The ECSS Next Generation

a.k.a. *Issue D*

Federico Chiusano

Head Standardisation / ECSS Deputy Executive Secretary

Chair of CENCENELEC/JTC5 'Space' for ECSS

Industry Days 17th September 2026

ESA-TECSFE-HO-2026-002817

European Cooperation for Space Standardization

European Coordination for Space Standardisation

ECSS

esa

ASD-EUROSPACE
The Space group in ASD

AIRBUS arianeGROUP

OHB ThalesAlenia Space
a Thales / Leonardo company

... and more companies

asi agenzia spaziale italiana

cnes
CENTRE NATIONAL D'ÉTUDES SPATIALES

DLR

Netherlands Space Office

UK SPACE AGENCY

Norsk Romsenter
Norwegian Space Agency

CSA ASC

Associate / observers

cen

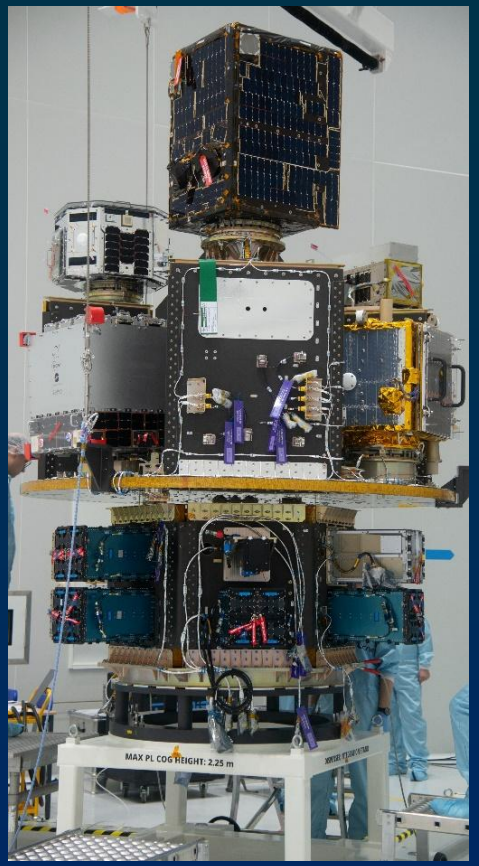
European Commission

EUMETSAT

EUROPEAN DEFENCE AGENCY

ECSS

Established 1994



ECSS purpose

- Develop and maintain a single set of consistent space standards
- Recognized and applied by the entire European Space Community
- The "European way" of procuring space systems

ECSS way of working

- Members with +40 years of experience in space projects
- Partnership: ESA, National Space Agencies, European Space Industry (Eurospace)
- Development by consensus, best practices, lessons learned, change request

- Adopted as European Norms by CEN, the European Committee for Standardization

European Cooperation for Space Standardization

ECSS Standardisation Documents Structure

www.ecss.nl

ECSS-S-ST-00C
standardisation system description

ECSS-S-ST-01C
Glossary of terms

branches

disciplines

(*) Under development

M-Branch
space project management

- **M-10** project phases and implementation
- **M-40** configuration and information management
- **M-60** cost and schedule management
- **M-80** risk management

Q-Branch
space product assurance

- **Q-10** product assurance management
- **Q-20** quality assurance
- **Q-30** dependability
- **Q-40** safety
- **Q-60** EEE components
- **Q-70** materials, mechanical parts and processes
- **Q-80** software product assurance

E-Branch
space engineering

- **E-10** system engineering
- **E-20** electric, electronic, and optics
- **E-30** mechanical
- **E-40** software engineering
- **E-50** communications
- **E-60** control engineering
- **E-70** ground systems and operations

U-Branch
space sustainability

- **U-10** space debris mitigation
- **U-20** planetary protection

I-Branch (*)
industrialisation, production and maintenance

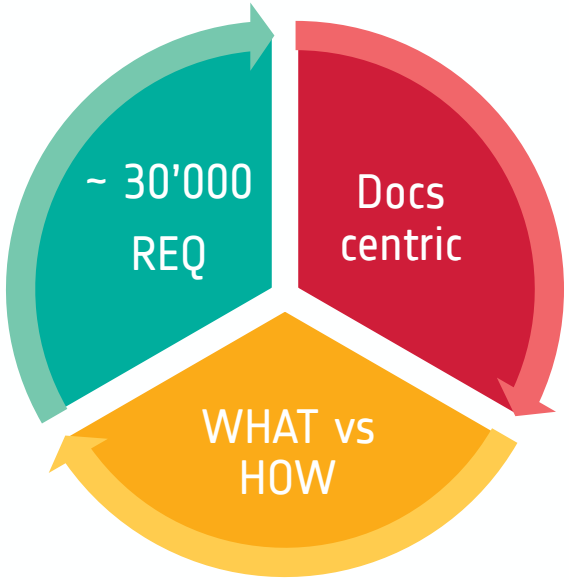
- **I-10** industrialisation
- **I-20** manufacturing
- **I-30** maintenance, repair and overhaul (MRO)

140 Standards, 60 Handbooks
Procurement tool,
Best Practices,
Lessons Learned,
Education, Training

ECSS Next Generation - Background and motivation

ECSS NextGen : why evolve ?

30 YEARS OF HERITAGE – WHY EVOLVE ?



- Very large pool of requirements, What/How mix
- Heavy tailoring process for project teams
- Use multi-document in parallel;
- Unclear applicability for smaller activities
- Some ambiguity, duplication

BENCHMARK INSIGHT

EASA European Union Aviation Safety Agency

"what" – "how" – "why separated with clear ownership"

SAE INTERNATIONAL · ISO · AIAA SHAPING THE FUTURE OF AEROSPACE · iaqg · CCSDS

REQUIREMENTS	What
MEANS OF COMPLIANCE	How
GUIDANCE MATERIAL	Why

Standardisation organization's mixing the three

OUTCOME | *Clear separation WHAT – HOW – WHY makes ECSS suitable for the next decade*

ECSS NextGen project : Mission to Delivery

MISSION

Lower the cost and threshold of ECSS adoption while preserving product quality.
Enable every user select and apply the relevant ECSS content.

3 LEVERS

RESTRUCTURE

Separate existing ECSS content into:

WHAT – requirements

HOW – means of compliance

WHY – guidance & information

DIGITALISE

Requirements management system – move beyond document-based standards.

Collaborative platform – manage requirements and facilitate exchange with industry and ECSS members.

TAILOR & COLLABORATE

Project-specific tailoring – filter and flow down requirements using existing training data.

Joint commitment – ECSS members and an ad-hoc NextGen WG deliver a 15-month effort.

