

# ECSS eGlossary use case

Red Data Solutions // Heron Information Management

## ECSS eGlossary use case

- Brief introduction
- About The ECSS eGlossary Use Case
- What was intended?
- Approach
- Data Model
- Different interfaces
- Next steps towards a Space Ontology

## ECSS eGlossary use case

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Red Data Solutions

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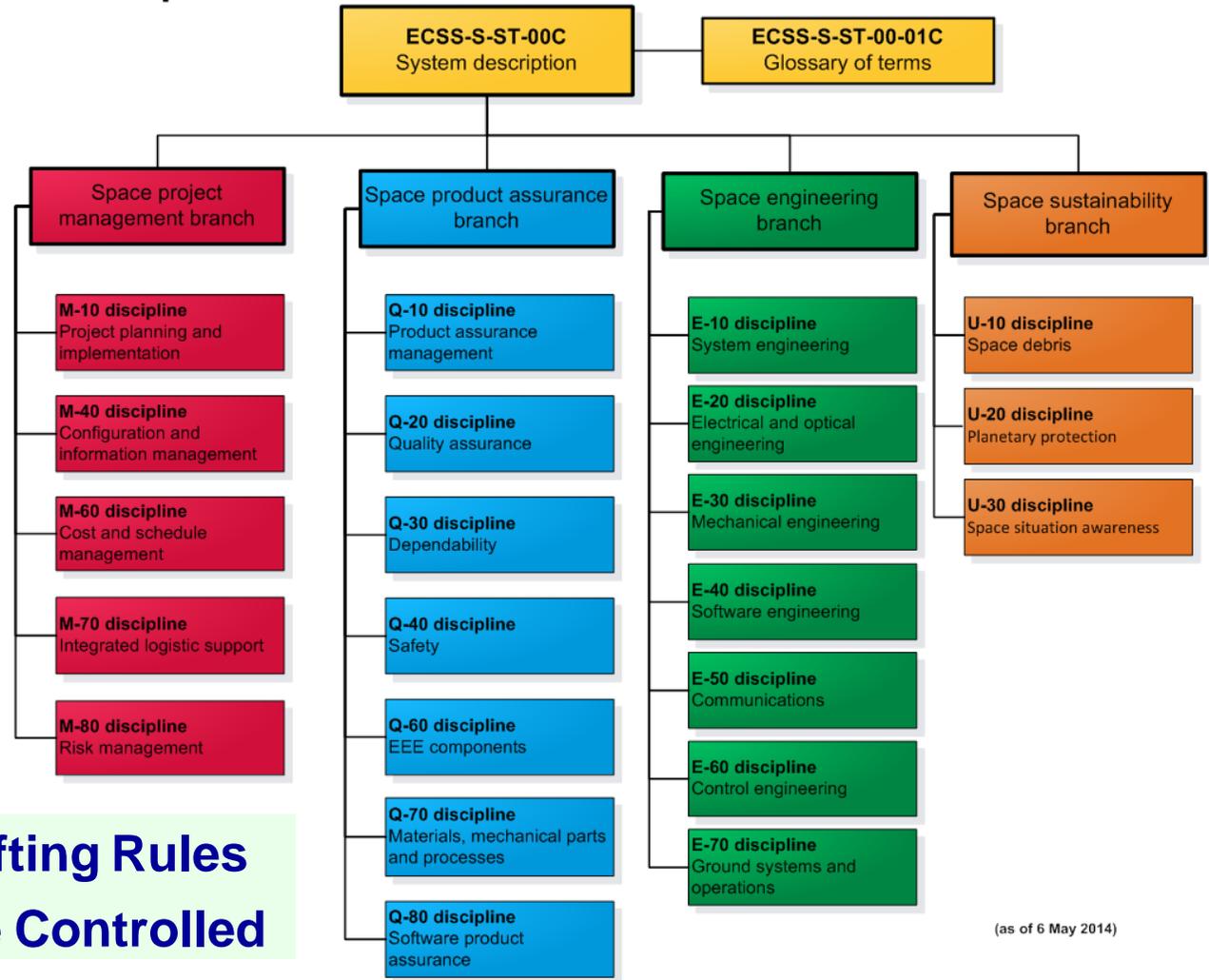
Heron Information Management

# ECSS eGlossary use case

## ECSS SYSTEM

**131 active Standards**  
**54 active Handbooks**  
**33,000 requirements**  
**2,500 terms**  
**3,000 abbreviations**  
**22 Working Groups**  
**33 new or updated documents**

