EOSC Future Security Operations and Policy

June 2021 EUGridPMA IGTF meeting

Nikhef

David Groep
PDP group Nikhef, Amsterdam, NL

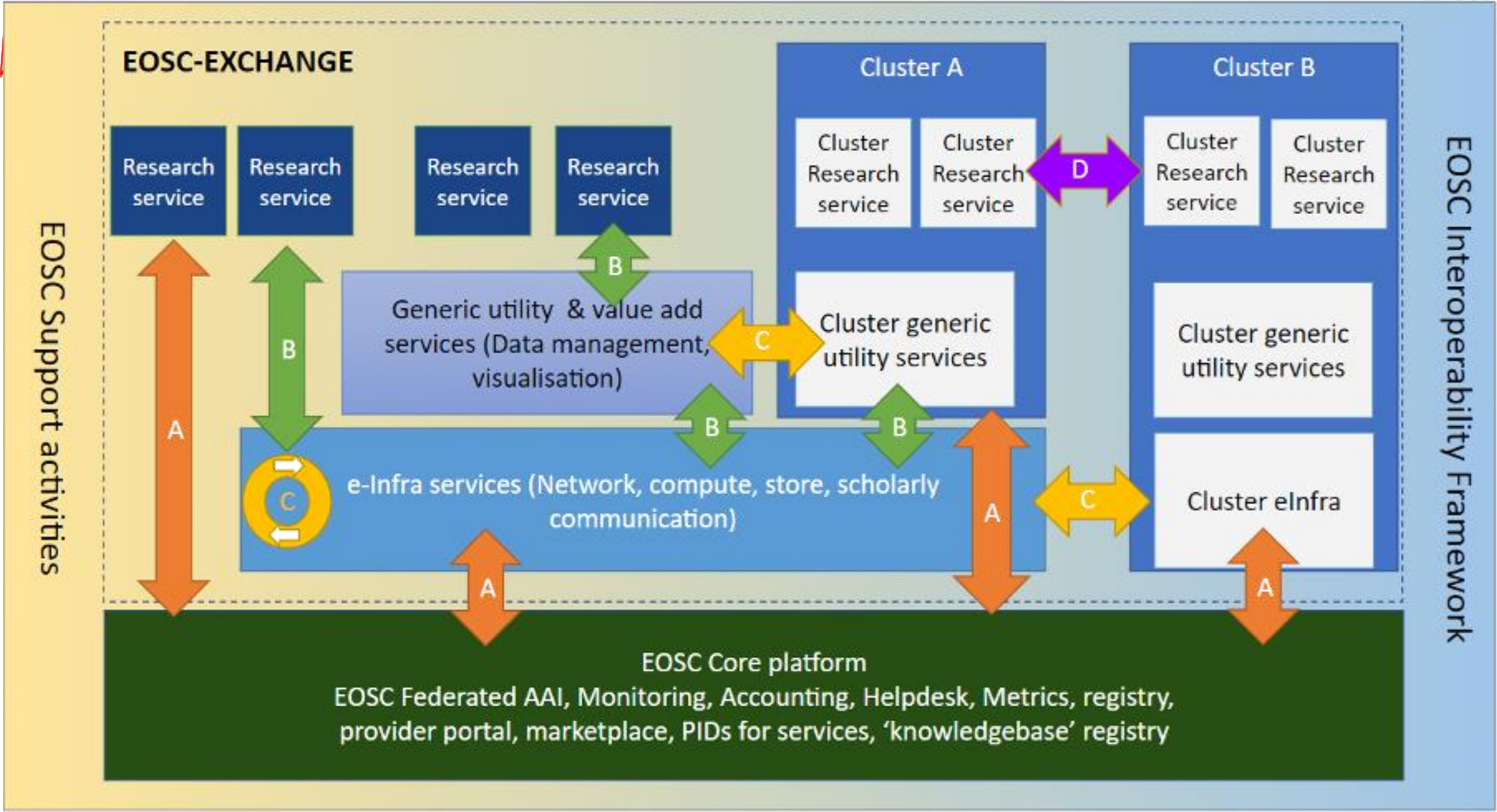
A challenging landscape

Entities of all kinds – diversity in the EOSC range from *data sets* to *storage* to *computing* to *publications* & *digital objects*