OUTCOME | ECSS issue D and the ECSS Digital platform will be released by the end of 2026

ECSS Restructuration

European Cooperation for
Space Standardization

ECSS NextGen Project Overview

11
Partners
NextGen WG

esa · ASI Agenzia Spaziale Italiana · cnes · DLR · AIRBUS · OHB · UK SPACE AGENCY · ariane GROUP · ThalesAlenia Space · SME4SPACE · gmv

140
ECSS issue C standards

~30 000
Requirements processed

ECSS WG timeline
Sep 2024 – Dec 2025

15 in person meetings

+3 virtual meetings

workplan

- **Kick Off** 09-2024
- **PHASE 1** ECSS restructuring by NextGen WG
  - ECSS restructuring prepa — Executive secretariat & consultant team
- **PHASE 2** Issue D drafts review by NextGen WG
  - Issue D draft production — Executive secretariat & consultant team
- **Final review by** ECSS TA & SB endorsement
  - Issue D finalisation — Executive secretariat & consultant team

16 500
comments in phase 1 (categorisation)

4000
comments in phase 2 (draft review)

ECSS issue D - Normative prouisions categories

Issue C

140 Standards
~ 30'000 Requirements,
Recommendations,
Permissions

Handbooks
- Support application of standards
- Informative

Restructuring

WHAT WHEN WHO	**Requirement (ST)** Normative provisions, not categorised as MoCs, TPs, TS, addressing: • A specific need • Can be applicable by contract • Answering the questions *What, When,* and *Who*	**Technical Specification (TS)** Comprehensive set of normative provisions that define : specific interfaces, technical characteristics, capabilities or protocols, environment, or provide prescriptive and/or normative definitions of interfaces, protocols, other controlling standards such as encoding approaches, or terminology.
HOW	**Means of Compliance (MoC)** Normative provisions providing ways to support compliance with the parent requirement(s).	**Technical Procedure (TP)** Comprehensive set of normative provisions describing a sequence of steps that provide ways to support compliance with the parent requirement(s).
	If MoC/TP are NOT TAILORED UP by the customer, the supplier has 2 options: 1. apply the MoC/TP as they are; 2. propose alternative means of compliance (AltMoC) to be approved by the customer based on demonstrating equivalence between the AltMoC and the MoC/TP.	

Excluded from ECSS NG categorisation work:

→ Safety, security, sustainability, and planetary protection

→ Handbooks

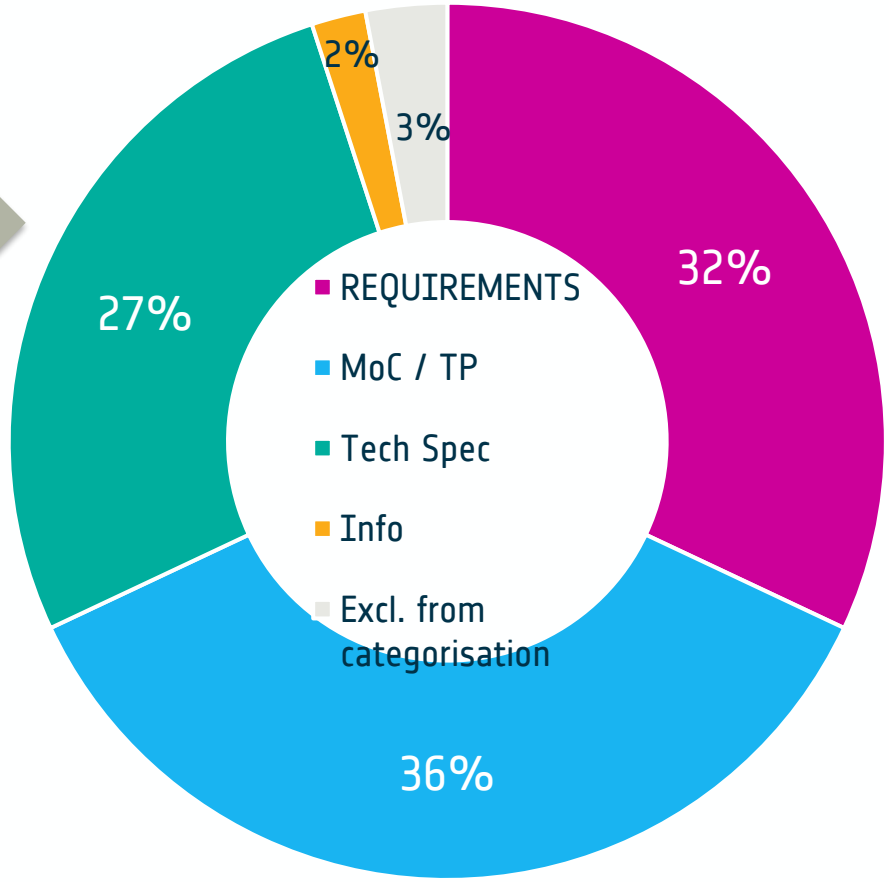
NB: Use of *"shall"* (to be complied with), *"should"* (recommendation), and *"may / need not"* (permissions) is the same between Issue C and Issue D

IMPORTANT : ECSS tailoring process still exist, but MoC and TP shall NOT be tailored up by DEFAULT.

ECSS issue D - Normative provisions per category

	ECSS Issue D - Restructuration	
WHAT WHEN WHO	Requirement (ST)	Technical Specification (TS)
HOW	Means of Compliance (MoC)	Technical Procedure (TP)

Handbooks
- Support application of standards
- Informative



❑ *Excluded from categories: Standards proposed to become Handbooks (3%)*

IMPORTANT : ECSS tailoring process still exist, but MoC and TP shall NOT be tailored up by DEFAULT.

Some Examples ?

Ex.: ECSS-Q-ST-70 – Materials, mechanical parts and processes
Issue C us. Issue D restructuring and categorisation

Issue C

4.1.3 MMPP Manager and MPCB

ECSS-Q-ST-70_0490003

a. << deleted >>

ECSS-Q-ST-70_0490004

b. << deleted >>

ECSS-Q-ST-70_0490194

c. The supplier shall appoint a MMPP manager.

ECSS-Q-ST-70_0490195

d. The MMPP Manager shall ensure that the Materials, Mechanical Parts and Processes used to manufacture a spacecraft or a launcher satisfy both the ground and flight functional requirements and constraints of the project.

ECSS-Q-ST-70_0490196

e. To obtain the validation status for materials and qualification status for parts and verification status for processes, the MMPP manager shall present to the customer activities which were performed in conformance with requirement 4.1.3d together with the results obtained.

ECSS-Q-ST-70_0490197

f. The MMPP manager shall organize Materials, Mechanical Parts and

Issue D

4.1.3 MMPP responsible and MPCB

Requirement

ECSS-Q-ST-70_0490194

The supplier shall appoint a responsible person for MMPP.

Requirement

ECSS-Q-ST-70_0490195

See ECSS-Q-MC-70 0490197; ECSS-Q-MC-70 0490198; ECSS-Q-TP-70 0490200

The supplier shall ensure that the materials, mechanical parts and processes used to manufacture a spacecraft or a launcher satisfy both the ground and flight functional requirements and constraints of the project.

Requirement

ECSS-Q-ST-70_0490199

The supplier shall agree with the customer on the MPCB's activities at PDR.

Means of Compliance

ECSS-Q-MC-70_0490196

According to ECSS-Q-ST-70 0490001

To obtain the validation status for materials and qualification status for parts and verification status for processes, the MMPP manager shall present to the customer activities which were performed in conformance with ECSS-Q-ST-70 0490195 together with the results obtained.

mpliance

ECSS-Q-MC-70_0490197

According to ECSS-Q-ST-70 0490195

The supplier shall organize materials, mechanical parts and processes control board (MPCB)

Ex. From ECSS-Q-ST-70D – Materials, mechanical parts & processes

Requirement	Means of Compliance
WHAT	HOW

Ex. from ECSS-Q-ST-20D – Quality Assurance

5.4 QA requirements for procurement

5.4.3 Surveillance of procurement sources

See ECSS-Q-ST-20 clause 5.4.3

Requirement

ECSS-Q-ST-20_0380084

The supplier shall exercise surveillance over all the activities carried out by lower-level suppliers during business agreement performance.