**Applied Drafting Rules**  
**Terms Usage Controlled**

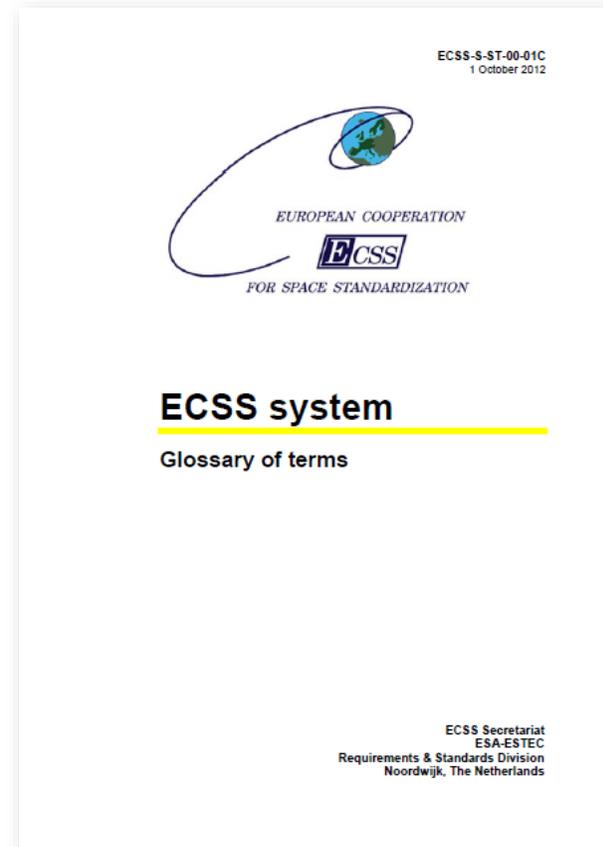


(as of 6 May 2014)

## ECSS eGlossary use case

# ECSS Glossary Taskforce

- ❑ The proposed evolution of the ECSS system, in particular the development of a system-oriented data repository (as opposed to paper-based system) lead to re-consider the way the terminology is handled in ECSS and thus trigger the need to re-activate the Glossary Task Force with updated assigned tasks and membership.
- ❑ In addition the need to support a broader range of users led to developing user-needs driven e-interfaces.
- ❑ ECSS Glossary Task Force objectives:
  - ❑ Improve terminology use in ECSS.
  - ❑ Add rigour to the use of terms in particular with regard to context.
  - ❑ Remove ambiguity in terms already defined.
  - ❑ Pave the way for inclusion of terminology into the future ECSS data repository system (handled by the Master Database Task Force)



## ECSS eGlossary use case

# Data model

use case

glossary

standards

appl. profile

guidelines

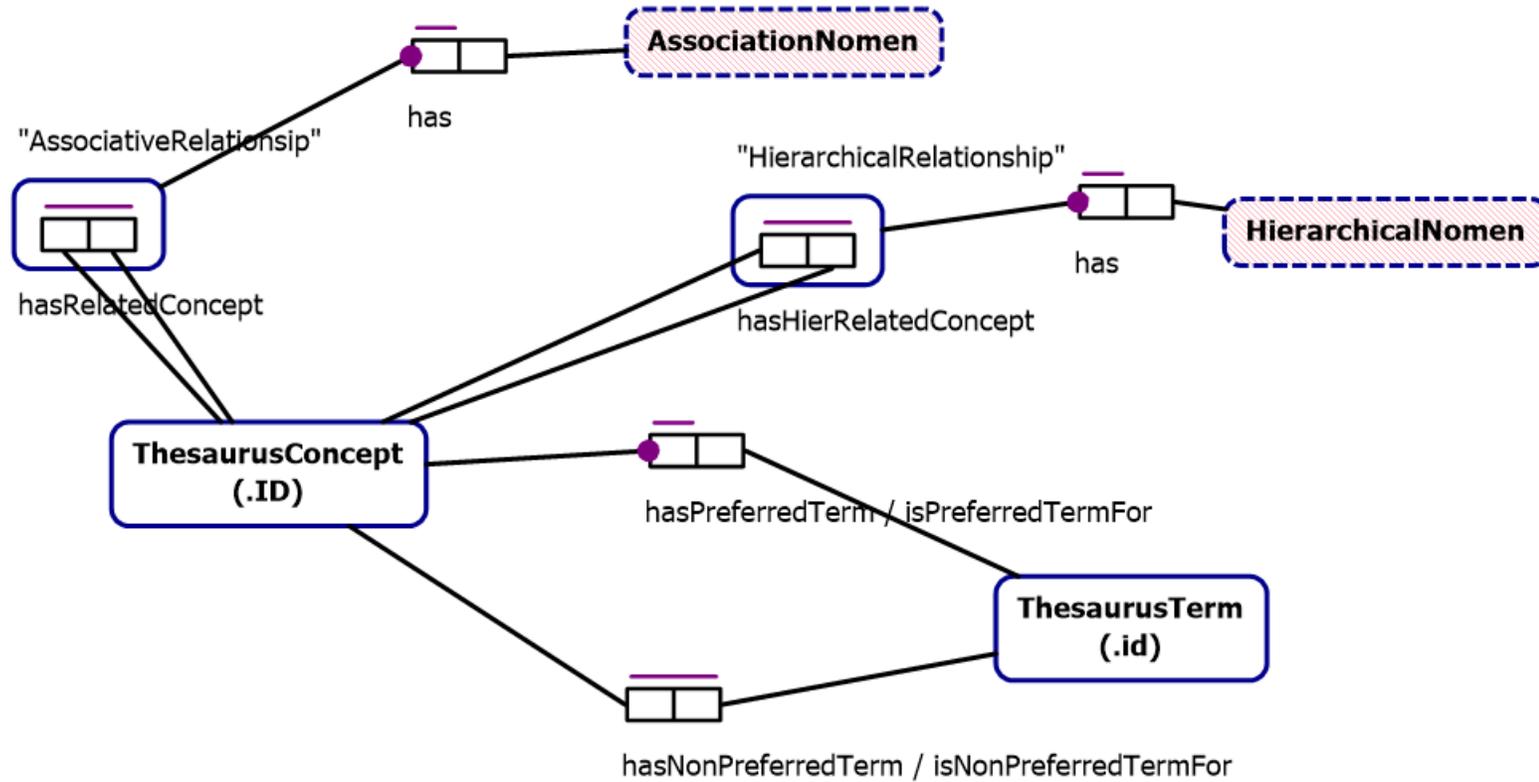
**An enhanced and flexible glossary starts with a good data model. ECSS use case & glossary suggested using a thesaurus (ISO 25964), fitting in with linked data.**