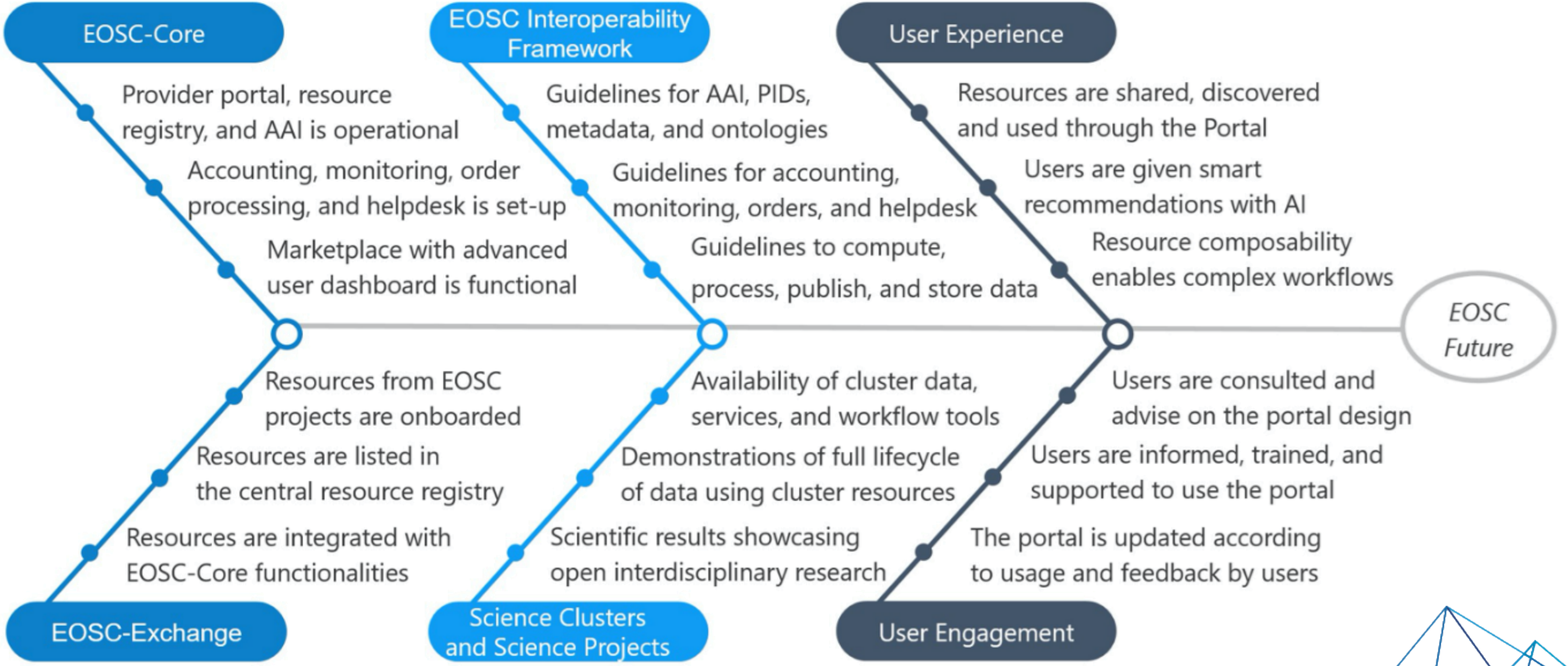
An open ecosystem – rules of participation will favour low barrier to entry regarding operational maturity, service management quality, &c

A diverse ecosystem – providers will come from e-Infrastructures, from member states, from research infrastructures, and private sector

An *interdependent* ecosystem – aiming for composability and collective service design through an open, core AAI federation


EOSC-EXCHANGE
Research service
Research service
Research service
Research service
Cluster A
Cluster Research service
Cluster Research service
Cluster B
Cluster Research service
Cluster Research service
D
Generic utility & value add services (Data management, visualisation)
Cluster generic utility services
Cluster generic utility services
C
e-Infra services (Network, compute, store, scholarly communication)
Cluster eInfra
A
B
C
EOSC Support activities
EOSC Interoperability Framework
EOSC Core platform
EOSC Federated AAI, Monitoring, Accounting, Helpdesk, Metrics, registry, provider portal, marketplace, PIDs for services, 'knowledgebase' registry