5.4.3 Surveillance of procurement sources

Means of Compliance

ECSS-Q-MC-20_0380085

According to ECSS-Q-ST-20_0380084

The surveillance programme shall address audits, reviews, mandatory inspection points, as well as direct supervision by supplier's resident personnel at his suppliers' facilities and source inspection.

Means of Compliance

ECSS-Q-MC-20_0380086

According to ECSS-Q-ST-20_0380084

The supplier shall define the type and extent of surveillance by reviewing the following criteria:

a. testing or inspections cannot be accomplished by the supplier;
b. verification tests are destructive in nature and the quality cannot be verified solely by inspection or test at supplier's facility; …

Means of Compliance

ECSS-Q-MC-20_0380087

According to ECSS-Q-ST-20_0380084

The supplier shall ensure that each of his suppliers implements surveillance on their lower-level suppliers, in accordance with the same criteria.

Means of Compliance

ECSS-Q-MC-20_0380243

According to ECSS-Q-ST-20_0380084

Surveillance may be delegated by the customer to third parties.

Ex. from ECSS-Q-TS-70-71 – Materials, processes and their data selection

4.2 Material requirements

4.2.1 General requirements

Technical Specification

ECSS-Q-TS-70-71_1260001

Design stresses shall include all residual stresses including those coming from manufacturing and assembly processes.

Technical Specification

ECSS-Q-TS-70-71_1260002

Alloys, heat treatments and coatings which minimize susceptibility to general corrosion, pitting, intergranular and stress corrosion cracking shall be used.

4.2.2 Aluminium and aluminium alloys

Technical Specification

ECSS-Q-TS-70-71_1260003

Wrought heat-treatable products shall be mechanically stress relieved.

NOTE For example in TX5X or TX5XX tempers.

Technical Specification

ECSS-Q-TS-70-71_1260004

Wrought alloys 5456, 5083 and 5086 shall be used only in controlled tempers for resistance to SCC and exfoliation.

NOTE Examples of controlled tempers are H111, H112, H116, H117, H323, H343.

Technical Specification

ECSS-Q-TS-70-71_1260005

Long-term manned structures, shall not use aluminium alloys 2024-T6, 7079-T6 and 7178-T6 in structural applications.

Technical Specification

ECSS-Q-TS-70-71_1260006

Black anodising shall not be used on 2000 and 7000 series of Aluminium Alloys.

NOTE The black anodizing of metals is covered by ECSS-Q-ST-70-03.

...

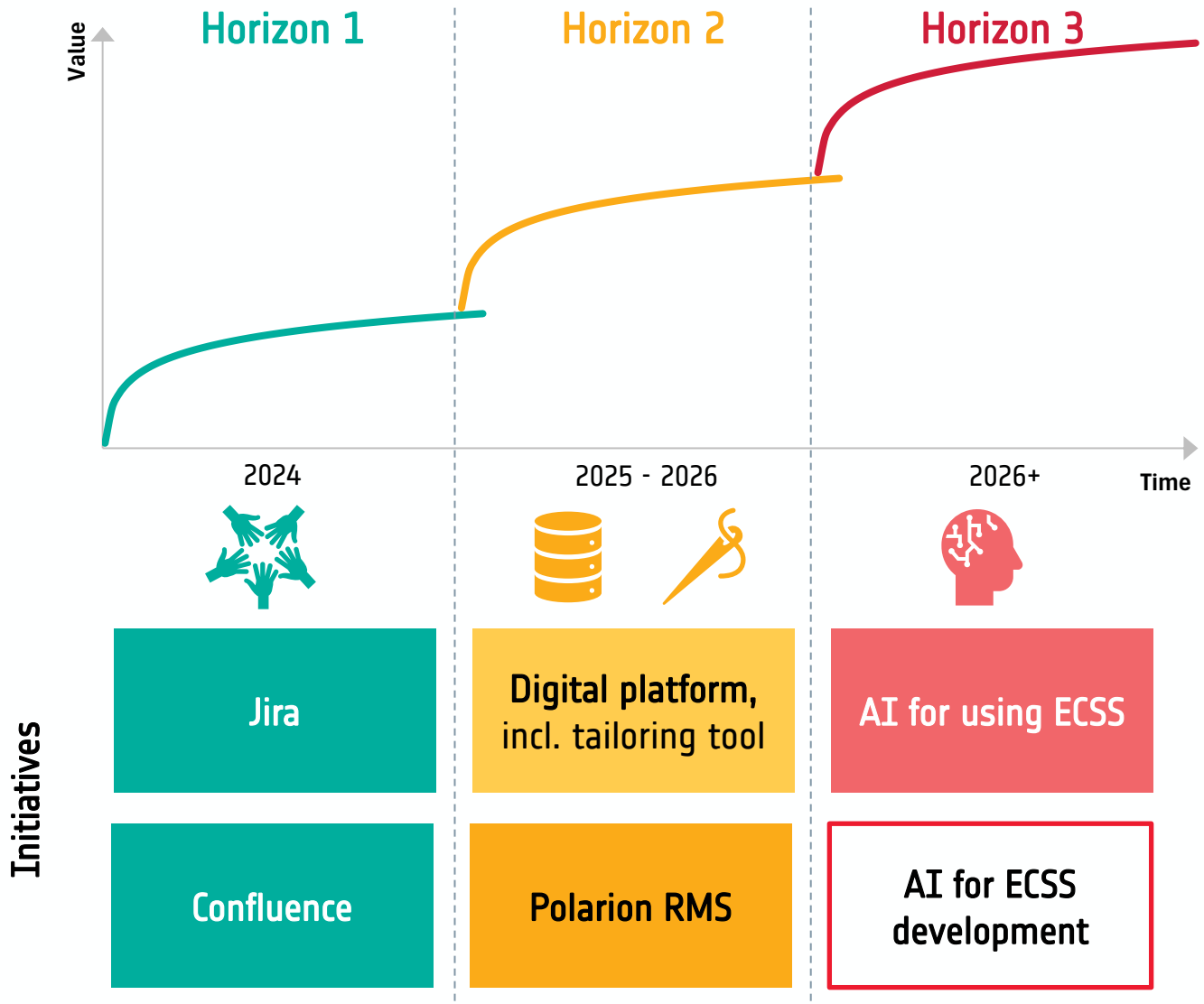
4.2.3 Copper and copper alloys
4.2.4 Nickel and nickel alloys
4.2.5 Titanium and Titanium alloys
4.2.6 Steels
4.2.7 Stainless steels
4.2.8 Filler metals: welding, brazing, soldering
4.2.9 Miscellaneous metallic materials
4.2.10 Optical materials
4.2.11 Adhesives, coatings, varnishes

...

