



TSC

Transmission System Operator
Security Cooperation

The initiative to enhance the security of the electrical system in Europe

Content

- 1 Purpose of TSC**
- 2 Mission and Tasks**
- 3 CTDS and RAAS System**
- 4 TSC Cooperation Process**

Purpose of the TSO Security Cooperation

Challenge

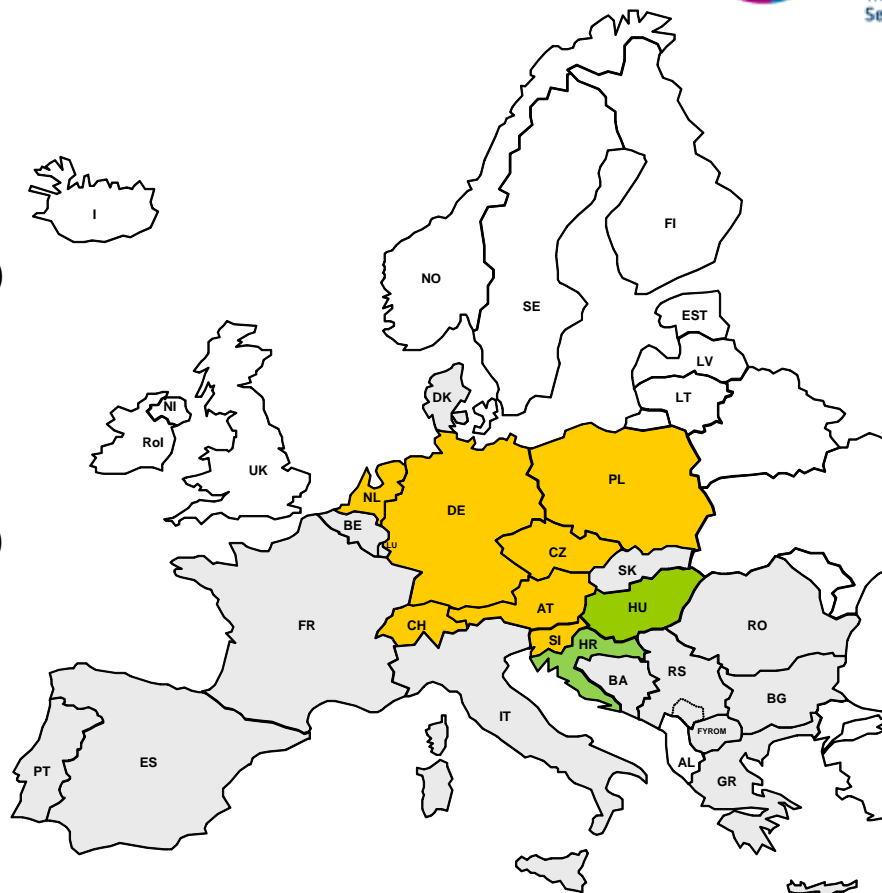
Better manage the growing operational needs with special regard to

- changes in production allocation until close to real time
- the integration of wind energy
- increasing cross-border trading
- increasing electricity transport via multilateral cooperation

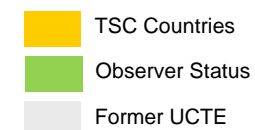
Using the challenge to secure the security of supply

