



CIPRNet

Critical Infrastructure Preparedness and Resilience Research Network



The CIPRNet Project and the EISAC Perspective

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Cyber Security: Prognosen und Strategien aus Politik, Wirtschaft und Verteidigung

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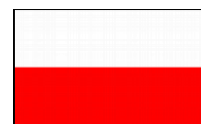




CIPRNet – Facts



- **Critical Infrastructures Preparedness and Resilience Research Network**
- Co-funded by: EU FP7 (Seventh research framework programme)
- Instrument: Network of Excellence (NoE)
- Start date: March 1, 2013
- Duration: 48 months
- Excellence: Partners represent experience of 60 CIP projects





CIPRNet's strategy and activities



Capability forming

Create mature prototypes with added value for end users and deploy them

Capacity building

Massive effort: Seven major training events, seven organised conferences, 24 stakeholder meetings, 41 lectures, e-learning platform <http://www.security-learning.eu>

Knowledge & technology

Create an inventory of CIPRNet partners' knowledge and technology
Make it accessible to the CIP community and stakeholders

VCCC

Create a Virtual Centre of Competence & Expertise in CIP for long-lasting support of end-users from the CIP research communities

Long term: EISAC

Sustain some VCCC services, create a distributed European Infrastructures Simulation and Analysis Centre (EISAC) with nodes in Member States and a (small) EU node

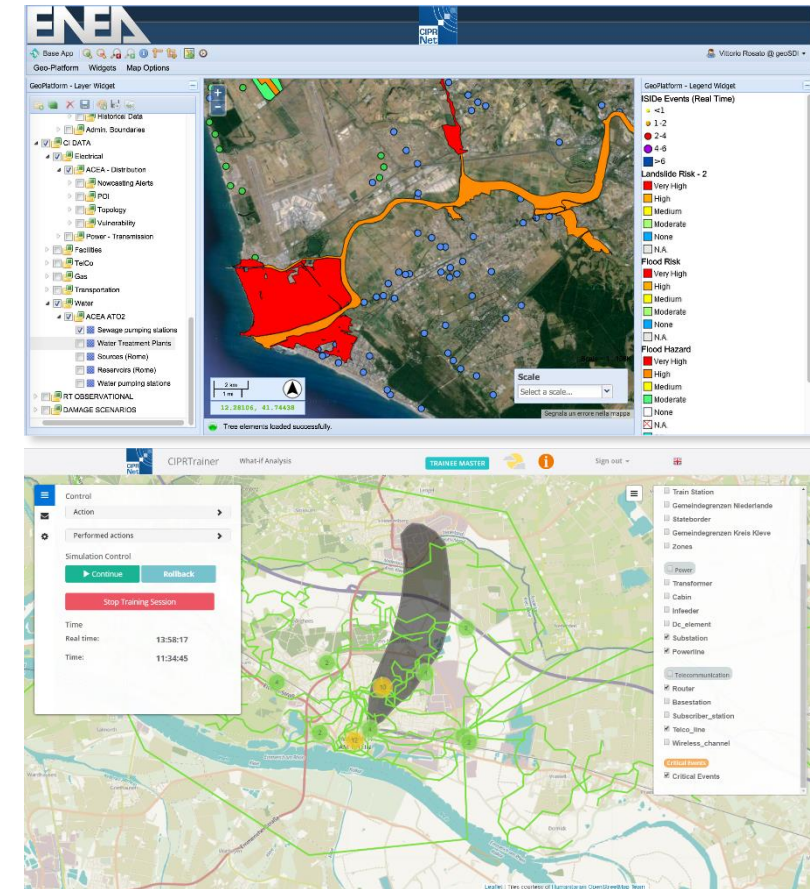
CIPRNet's new capabilities



... for different end-users

- **CIPCast:** Advanced decision-support system for CI operators and civil protection
 - CI and dependency models, threat models, consequence analysis
 - risk forecast

- **CIPRTrainer:** Simulation-based training system for civil protection crisis management at the tactical level
 - CI and dependency models, threat models, consequence analysis
 - 'what if' analysis for exploring different courses of action