ECSS Digitalisation: a key pillar for ECSS Next Generation

European Cooperation for Space Standardization

ECSS digitalisation roadmap



Description and status

Horizon 1 – improved collaboration

- Addressed obsolescence issues in the previous ECSS tools
- Jira: digitalised ECSS processes
- Confluence: WG collaboration and single source of truth

Horizon 2 – digital platform and RMS (*)

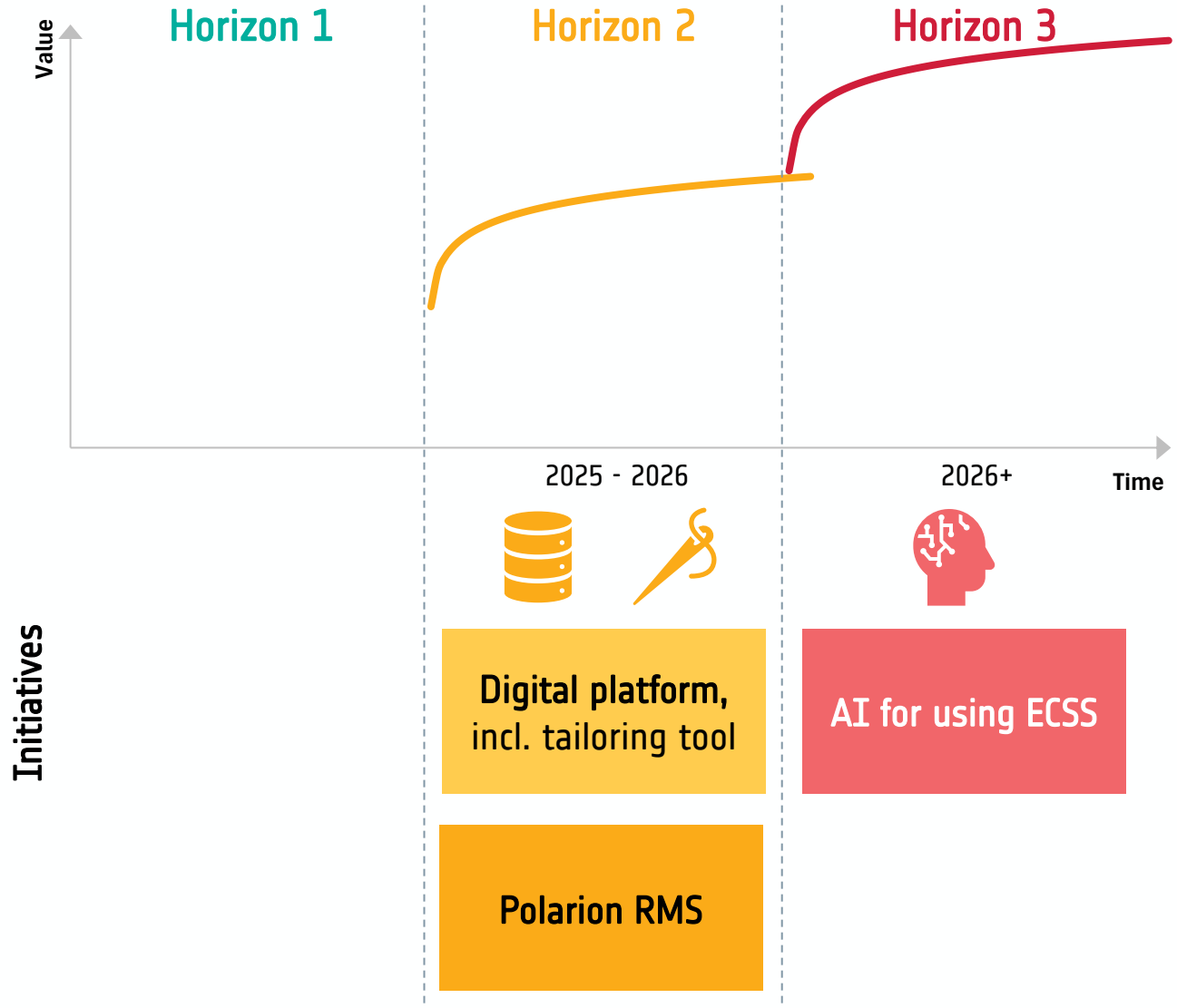
- Store all ECSS information in a digital platform / RMS
- Allow extracting ECSS info in data blocks useful for projects
- Pre-Tailoring tool to ease extraction of baseline applicable requirements for different products
- ECSS document production from to Polarion (by end 2026)

(*) RMS: Requirements Management System (Polarion ©)

Horizon 3 – AI and ML implementation

- Implement AI/ML tools to ease finding information in ECSS documents (e.g. help the pre-tailoring tool)
- Facilitate ECSS standards production (e.g find duplicate reqs)

ECSS digital platform with RMS and tailoring tools / AI tools



Description and status

Horizon 2 – digital platform and RMS database

Horizon 3 – AI and ML implementation

ECSS Requirement Management System

Preserve engineering control. Expand collaboration.

DOORS classic © IBM

Desktop client / server · controlled repository

MIGRATION BRIDGE

POLARION © SIEMENS

Browser-based workspace · distributed collaboration

Polarion : an **Application Lifecycle Management** platform focused on:

- Requirements Management, Quality Management, Test Management, Change Management, Compliance Support,
- Adaptable, enhanced workflows, quick implementation, robust traceability, good web-based architecture, excellent support

Strong adoption in various industrial manufacturing sectors because of its integrated repository approach and workflow flexibility.