Members

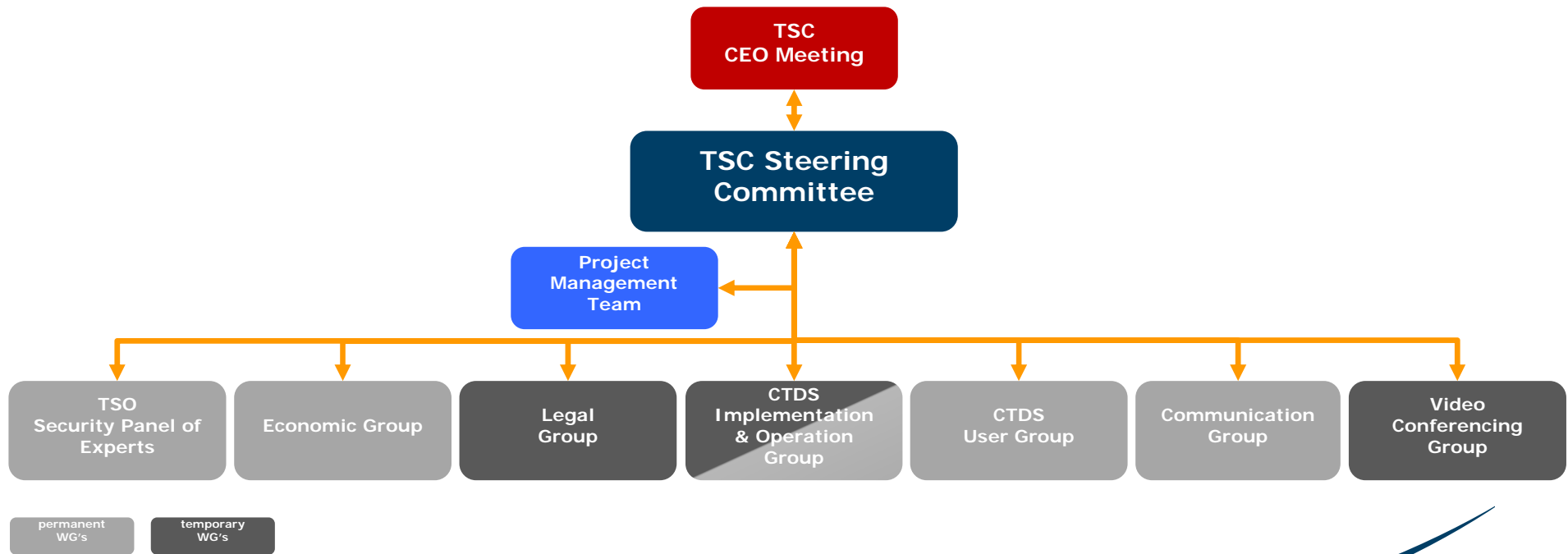
- 50Hertz Transmission (Germany)
- Amprion (Germany)
- APG (Austria)
- ČEPS (Czech Republic)
- ELES (Slovenia)
- EnBW Transportnetze (Germany)
- PSE Operator (Poland)
- swissgrid (Switzerland)
- TenneT TSO (Netherlands)
- TenneT TSO (Germany)
- VKW-Netz (Austria)



Covering an area with more than 165 million European citizens in the heart of Europe



Project Organization



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The „TSO Security Panel of Experts“- Mission

Improving
overall
system security
through a more
intensive
cooperation
by

- creating a permanent network of operational experts
- developing coordinated procedures and remedial actions

The „TSO Security Panel of Experts“ - Tasks

Improving system security

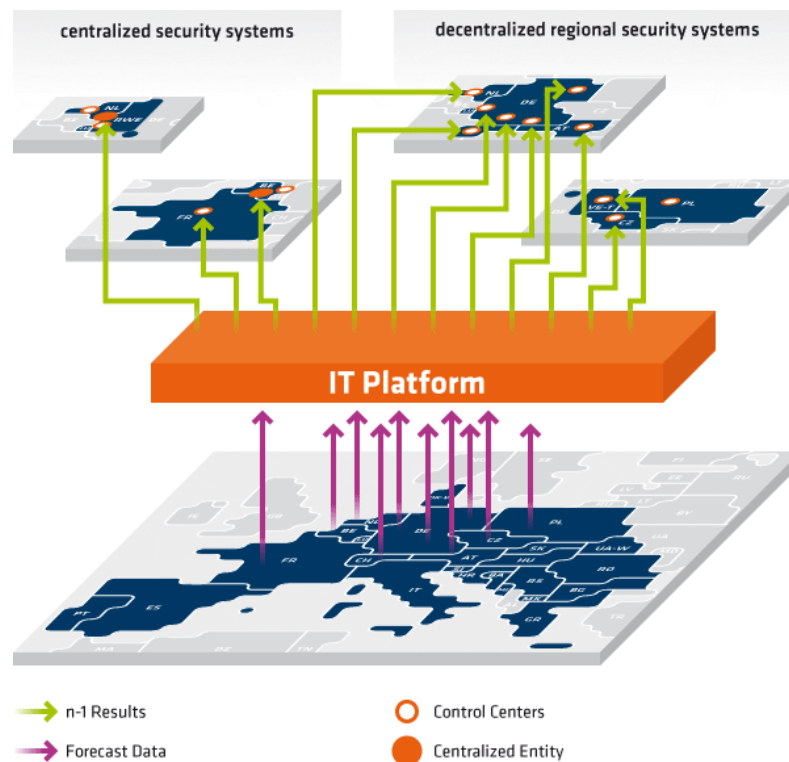
- Exchanging experiences regarding remedial actions
- Exchanging experience based on the results of system monitoring
- Developing new multilateral procedures and measures
- Making proposals for new functionalities