We developed an application profile, consisting of the majority of ISO 25964 with some specific additions for thesaurus management.



## ECSS eGlossary use case

# ORM Model



## ECSS eGlossary use case

# From theory to practice

use case

glossary

standards

appl. profile

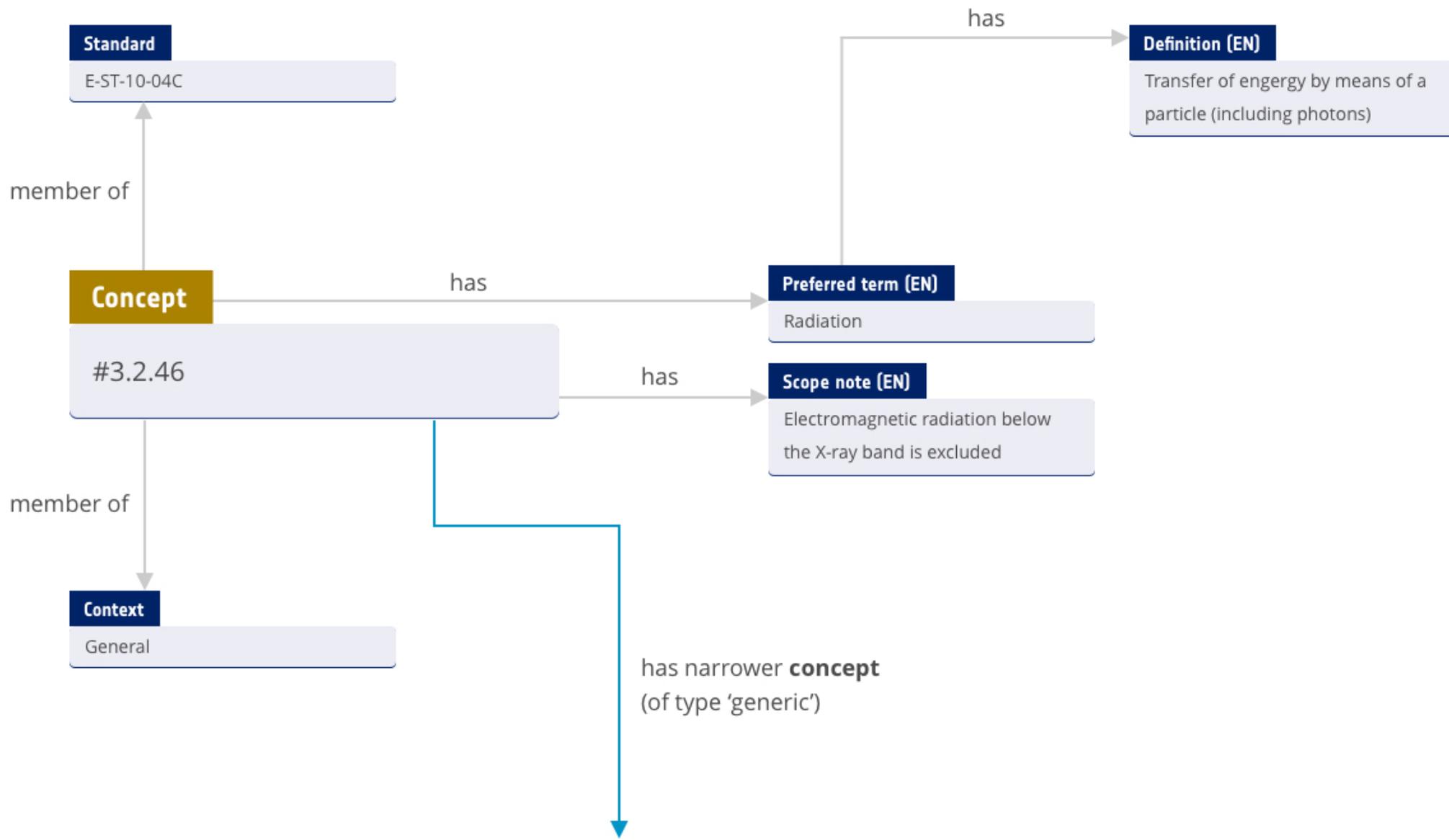
