



Security in SESAR 2020

Ruben Flohr
ATM Expert, SESAR JU

GAMMA final event
15 November 2017



Founding Members



EUROPEAN UNION



EUROCONTROL

Pieces of the puzzle



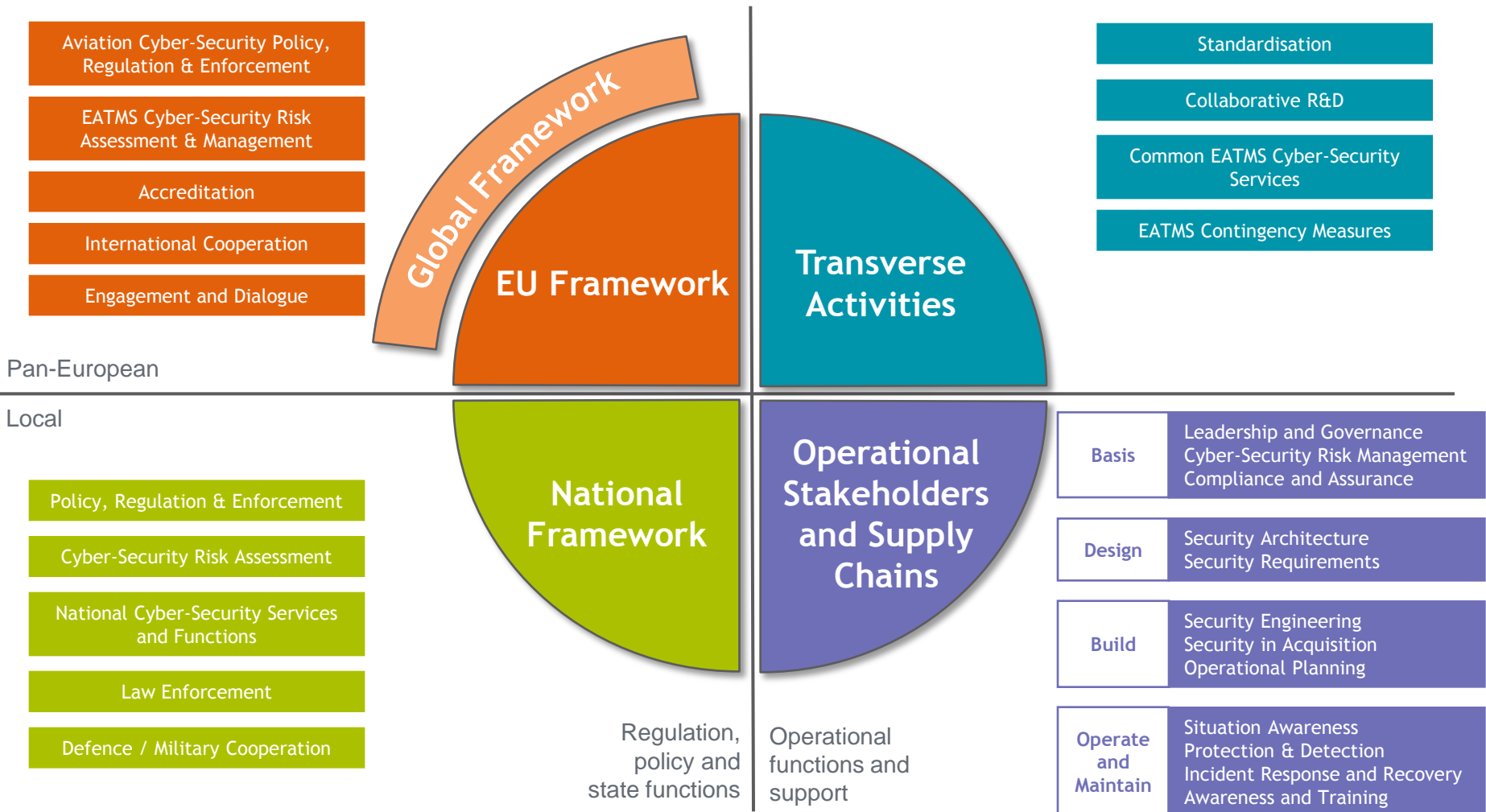
EC	NIS directive, ...
EASA	Launch of ECSP, ECCSA, ...
CERT-EU	EU Computer Emergency Response Team
SESAR	Framework study, security by design, airport security study, ...
GAMMA	Global ATM security management, security solutions
ICAO	E.g. Study Group on Cybersecurity
EUROCAE	WG-72
RTCA	SC-216
CANSO	Cyber-Security Assessment Guide
ENISA	Support establishment and advancement of national CSIRTs
IFALPA	Initial security survey
IFATSEA	Technical Supervision with Cybersecurity capability
NEASCOG	Security policy
ICB	Position Paper on Cyber-Security