The «Economic Group» - Tasks

Improving
system
security

- Overview on individual regulatory frameworks
- Description of common and non-common economic and regulatory characteristics of remedial actions
- Recommendation for an economic framework
- Cost estimates
- Preparing discussions with regulators
- Assist in providing cost / price data

TSC improves system security in Europe



- TSC delivers input which is helpful for TSOs and for all existing security initiatives (centralised, decentralized...)
- TSC is compatible with all (TSO-internal) organisational forms
- TSC is extendable at will to other TSOs (also in other synchronous areas)

Concept of TSC

Increase security of supply through intensified regional cooperation based on a Cooperation Platform and common remedial actions

- Processes and definitions for operational forecast data
- A unique merged dataset (based on individual TSO datasets) as input for grid security calculations
- Execution of grid security calculations and provision of results
- Definition of additional individual studies on the Cooperation Platform on the basis of the unique merged dataset
- Common daily evaluation of security calculation results, identification and coordination of remedial actions
- Coordinated procedures in case of critical grid situations and remedial actions

Project for

Common Cooperation Platform (CTDS)

commonly owned, operated and funded

Project(s) for

Regional Cooperation

with highly inter-dependent grid operation

Other Enhancements Triggered by TSC

- Wind Data Exchange Process
- Common Training
- Implementation of Real-Time Awareness & Alarm system (RAAS) for Central Europe

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Reasons for working together in a Security Cooperation

Important success factors:

- Everybody should know each other
- Permanent working together: Working Group, Panel, Project
- Simplified communication by phone and video conferences
- Working with common tools
- Discussions based on the same information
- Using Broadcast Messages
- Seamless integration of voice, picture and information

**"Common Tool for Data exchange and Security assessments"
as collaboration platform**

The «CTDS-System»: What does this mean?

Receiving

Receiving operational forecast data from all participating TSOs and adjacent (non-participating) TSOs

Merging

Merging input data into a unique dataset being the input for grid security calculations

Executing

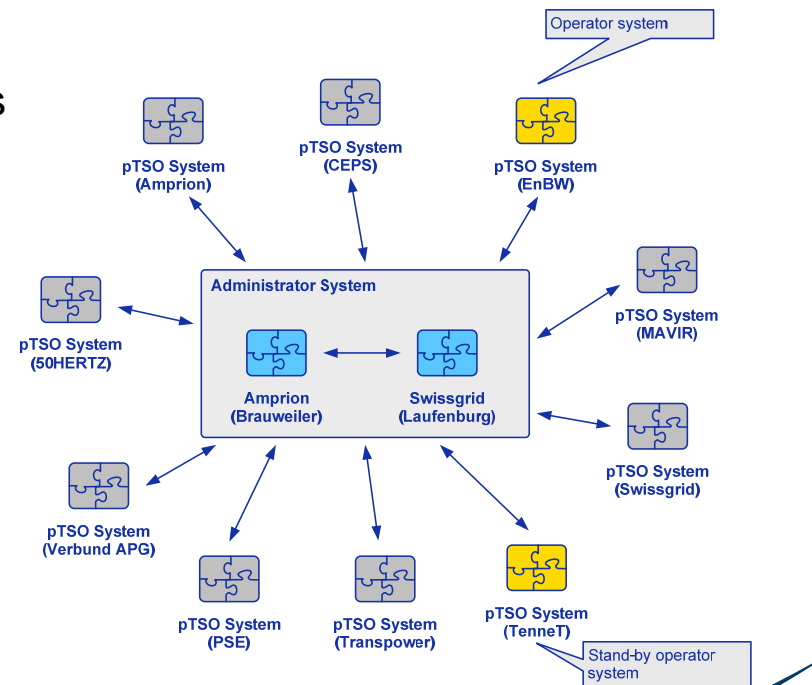
Executing grid security calculations and providing each member with calculation results

Enabling

Enabling to perform additional individual studies on the common IT-Platform on the basis of the common unique merged dataset