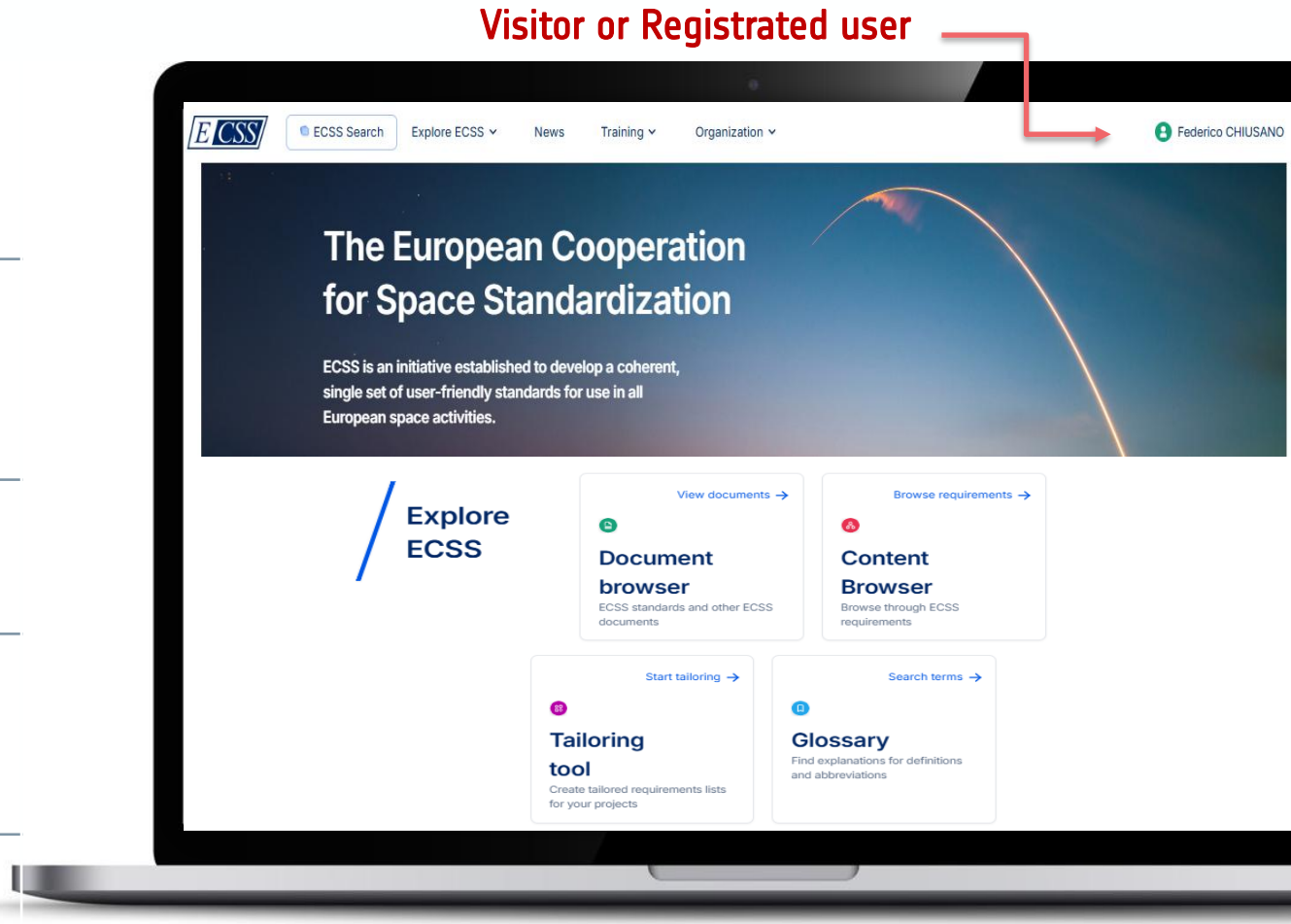
PRESERVE control · traceability · robustness

EXPAND access · review · workflow

Conceptual transition view – capabilities and implementation details require project-level mapping.

ECSS Digital Platform – modules

ECSS website	• ECSS info's, WGs, steering boards, technical authority, etc. • Training calendar and material
Document Browser	• ECSS Documents online reader • Document download
Content Browser	• Normative Provisions online reader
Tailoring Tool	• Support for pre-tailoring process / workbench area
Glossary	• ECSS abbreviations in Standards



ECSS platform and user's level access rights

User FULLY registered AND approved by ECSS Secretariat

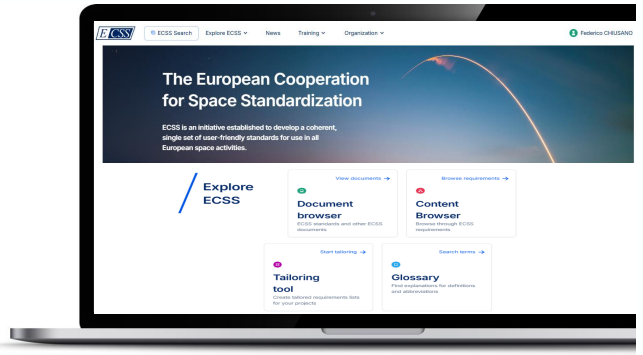
FULL access to the ECSS platform & the specific tools.

User with PENDING approval registration by ECSS Secretariat

Can log in but have LIMITED access to the ECSS platform and its tools.

Visitor

Can browse and read docs, access training materials, but cannot use the ECSS platform and the specific tools



REGISTERED

- Applicable for :
  - Registered users (fully approved)
  - ECSS Executive Secretariat
- Specific Tools & Features:
  - Downloading Published Standards
  - Content Browser
  - Tailoring and workbench tools
  - Tailoring Tool's with **AI Search Engine**
  - Jira tickets (technical support)

OPEN ACCESS

- **For all users roles**.
- all PUBLIC features accessible:
  - News
  - Document browser
  - Document reader
  - Training Materials
  - ECSS Contacts
  - other public features

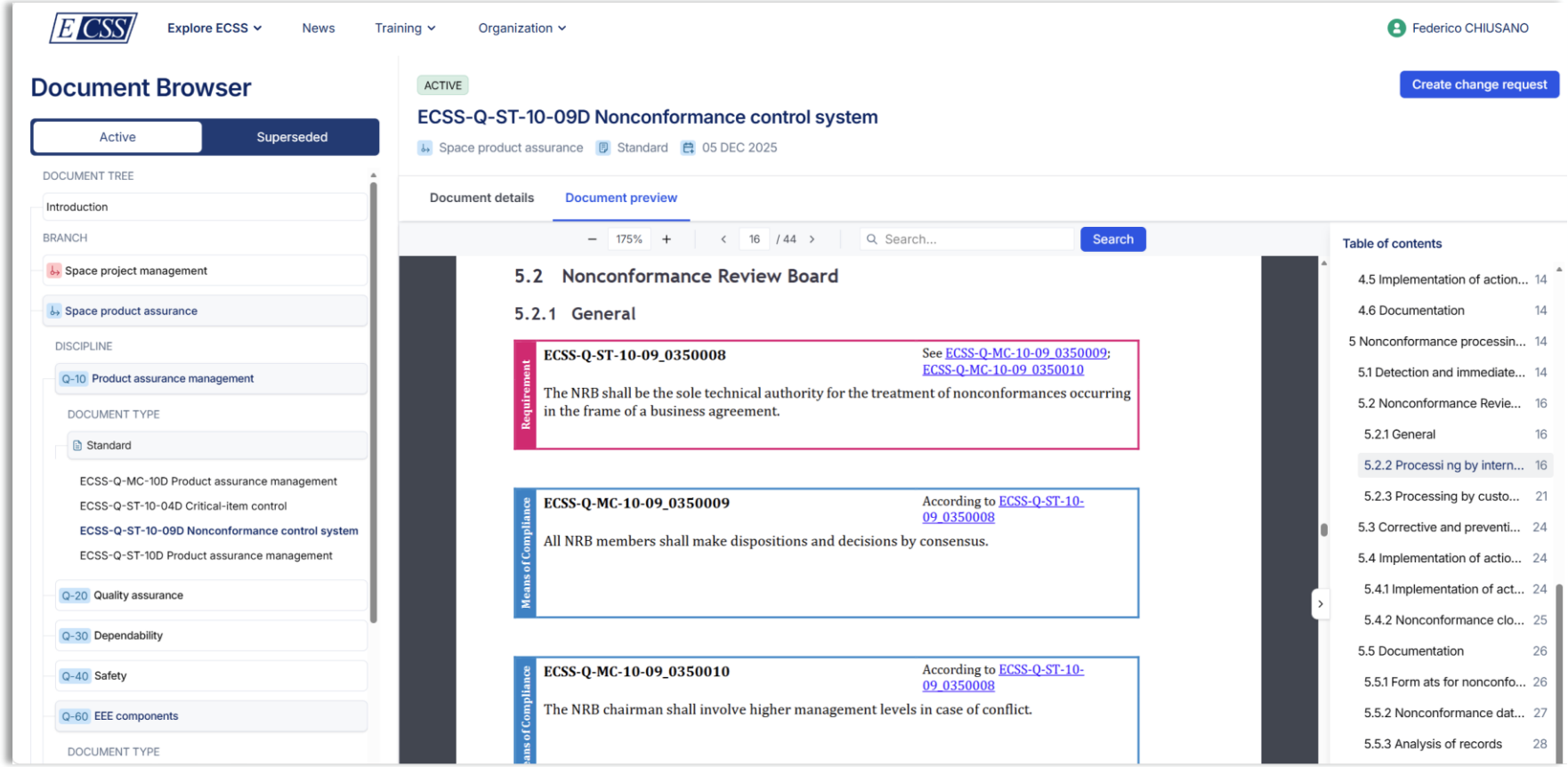
Document Browser Preview (all users)