Mission of EOSC Future …



EOSC-Core

Provider portal, resource registry, and AAI is operational

Accounting, monitoring, order processing, and helpdesk is set-up

Marketplace with advanced user dashboard is functional

EOSC Interoperability Framework

Guidelines for AAI, PIDs, metadata, and ontologies

Guidelines for accounting, monitoring, orders, and helpdesk

Guidelines to compute, process, publish, and store data

User Experience

Resources are shared, discovered and used through the Portal

Users are given smart recommendations with AI

Resource composability enables complex workflows

EOSC Future

EOSC-Exchange

Resources from EOSC projects are onboarded

Resources are listed in the central resource registry

Resources are integrated with EOSC-Core functionalities

Science Clusters and Science Projects

Availability of cluster data, services, and workflow tools

Demonstrations of full lifecycle of data using cluster resources

Scientific results showcasing open interdisciplinary research

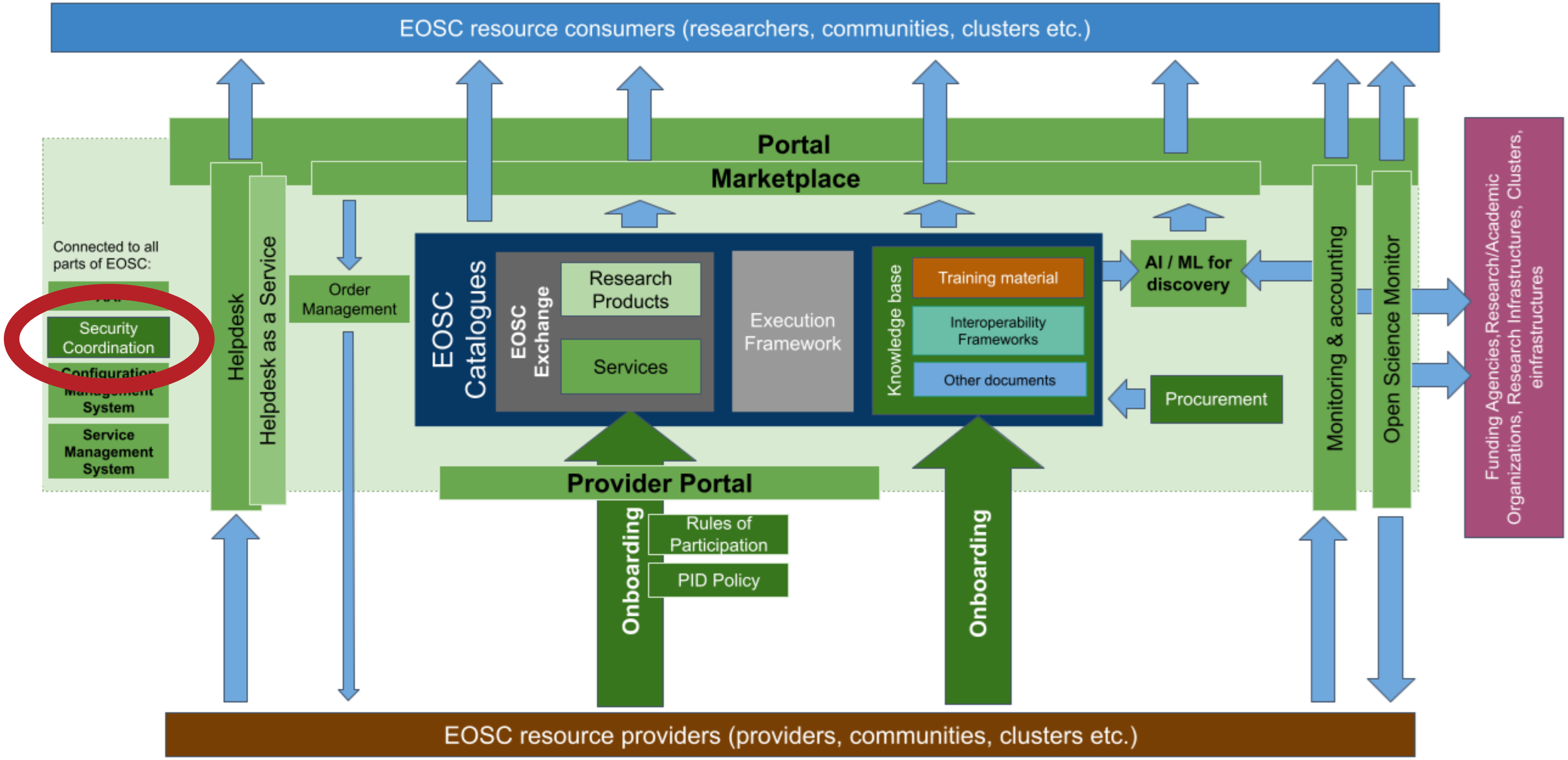
User Engagement

Users are consulted and advise on the portal design

Users are informed, trained, and supported to use the portal

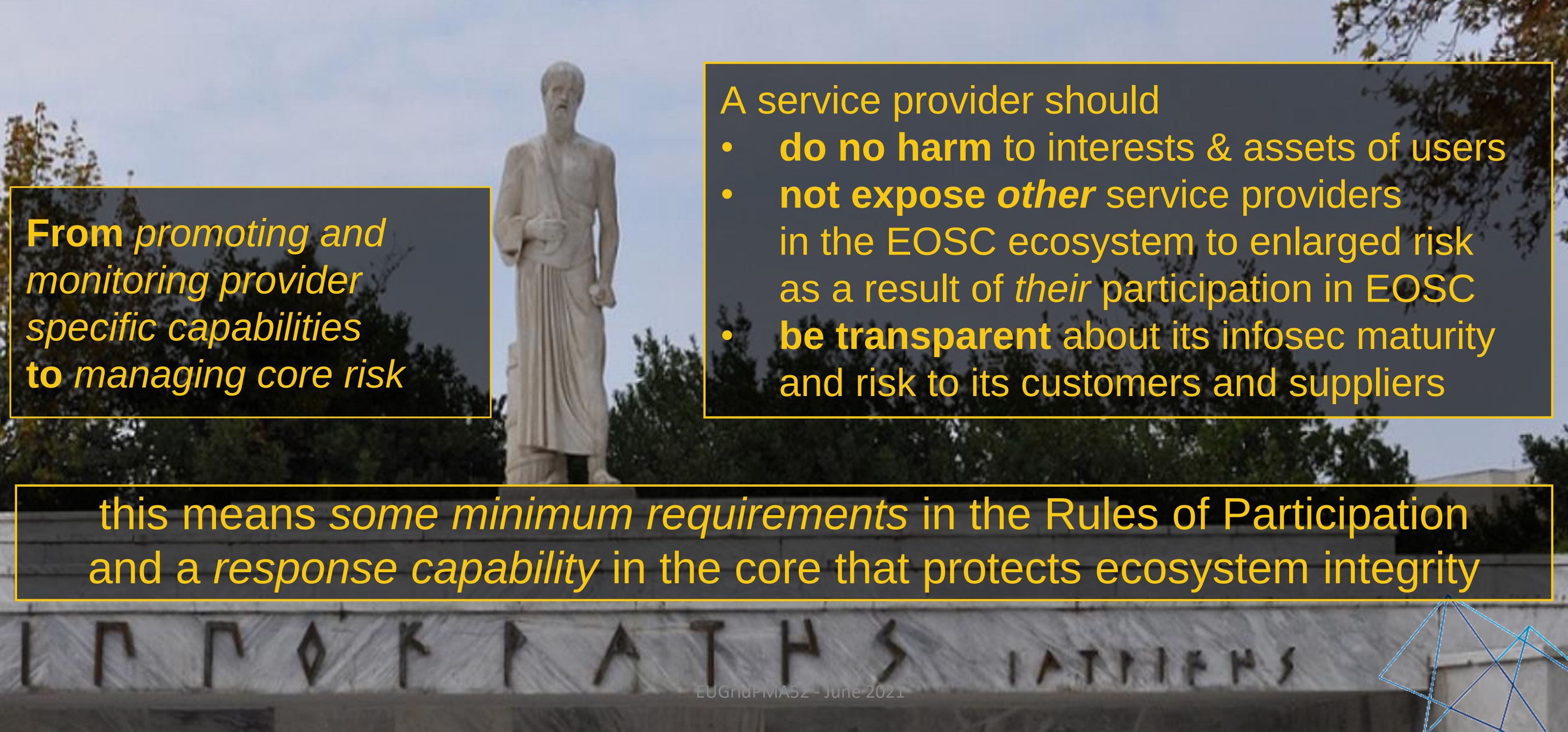
The portal is updated according to usage and feedback by users