CIPRNet's new capabilities



CIPcast: Decision Support System (DSS) with added value

▪ **Functionality**

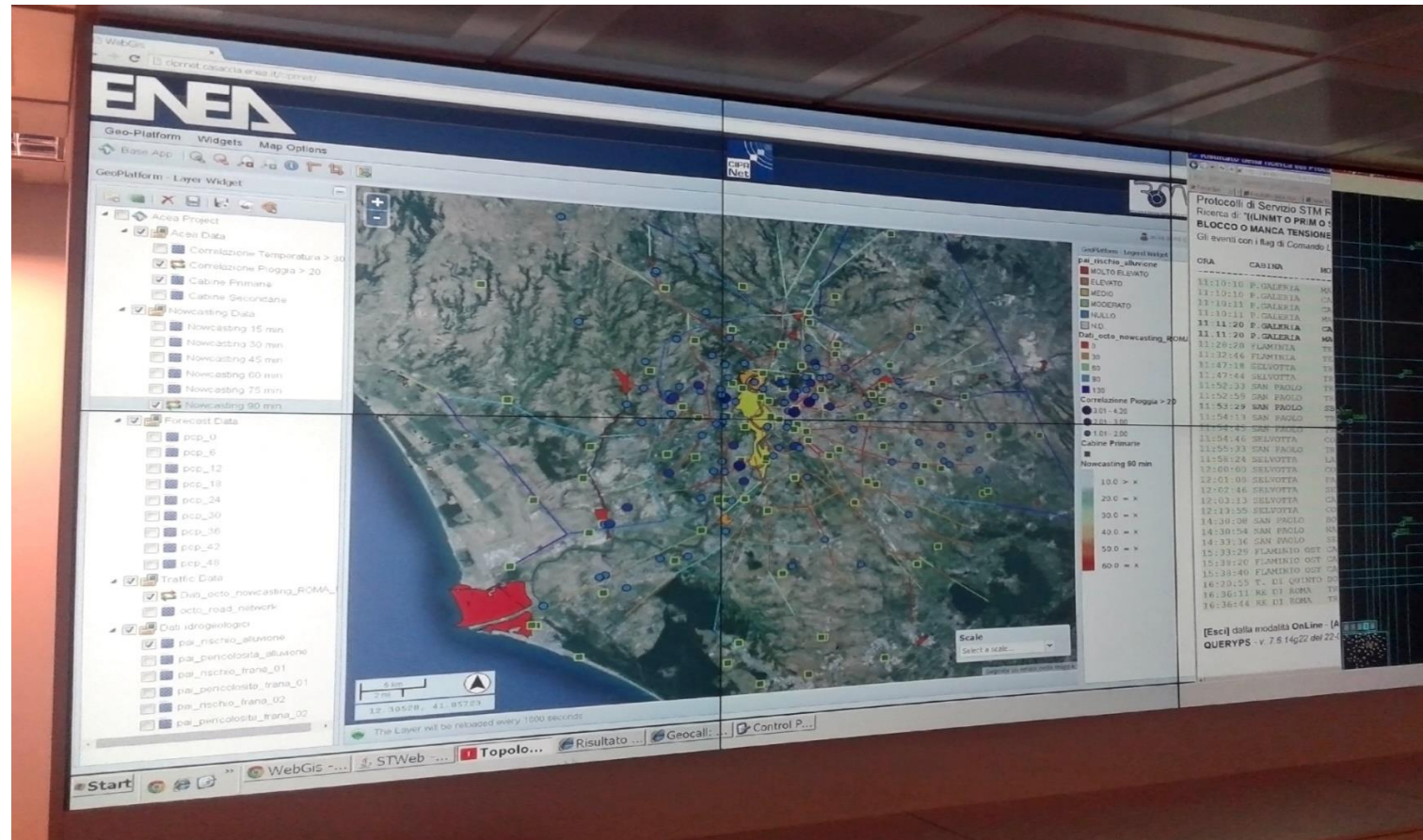
- Modelling CI and their dependencies
- **Prediction of weather events** and of **resulting risk** for elements of the power, telecommunications and drinking water infrastructures
- Assessment of behaviour of CI under severe perturbations
- Early warning allows robust configuration of distribution networks at precise points in time
- Warm and hot phase support of emergency managers and CI operators
- **Optimal scheduling** of recovery teams

CIPRNet-DSS CIPcast
on LED wall in the control room of a CI
operator

(Project partner ENEA:
Italian research facility)