Supports all ECSS docs types

- Standard, MoC, TP, TS
- Handbook
- Technical Memoranda

Key capabilities

- ECSS standards reader preview
- ECSS doc. tree view / selection
- Downloads (.docx & .pdf)
- Optional additional attachments per document

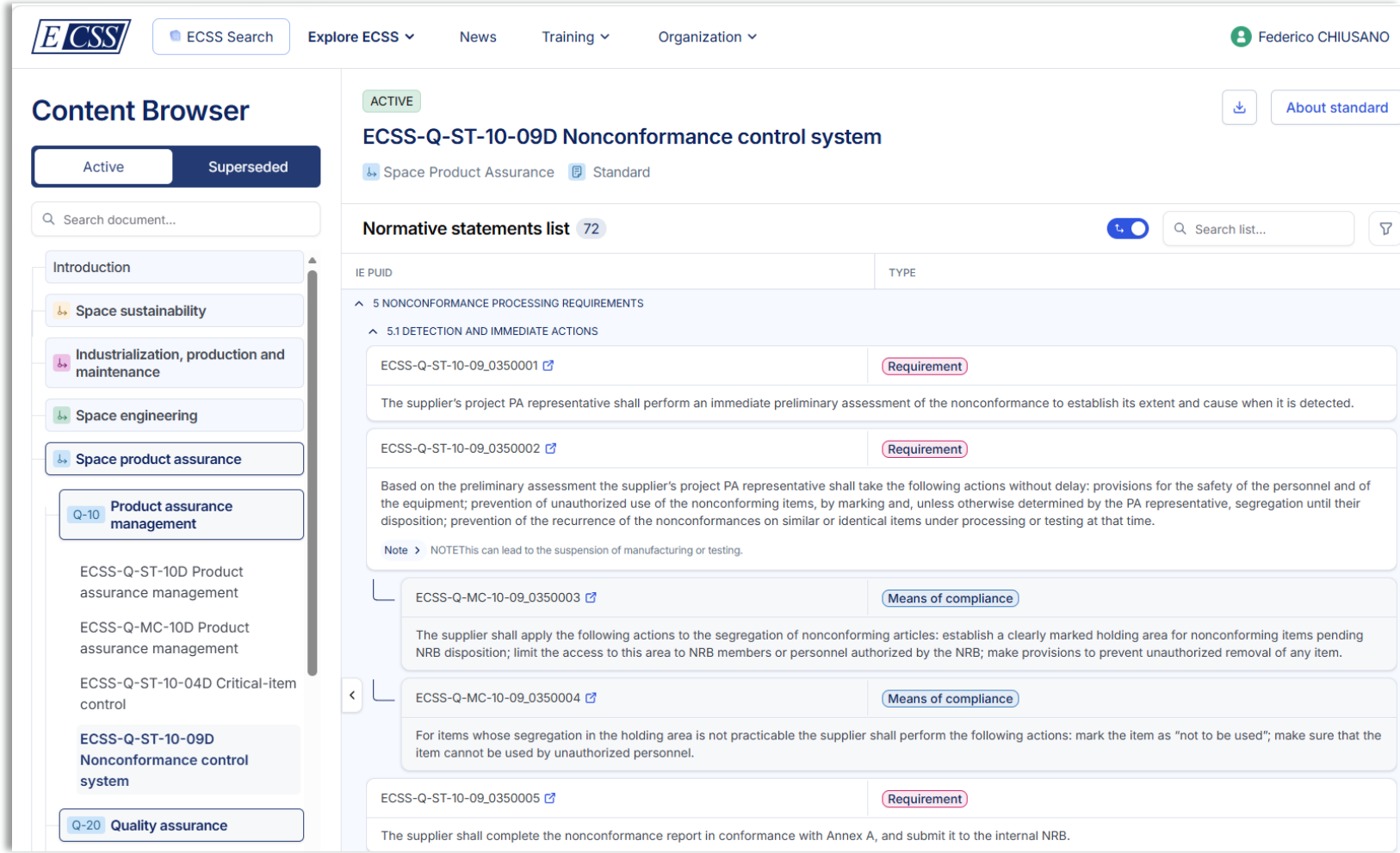


Content Browser Preview (registered users)

Works with normative provisions at document level

Key capabilities

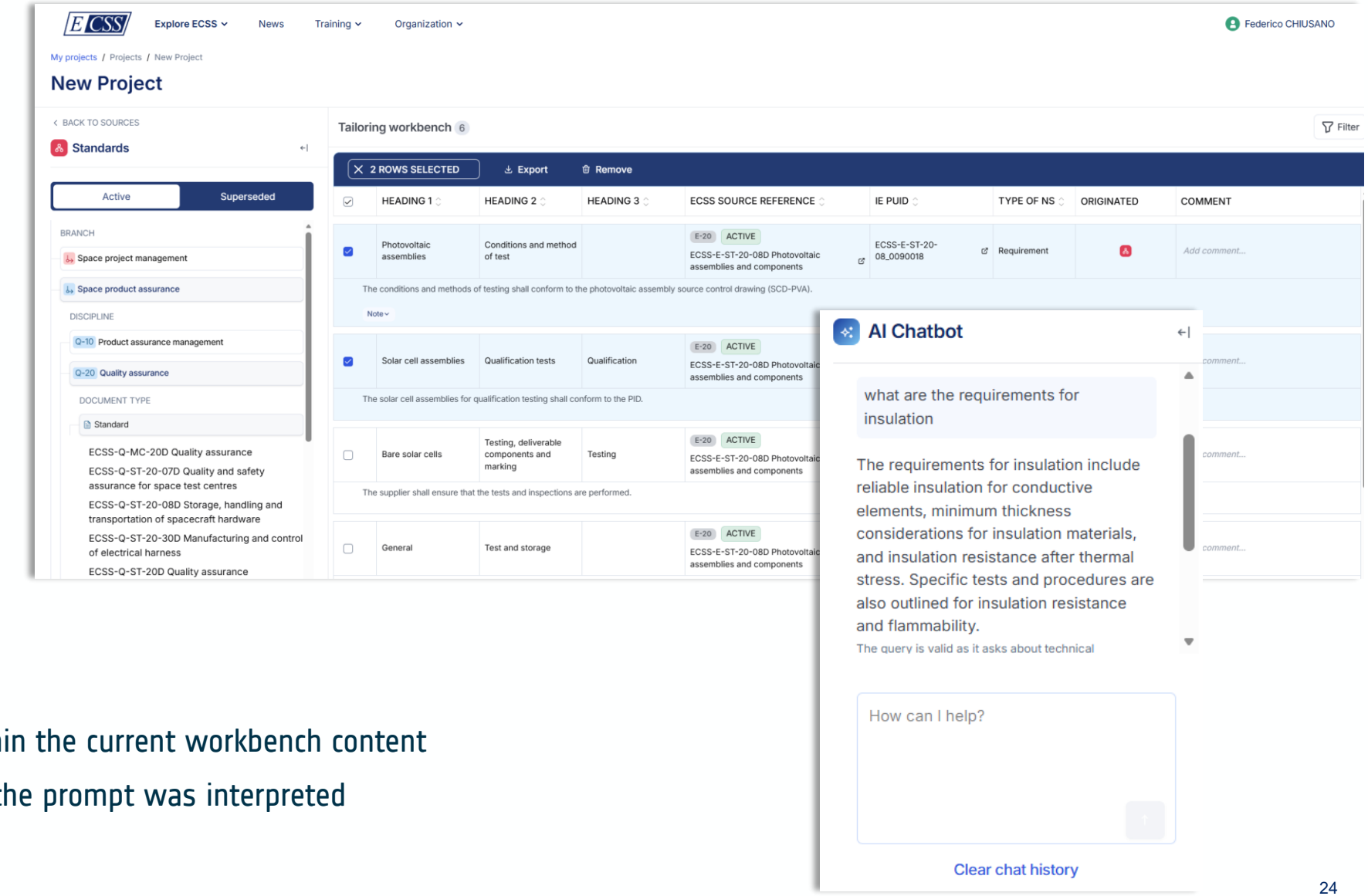
- ECSS doc. tree view / selection
- Supports Requirements, Means of Compliance, Technical Procedures, and Technical Specifications
- Groups MoCs and TPs under their parent Requirement
- Provides up to 3 levels of chapter headings from the source document
- Export of all Normative Provisions
- Link to the ECSS source document



