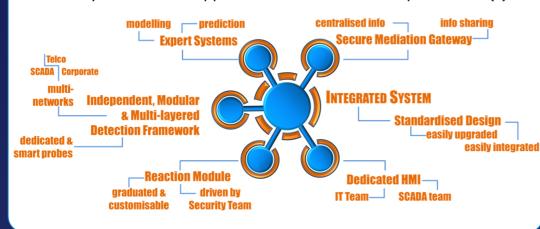


Selex Es Armonia Company Armonia Consulta Armo

Innovative Approaches

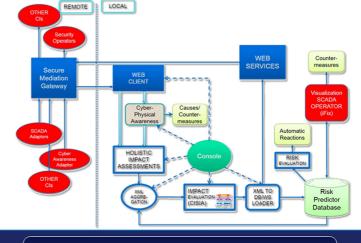
Integrated System

- Solution design addressing the process from event detection to risk prediction
- ► Adaptable services easily embeddable in existing architecture.
- ▶ Security awareness support for isolated or interdependent CI(s).



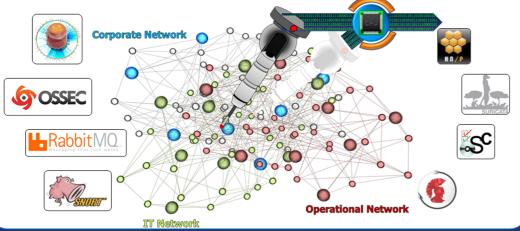
Risk Predictor

- ▶ Based on the interdependency analysis engine CISIA & Cyber propagation models for holistic effects assessment.
- ▶ Integration of physical faults and cyber-attacks.
- ► Complementary vulnerability & counter-measures assessment.



Multi-layered Detection

- ▶ Infrastructure security insight through a smart event feed system.
- ► Advanced real-time detection mechanisms and strategies supported by smart probes and correlators.
- ▶ Distributed systems along all levels of the ICS infrastructure.



Risk Scenarios Modelling

- ▶ Risk scenarios based on interdependent systems architecture.
- ► Investigation of both cyber-attack & operational impact modelling.
- Diversified modelling approaches.

 Risk Prediction by holistic reductionist approach

 Agent based simulation RAO simulator

 Attack Tree

 Modelling Framework

 Attack Graph for security risk

 Temporal network reliability analysis

 Composing epidemic and performance models

 Nellogo

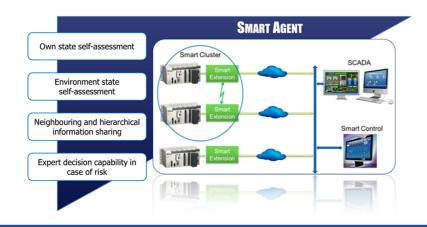
 Virus

 Spreading Attack Graph for security risk

 Temporal network reliability analysis

Smart RTU

- ▶ Smart agents at the lowest level (RTU).
- ► Information and actions cross-checking.
- Cluster deployment to increase dependability.



Hybrid Validation

- Based on the Hybrid Environment for Design and Validatio (HEDVa) of the ICS designed by IEC Laboratory.
- Mirror image of CIs including virtual and real systems and traffics.
- ► Customised test environment for CockpitCI scenarios and tools.