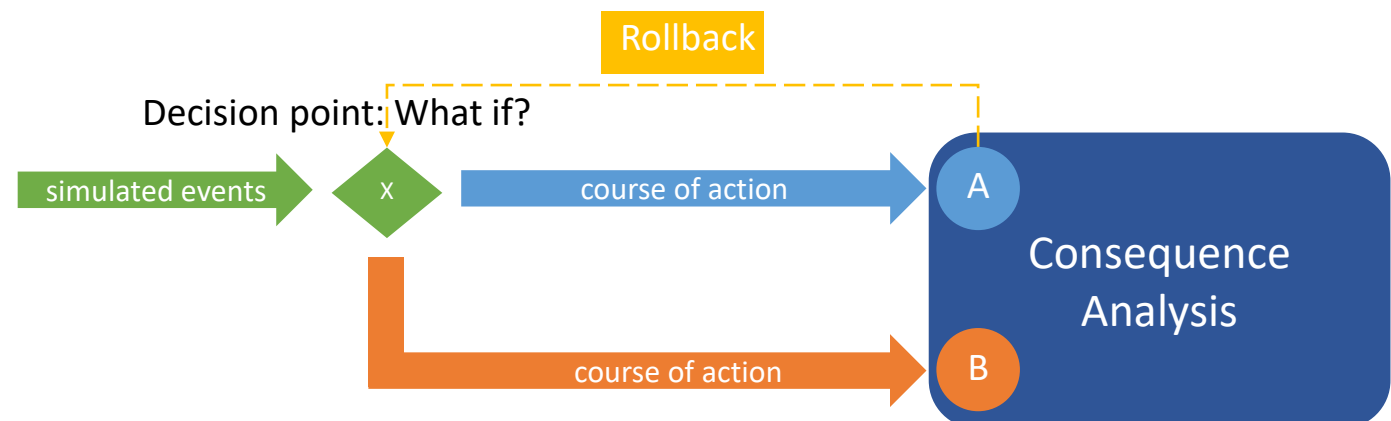
Transfer to end users

- Prototype in use at CI operators in Rome
- Enquiries received from national crisis management, the municipalities of Rome and Florence and the Mantova region
- System use at the Jubilee 2015-2016 in Rome
- System in use by National Civil Protection for damage assessment and area control in the aftermath of the Amatrice earthquake



CIPRTrainer: 'What-if' analysis as a new capability for Crisis Management

- Explore different courses of action by simulated 'going back in time' (in real crises not possible)
- Which action produces the least consequences?
- Federated modelling, simulation & analysis (**fMS&A**) of complex scenarios involving CI and threats
- Impact and consequence analysis based on socio-economic data and damage models (ECI directive)
- Cross-border scenarios (Germany / The Netherlands) with two storylines
 - Cargo train derailment in a city centre
 - Extended cross-border flooding



CIPRNet Master Class 3 in Sankt Augustin:

CIPRTrainer system on monitors in Fraunhofer's advanced visualisation lab

(Project partner Fraunhofer: German research facility)

Transfer to end users

- Prototype used at three major training events
- Enquiries received from German national crisis management training academy and from Italian partner UCBM for homeland security course



Tangible Virtual Centre of Competence & Expertise in CIP (VCCC)



capabilities

Decision Support System

with added-value for emergency management and CI operators

'what if' analysis

based on federated modelling, simulation & analysis and consequence analysis

services

Supporting the secure design of NGI

Next Generation Infrastructures

Knowledge repository

CIP bibliographies, project lists, conferences, ...

CIPedia©

Comprehensive online-glossary of CIP terms

Ask the expert

Knowledge brokering service

EISAC / VCCC

The EISAC Perspective



- How can CIP related research results be transferred into practical application?
- How can support of CIP research experts to end users be sustained?
- **Ultimate goal:**
 - Create a long-lasting **European Infrastructures Simulation and Analysis Centre (EISAC)**
 - Role model is NISAC (National Infrastructures Simulation and Analysis Center, USA)



The EISAC Perspective



- National Infrastructures Simulation and Analysis Center
 - Started as a research cooperation in 2000
 - Since 2003 part of US Department of Homeland Security
 - Source of national expertise for CIP R&D and analysis (congress mandate!)
- Goals:
Supporting the preparedness and protection of nation and society by
 - Analysing CI loss or disruption, including hot phase
 - Participating in understanding of protection, reaction, mitigation and reconstruction options
- NISAC Inventory
 - Data of CI elements, economical data, ...
 - MS&A methods for 18 different CI sectors