...

SESAR Strategy and Management Framework

Study for Information Cyber-Security

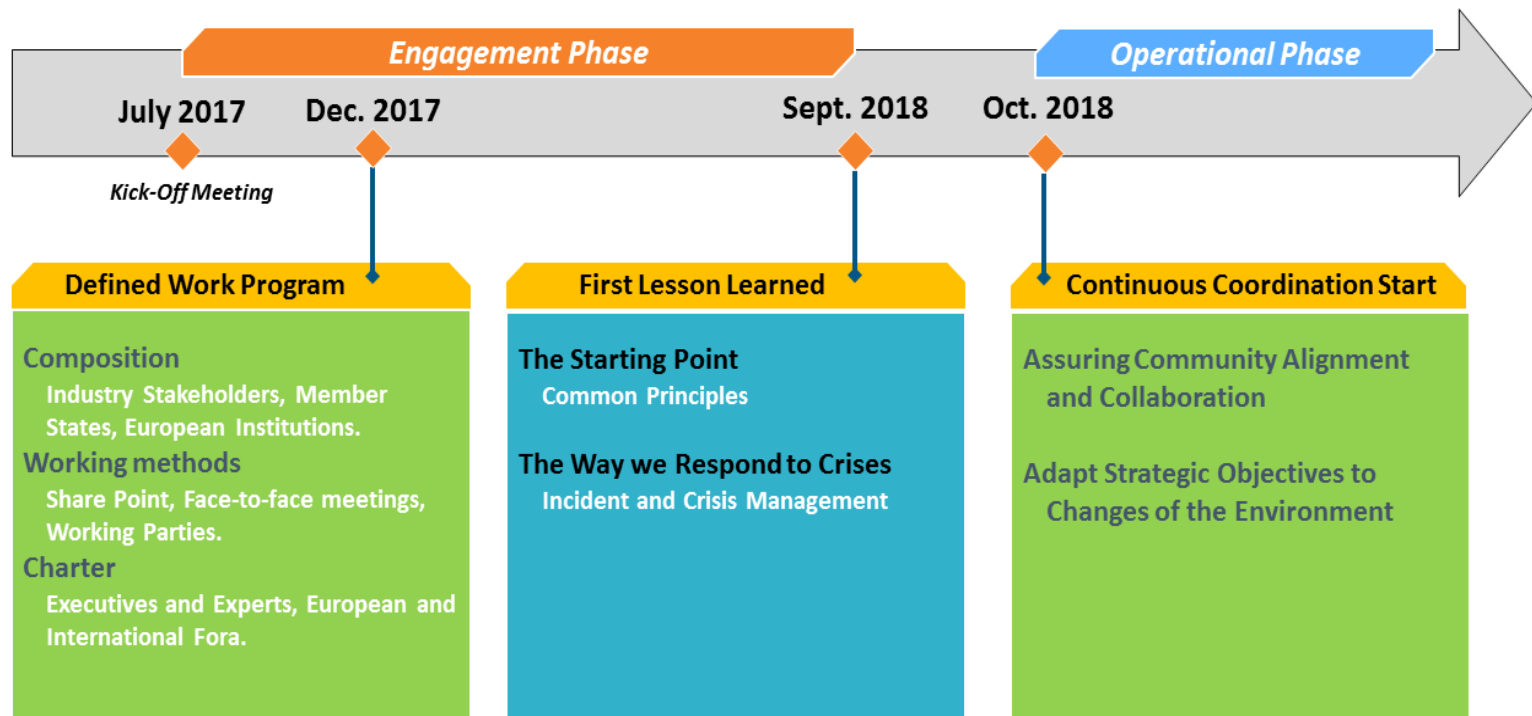
September 2015



European Cyber Security Platform (ECSP)