CTDS approach focuses on a decentralized solution

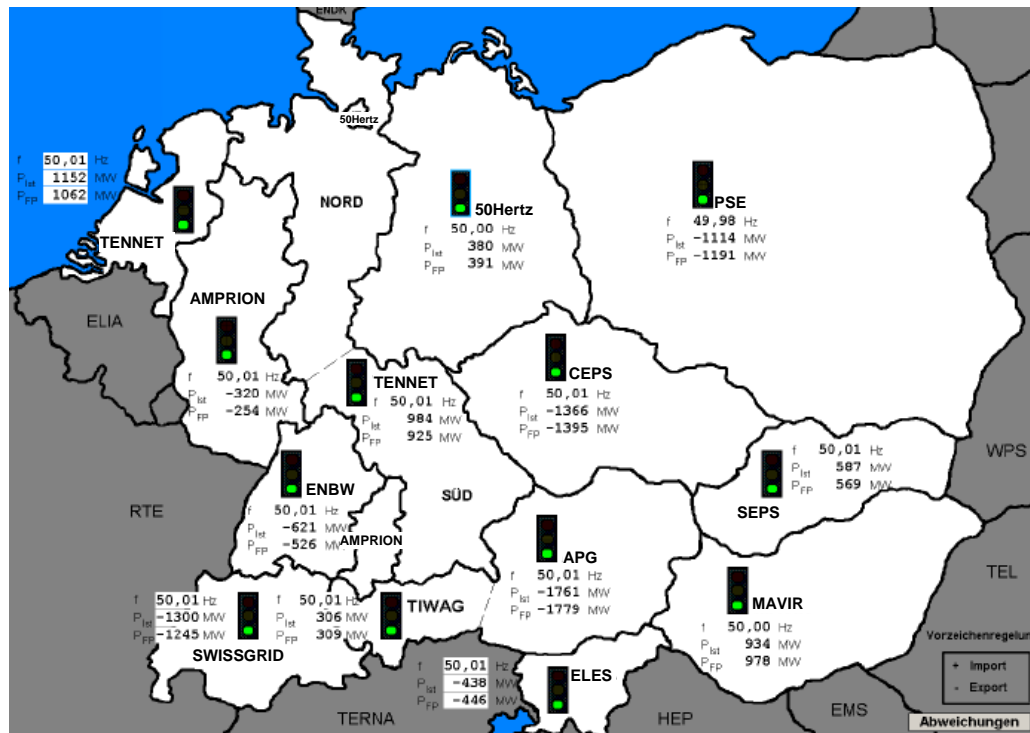
- CTDS User / Operator system installations at each participating TSO
- Administrator system installations at two hosting sites
- Active / Passive
- Reliable data repository
- Systems interconnected via Electronic Highway using Energy Communication Platform (ECP)



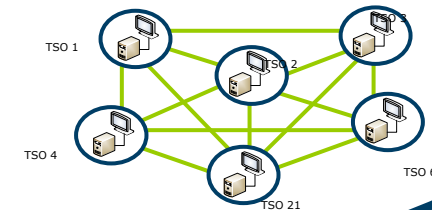
Goals of the «CTDS-System»

- Avoiding risks in Central Europe
- Secure operation of interconnected grids
- Meeting cooperation requirements of European legislature
- No misunderstandings – all TSOs can work with the same data and same analytical results
- Possibility to simulate impact of changes on complete grid model
- Secure and decentralized solution

Real-Time Awareness & Alarm system (RAAS) for Central Europe



- Global view of the status of the electricity system and real-time info of core parameters available in TSO control centres
- RAAS provides awareness and alarms of the grid status of the whole region to all participating TSOs in real-time.