Tailoring Tool Preview (registered users)

Key capabilities

- **Workbench** for all normative provisions
- Add/Remove normative provisions from
  - ECSS documents
  - ECSS matrices

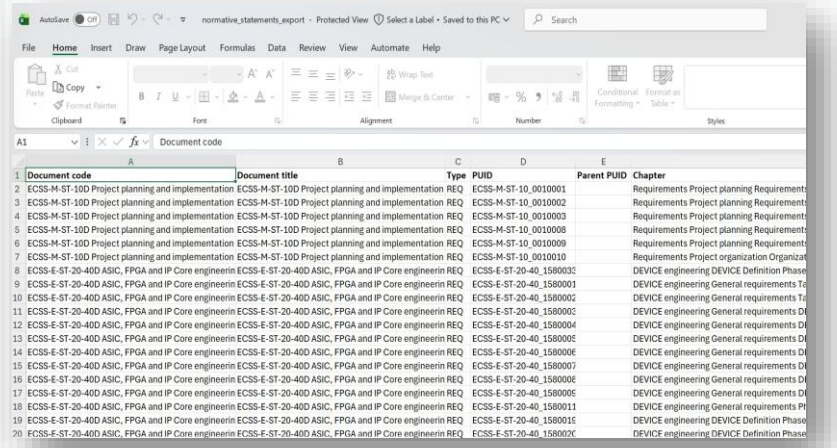


- **AI tools** based (Mistral Small 3.1 LLM)
- **AI chatbot to help:**
  - **Search**: across all requirements
  - **Tailor Workbench**: searches within the current workbench content
  - **Reasoning**: explanation of how the prompt was interpreted
  - **Maintains** conversation context

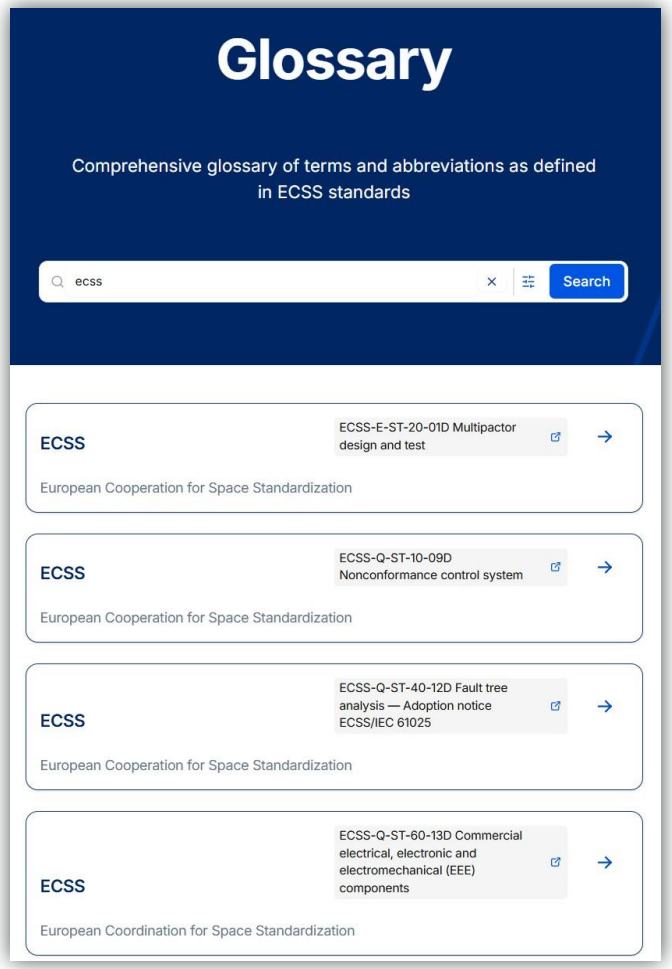
Export capabilities - Preview Glossary

Export from **Content Browser** & **Tailoring Tool**

- → **ReqIF**
- → **MS-Excel**
- → **MS-Word**



Terms and abbreviations retrieved from all ECSS Standards with link to the ECSS document source.

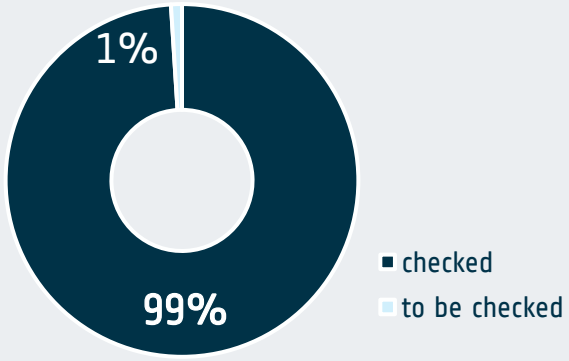


Timeline to publication and transitional training

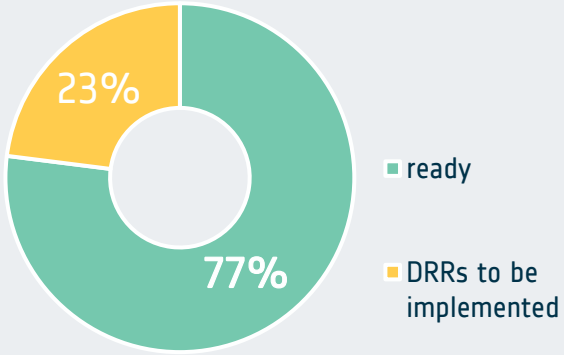
Issue D planning and progress for publication