08/11/2016 Bucharest High Level Security Meeting

07/07/2017 Formal Kick-off, led by EASA



About 30 representatives of aviation industry associations, EU level institutions, EASA Member States and observers of ICAO, FAA and AIA have been invited for the Executive Committee of the ECSP.

SESAR vision

An Aviation Strategy FOR EUROPE



SECURITY

- Ensuring high levels of security



COST EFFICIENCY

- Up to **40%** reduction in air navigation services costs per flight



CAPACITY

- Up to **30%** reduction in departure delays
- Up to **10%** additional flights landing at congested airports
- A system capable of handling up to **100%** more traffic



ENVIRONMENT

- Up to **10%** reduction in CO₂ emissions
- Positive impact on noise and air quality



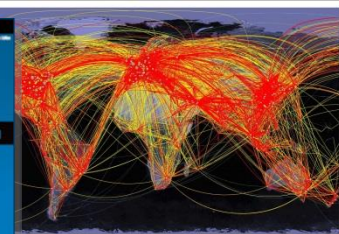
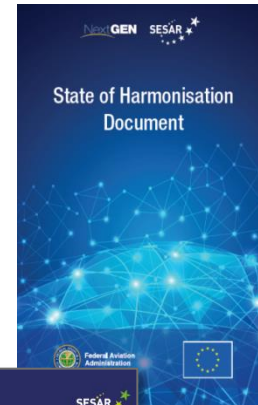
SAFETY

- Improvement by up to a factor of **4**



OPERATIONAL EFFICIENCY

- Up to **6%** reduction in flight time
- Up to **10%** reduction in fuel burn



SESAR life cycle

- To define, develop and deploy the technology that is needed to increase ATM performance and build Europe's intelligent air transport system



The securability of SESAR solutions



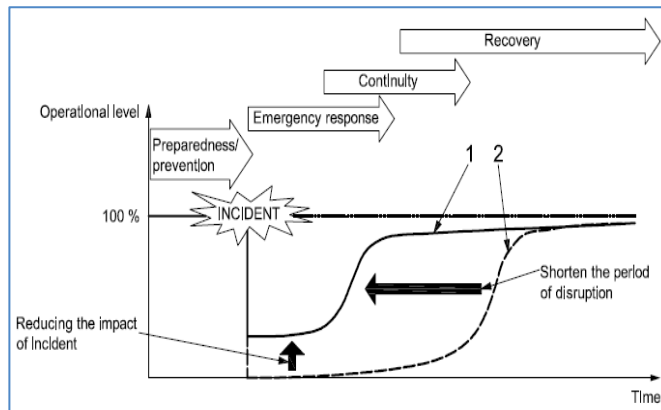
- New challenges
- Multi-stakeholder system of systems
 - Public networks
 - Increased use of COTS and standard protocols