Components Integrated by EOSC Future



from “PartB”, 24_03_2021_EOSC_Future_master_file

Start with the basics for ‘EOSC at large’



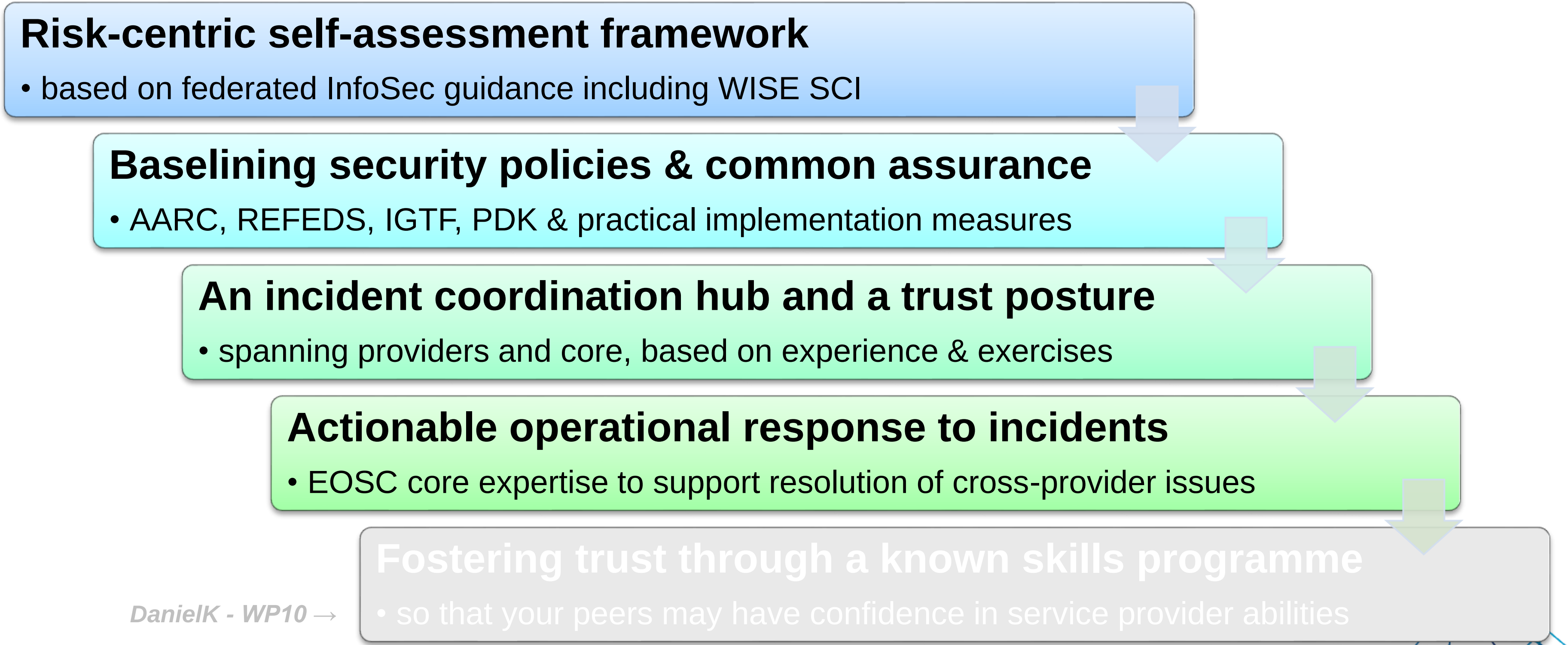
From *promoting and monitoring provider specific capabilities* **to** *managing core risk*

A service provider should

- **do no harm** to interests & assets of users
- **not expose *other*** service providers in the EOSC ecosystem to enlarged risk as a result of *their* participation in EOSC
- **be transparent** about its infosec maturity and risk to its customers and suppliers

this means *some minimum requirements* in the Rules of Participation and a *response capability* in the core that protects ecosystem integrity