Status
08 Sept. 2026

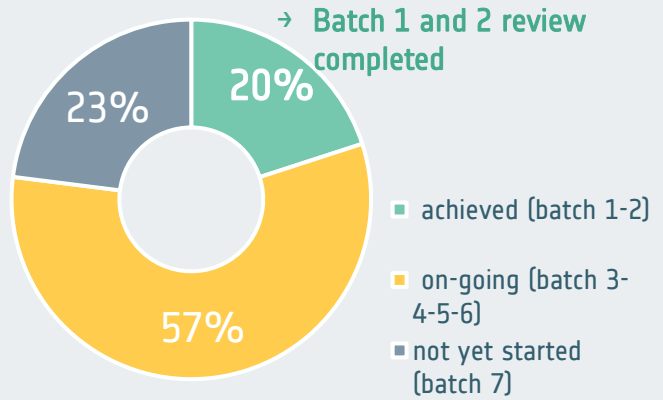
editorial check

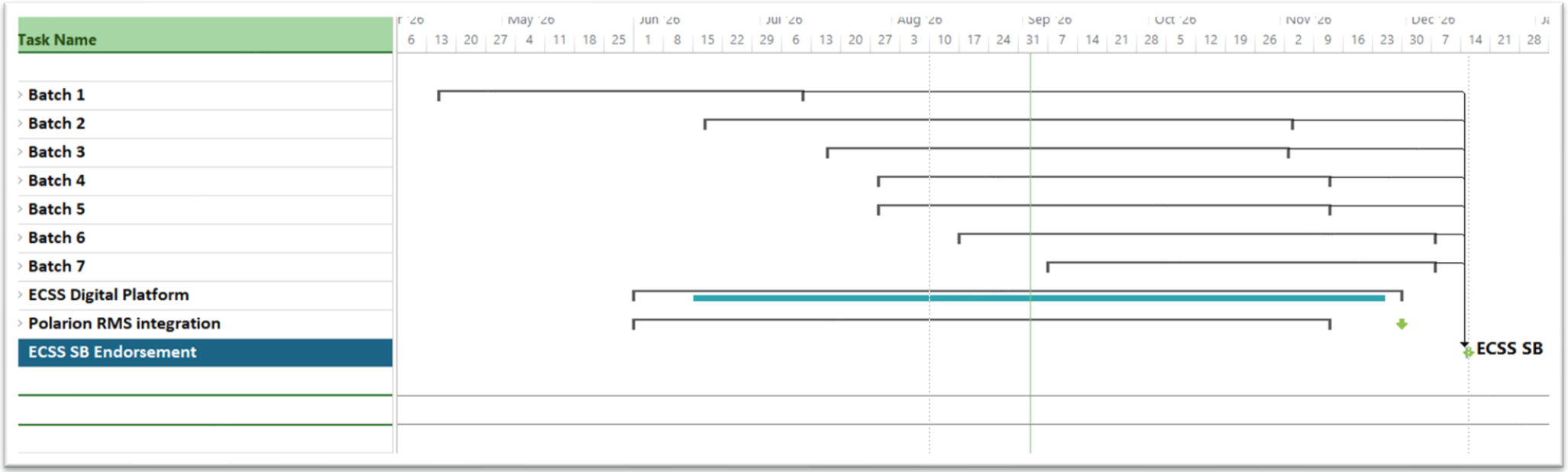


comments implementation



ECSS TA review





ECSS Transitional Programme and Standardisation training

ECSS Training Task Force, to recommend on format, media and schedule :

1. *Transitional training programme – kick off with Issue D publication*
   - → Explain the evolution from Issue C to Issue D,
   - → Adapt mindset to scope and utilisation
   - → Learn to use the digital platform and its tools

2. *ECSS standard training programme to resume with Issue D – Q2/2027*
   - → Resume the trainings by ECSS discipline
   - → Nominate trainers from all ECSS members

ESA Space Standards Training: annual training in June, ESEC Galaxia (EDU Office)

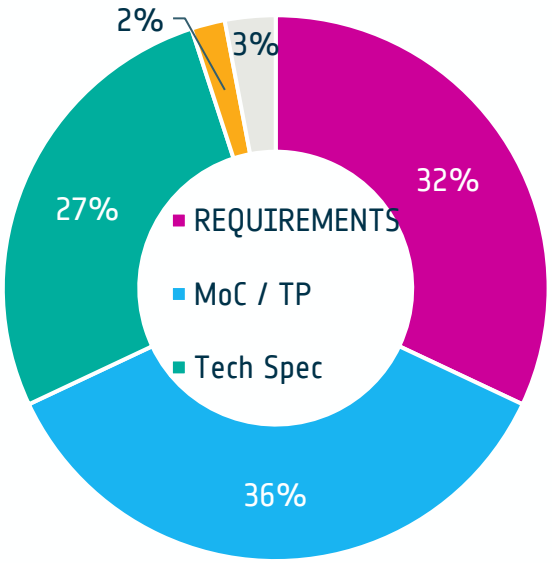
ECSS NextGen : Key Takeaway

ACHIEVEMENT

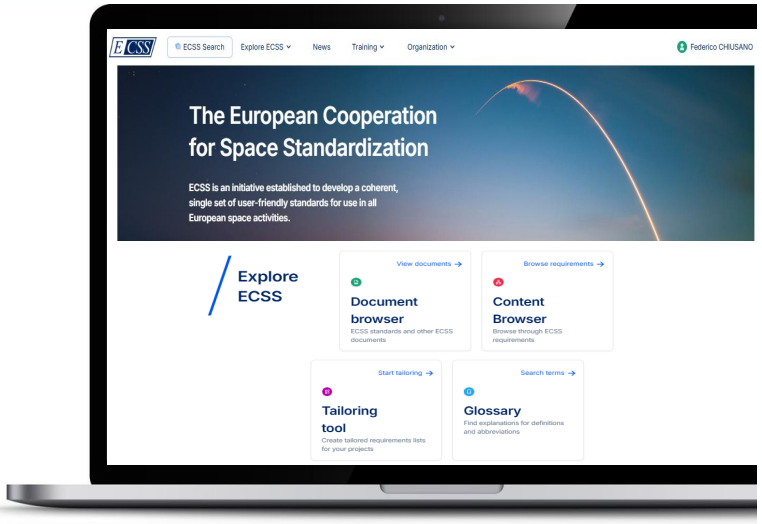
Reduced number of binding requirements, improved contractual clarity, simplified tailoring and compliance
Improve the suppliers-controlled flexibility to apply established ECSS means of compliance or propose alternatives.

RESTRUCTURATION

WHAT
HOW
WHY



DIGITAL PLATFORM



TAILORING & COLLABORATION

Jira
Confluence
Digital platform tailoring tool
Polarion RMS
AI for using ECSS
AI for ECSS dev.

Standards Update, CR Development

End-users, project teams suppliers, customers, etc.

OUTCOME | ECSS issue D and the ECSS Digital platform will be released by the end of 2026

Thank you!

more information

www.ecss.nl

European Cooperation for Space Standardization