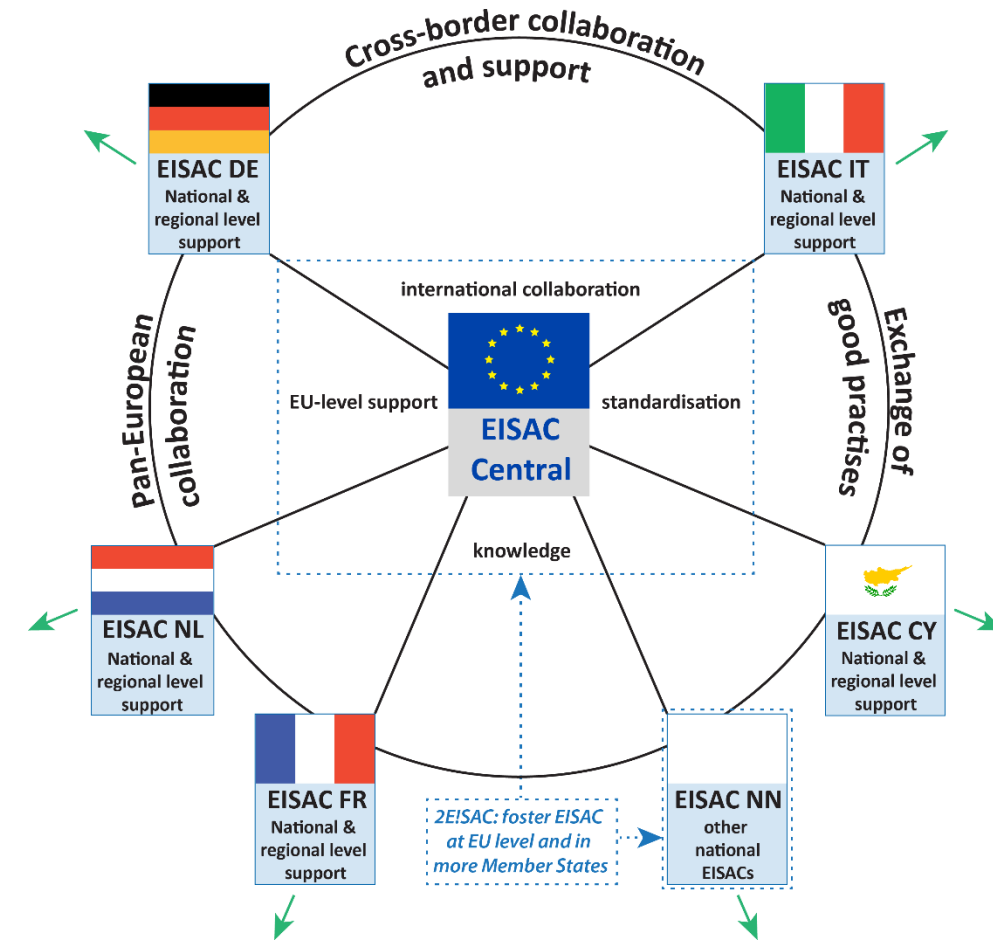
The EISAC perspective



Towards the EISAC

Organisation

- EISAC shall be a **pan-European facility**
- **National nodes**
 - provide “localised” services
 - may be existing (research) facilities or new ones
 - transfer of knowledge, technology and research results into application
- **Central roof organisation (“HQ”)**
 - manages technical synergies between national nodes
 - helps organising bilateral collaboration between nodes of neighbouring countries
 - provides services at EU level