The securability of SESAR solutions



Cyber resilient architecture

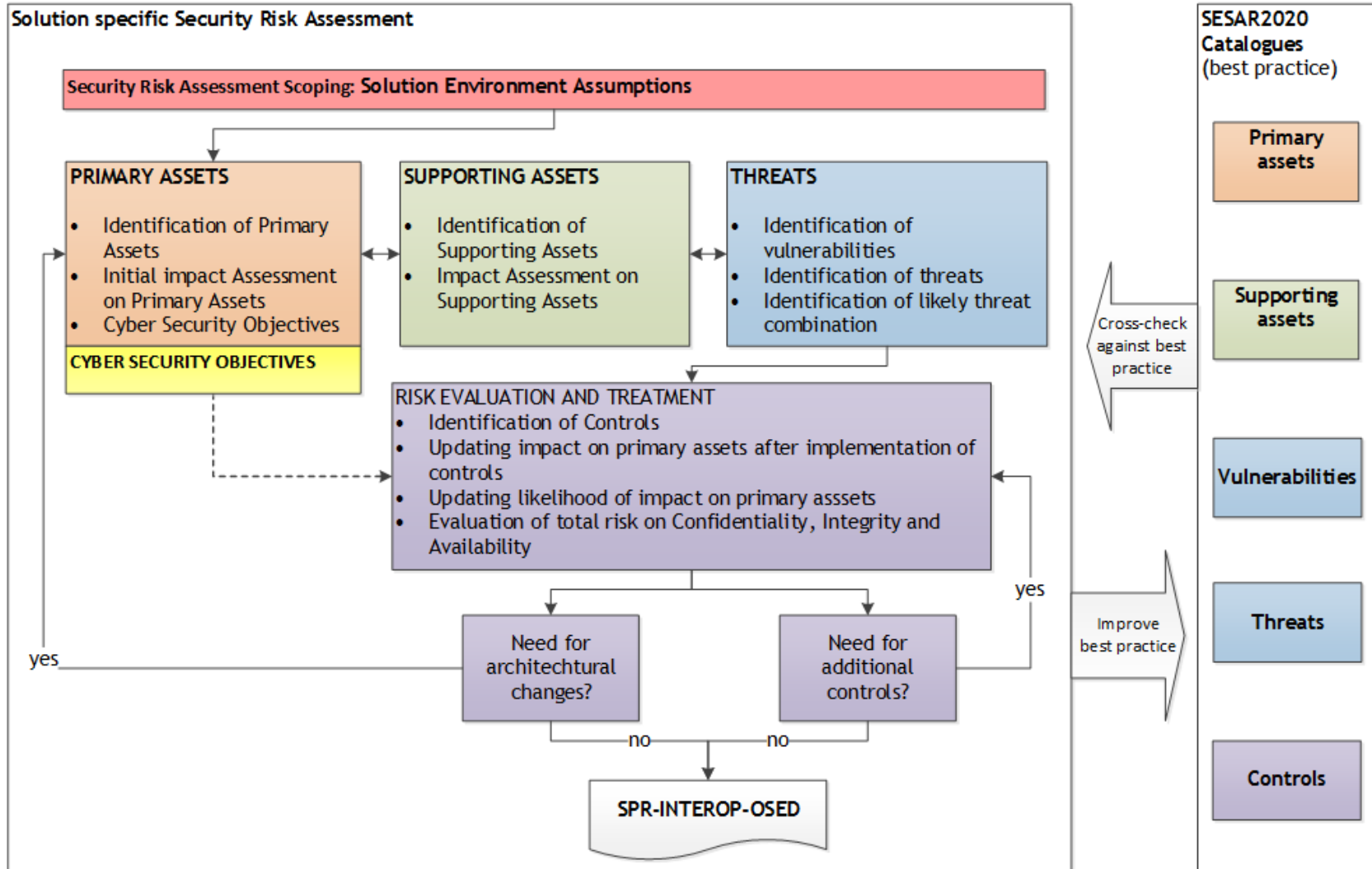
High level requirements for industrialization, deployment and operations