EOSC Security Operations & Policy



Risk-centric self-assessment framework

- based on federated InfoSec guidance including WISE SCI

Baselining security policies & common assurance

- AARC, REFEDS, IGTF, PDK & practical implementation measures

An incident coordination hub and a trust posture

- spanning providers and core, based on experience & exercises

Actionable operational response to incidents

- EOSC core expertise to support resolution of cross-provider issues

Fostering trust through a known skills programme

- so that your peers may have confidence in service provider abilities

DanielK - WP10 →

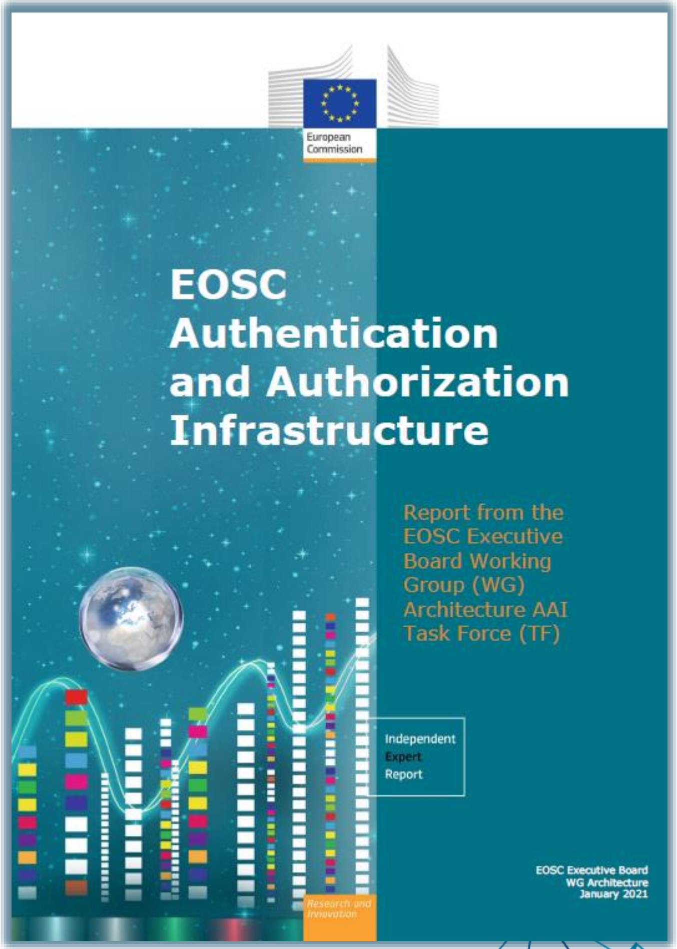
The EOSC AAI /Federation

In order to outline a globally viable, scalable and secure EOSC AAI, the group defined the following three core principles, on which to base their work:

- **User experience** is the only touchstone.
- All trust flows from **communities.**
- **There is no centre** in a distributed system**.**

“The human element was the starting point of our exploration. We believe that providing a good user experience and making use of the existing trust relations that users already have within their research communities are the key factors for delivering a successful EOSC AAI.” [Klaas Wieringa, EOSC AAI TF chair]

doi:10.2777/8702 – ISBN 978-92-76-28113-9



European Commission

EOSC Authentication and Authorization Infrastructure

Report from the EOSC Executive Board Working Group (WG) Architecture AAI Task Force (TF)