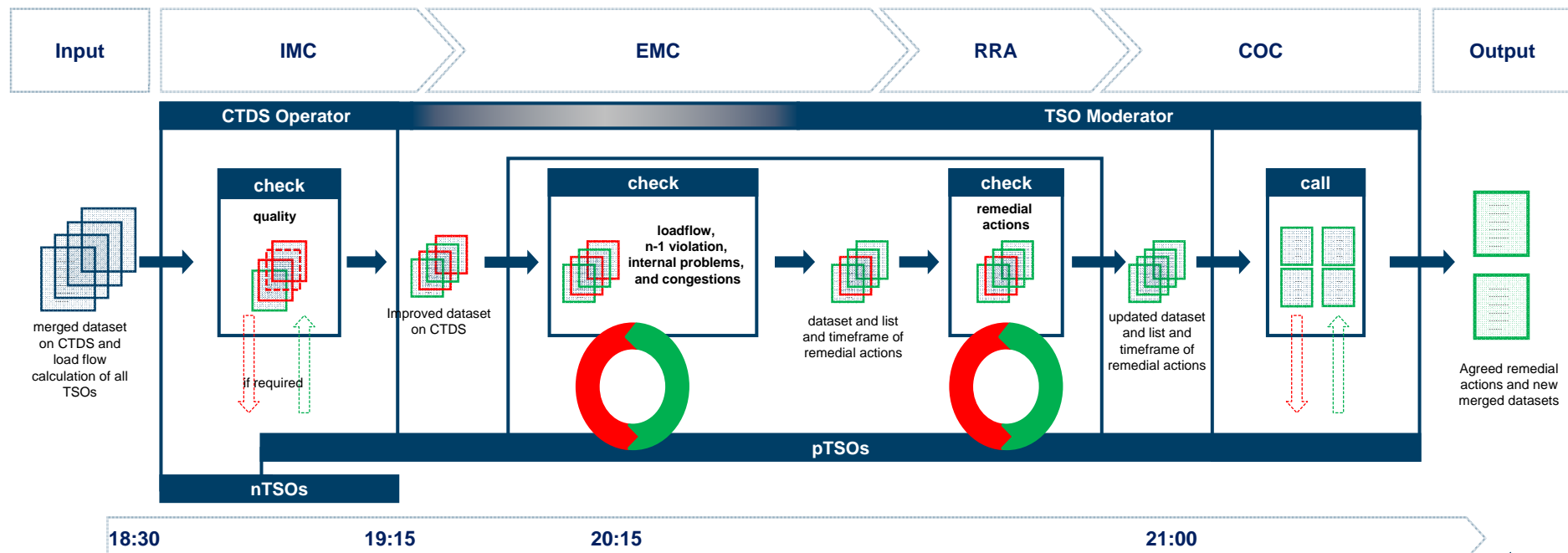
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Goals of the TSC Collaboration Platform

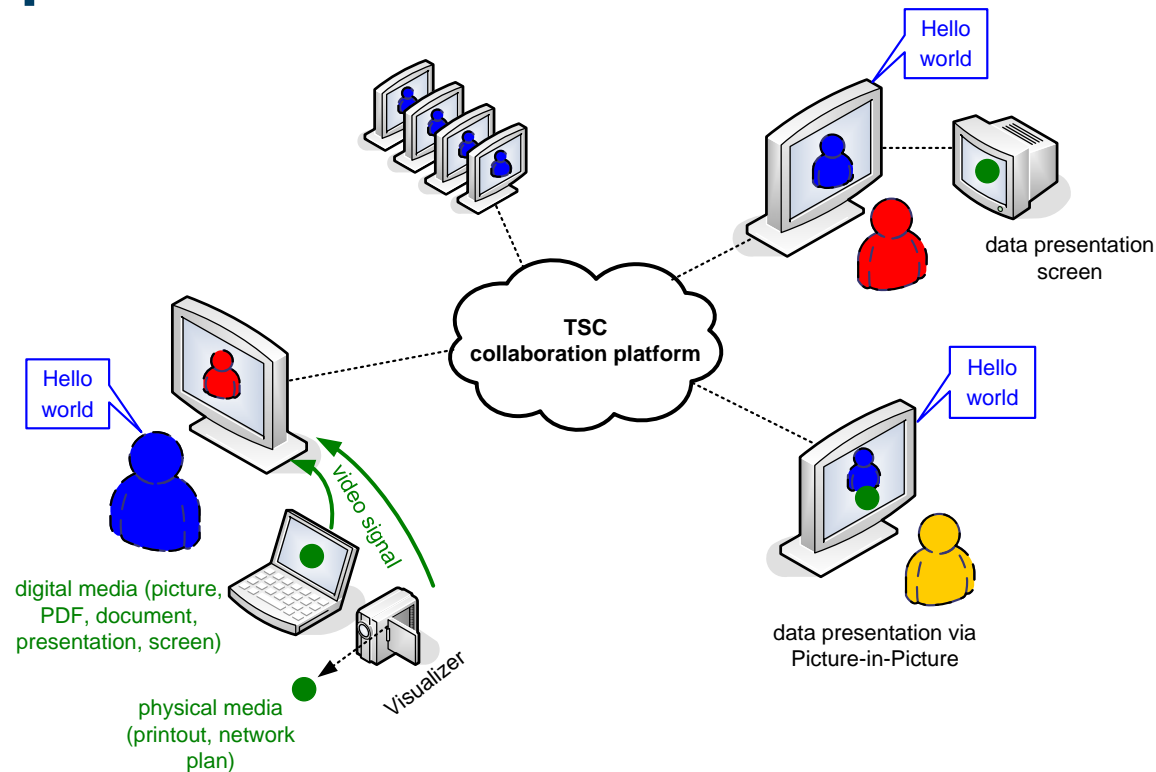
- Connect different TSOs on a business level for quick communication and decision paths
- Assistance of daily work and processes
- Enhanced possibilities for communication and collaboration (e.g. face-to-face discussions, group whiteboard application) allows new efficient ways to work together among the TSOs
- Redundant infrastructure for several services like video conferencing, data exchange, collaboration tools etc
- High-secure and independent network
- Seamless integration within the control centers