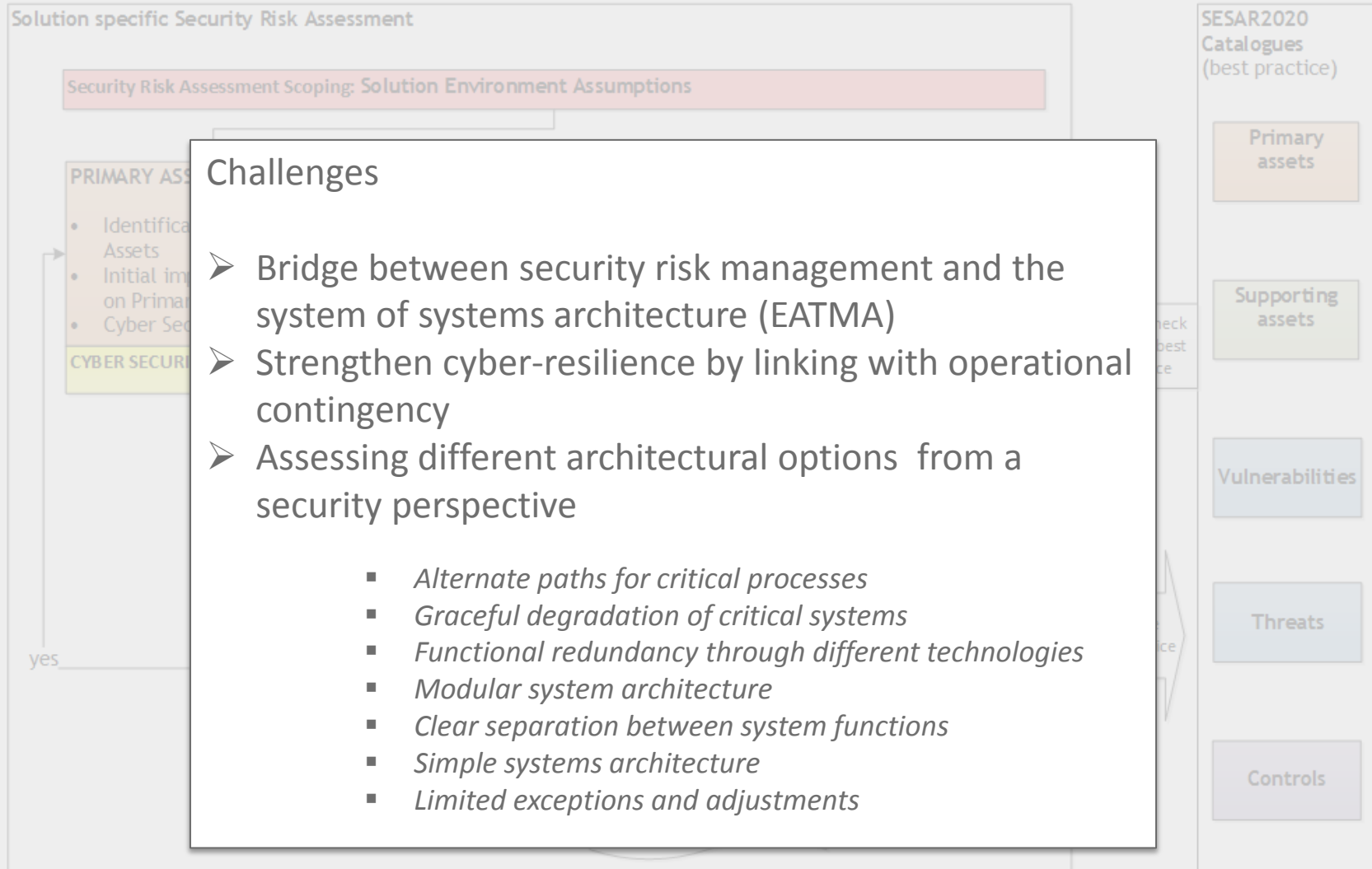
Aspects of cyber-resilience

- Foresight - prediction, anticipation
- Robustness - ability to keep operating
- Resourcefulness - control damage, mitigate it
- Redundancy - substitutable
- Rapid recovery
- Adaptability - to changing environments

SESAR's Security Risk Assessment



SESAR's Security Risk Assessment



Conclusions



- The SESAR cybersecurity strategy and framework study provides a European framework, enabling the application of an Aviation Security Maturity Model to define the roadmap towards fully secured aviation
- The SESAR programme develops, validates and delivers **securable** solutions, by applying the SESAR security risk assessment methodology
- Research is ongoing within SESAR to strengthen the translation of operational cyber resilience requirements into tangible security controls
- There is a need for a European trust framework to share security material on a need to know basis



Security in SESAR 2020

Thank you very much
for your attention!



Founding Members