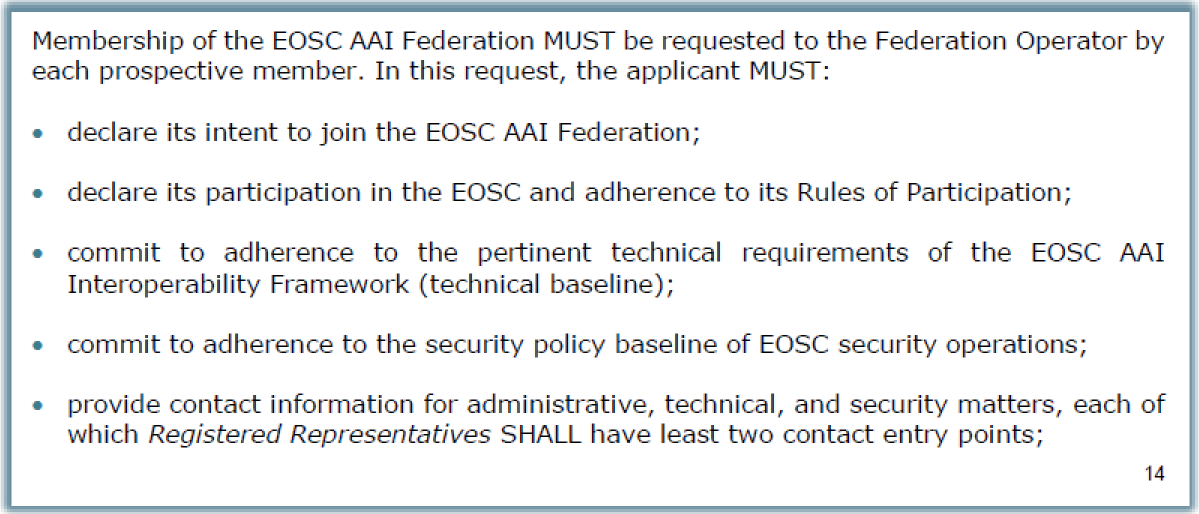
Independent Expert Report

Research and Innovation

EOSC Executive Board
WG Architecture
January 2021

Why is the EOSC AAI important here?

… the new ‘EOSC’ federation gets policies and a base line at ‘onboarding’ time



Membership of the EOSC AAI Federation MUST be requested to the Federation Operator by each prospective member. In this request, the applicant MUST:

- declare its intent to join the EOSC AAI Federation;
- declare its participation in the EOSC and adherence to its Rules of Participation;
- commit to adherence to the pertinent technical requirements of the EOSC AAI Interoperability Framework (technical baseline);
- commit to adherence to the security policy baseline of EOSC security operations;
- provide contact information for administrative, technical, and security matters, each of which *Registered Representatives* SHALL have least two contact entry points;

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- leveraging existing trust frameworks
- not repeat earlier mistakes: so implement a baseline at the start

Planning security activities for the EOSC

1. Information security **risk assessment framework** based on SCI and a maturity model – targeting connected services as well as data, and correlated risks
2. Coordinate security policies for a **baseline** aligned with the Rules of Participation of the EOSC, and the EOSC AAI federation – ensuring transparency for the 'risk appetite' of the participants
3. Mechanisms for **coordination** and resolution of incidents through Information Security Management (ISM) processes – leveraging WISE community and Sirtfi, and enabling the (tested) framework for information sharing
4. Security **operations and incident response capabilities** related to or affecting the EOSC Core (in relatively broad sense) - with content and service providers

Risk Assessment

- base on WISE Risk Assessment for WISE (RAW-WG) assessment template
- moves beyond single-domain framework
- specifically challenging if you cannot enumerate your assets?
- EOSC-specialised maturity model and (self-)assessments
- assessment of risk of combined and composite services

Security policy baseline and trust

- needs to preserve the risk appetite of the participants involved
- trust should be transparent, comparably formulated,
  and address existing and emergent usage patterns
- taking in EOSC Rules of Participation WG, governance activities, and WISE

1. security policy baseline to be incorporated into EOSC AAI Federation participation policy and incorporate secure service operations guidelines
2. evolving trust ‘mapping’ framework of WISE SCI by explicitly incorporating federative aspects
3. effective peer-reviewed self-assessment of information security maturity

Coordination framework and operational sharing process

- incidents are not limited to just one participant, so their mitigation, containment, and ultimate resolution requires a collective response
- leverage, enhance mechanisms developed in WISE and REFEDS
- procedures for collaborating and sharing of the so-called ‘Indicators of Compromise’ (IoCs)
- since incidents do not stop at the EOSC edge, needs engagement with whole constituency: EOSC Core, Exchange, providers, community
- concrete processes that enable collaboration during actual response
- periodically exercised!

Remediation of Core incidents and coordinated security response

- interdependency of services requires exchange of information and a coherent and simultaneous response to incidents both across services as well as inside each individual service
- coordinating response for incidents affecting the EOSC
- remediation of incidents in the Portal, Core Services, and key infrastructure elements

effective remediation of incidents in the EOSC at large *also* depends on subsidiarity and participation of service providers and Infra's

‘whatever it will become, EOSC will shape the research area – and its resilience and security’

Nikhef

David Groep
https://www.nikhef.nl/~davidg/presentations/
https://orcid.org/0000-0003-1026-6606

The work leading to these results has received funding from the European Union’s Horizon 2020 research and innovation programme and other sources.