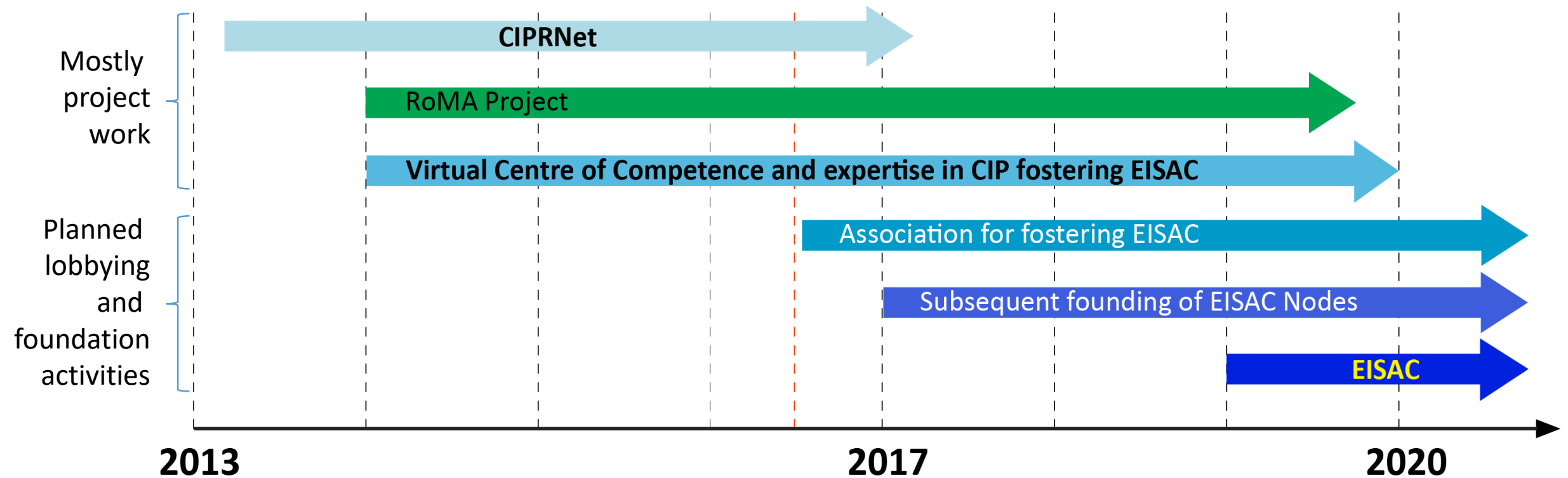




CIPRNet & EISAC Perspective



EISAC timeline



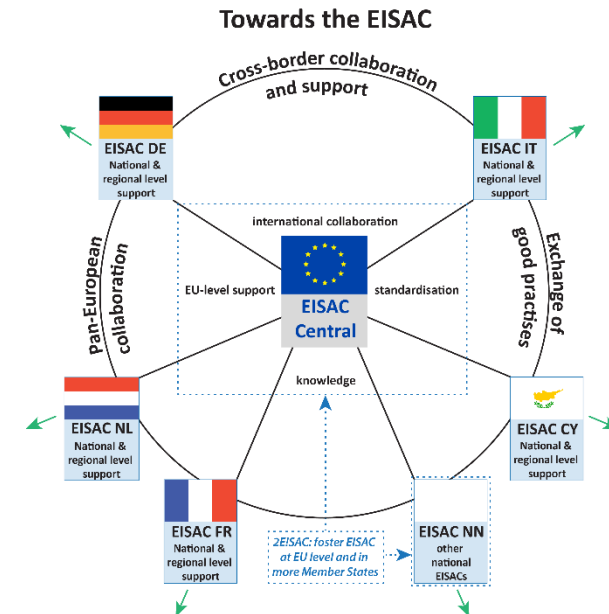


EISAC



Staged development plan

- Original idea developed in the DIESIS project: Design study delivered in 2010
- CIPRNet developed strategy further
- Different business models for different MS, using national opportunities and partners' expertise
- CIPRNet (restricted) deliverable describes plans for EISAC-NL, EISAC-IT, EISAC-CY, EISAC-DE, EISAC-FR, and EISAC-EU
- EISAC-IT most advanced
- How to proceed after the end of CIPRNet?



Towards EISAC – Association 2E!SAC

- “2E!SAC – association for fostering the resilience of vital infrastructures in Europe”
- Association by German law
- Registered office in Sankt Augustin
- Founded in November 2016
- Eight founding members:
Fraunhofer, ENEA, TNO, CEA, Università Campus Bio-Medico of Rome, University of Cyprus, Acris, TecNALIA
- The association is a formal frame for fostering promotional activities for the EISAC idea
- New organisational members are welcome
- Contacts: Chairman Erich Rome (erich.rome@iais.fraunhofer.de), board members marieke.klaver@tno.nl and vittorio.rosato@enea.it



CIPRNet and EISAC



Conclusion

- CIPRNet's main goals
 - forming new capabilities for CI operators and crisis managers in civil protection
 - capacity building within the CIP research communities (multi-disciplinary mindset)
 - sustaining all this by forming a VCCC and evolving it to EISAC
- CIPRNet succeeded in transfer / application of its knowledge and technology
- CIPRNet partners and external organisations have founded the association 2E!SAC
- Further support needed for establishing EISAC nodes
- EISAC can provide sustained support from the research communities to CIP stakeholders

Disclaimer

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Thank you for your attention!
<http://www.lei.it/critis2018/>

comprehensive project website: ciprnet.eu

online glossary: cipedia.eu

e-learning platform: security-learning.eu

Acknowledgements: CIPRNet team