Overview of cooperation process



Cooperation process enables improvements in the daily operational planning

Human communication by using TSC collaboration platform



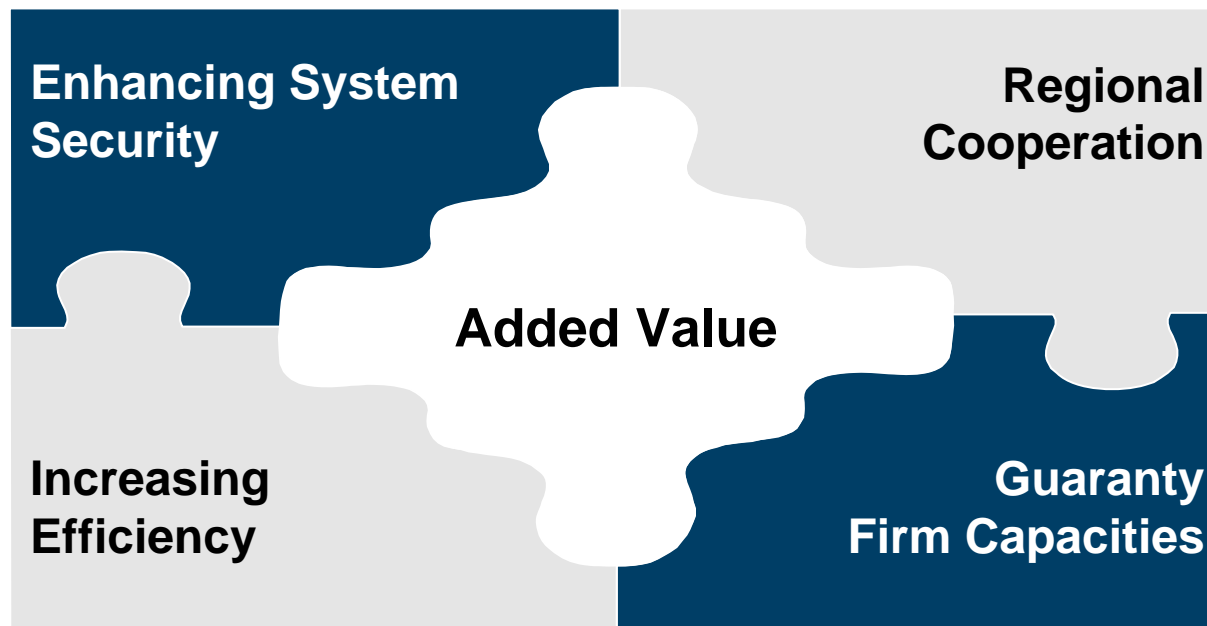
Principles

- Easy to use face-to-face videoconferencing solution
- assist daily processes
- Simple and secure ways to share digital data (e.g. via Notebook) and physical data (paper) through video

Use Cases

- Operational planning
- Spontaneous Conferencing with multiple attendees with one click

TSC acquires several advantages



Achievements of the TSC Collaboration Platform

- Operational start of the CTDS System on 3-JAN-2011
- Implementation of a common CTDS DACF business process
- Building up of additional operational staff at the pTSOs
- Operational start of the videoconferencing system on 3-JAN-2011 for support of the daily operational planning teleconference



www.tso-security-cooperation.eu