guidelines

**Actual data should fit into the data model.**

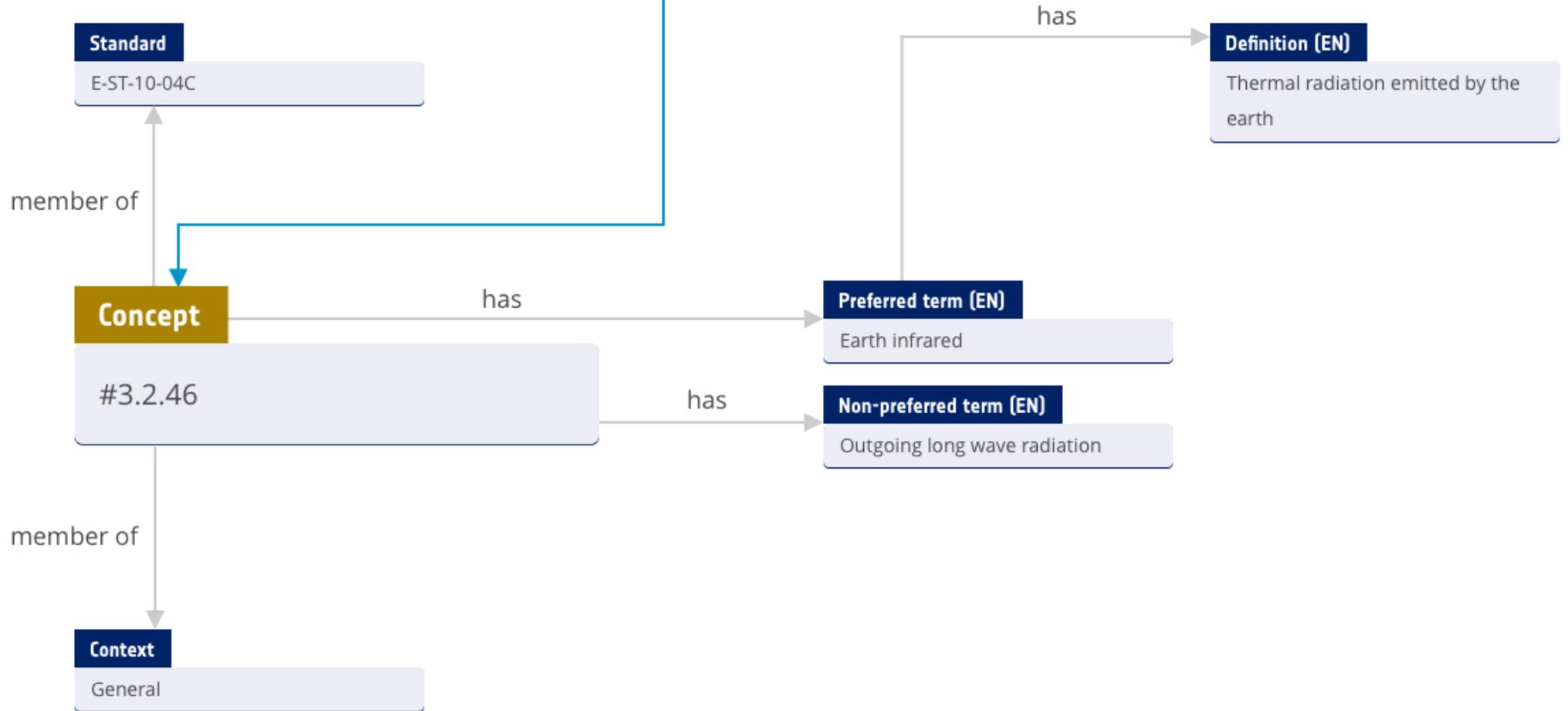
**We therefore analysed the ESA e-glossary and applied several examples to the model.**

We are confident that other data sets will fit into the model equally well.

## An example...



## An example...



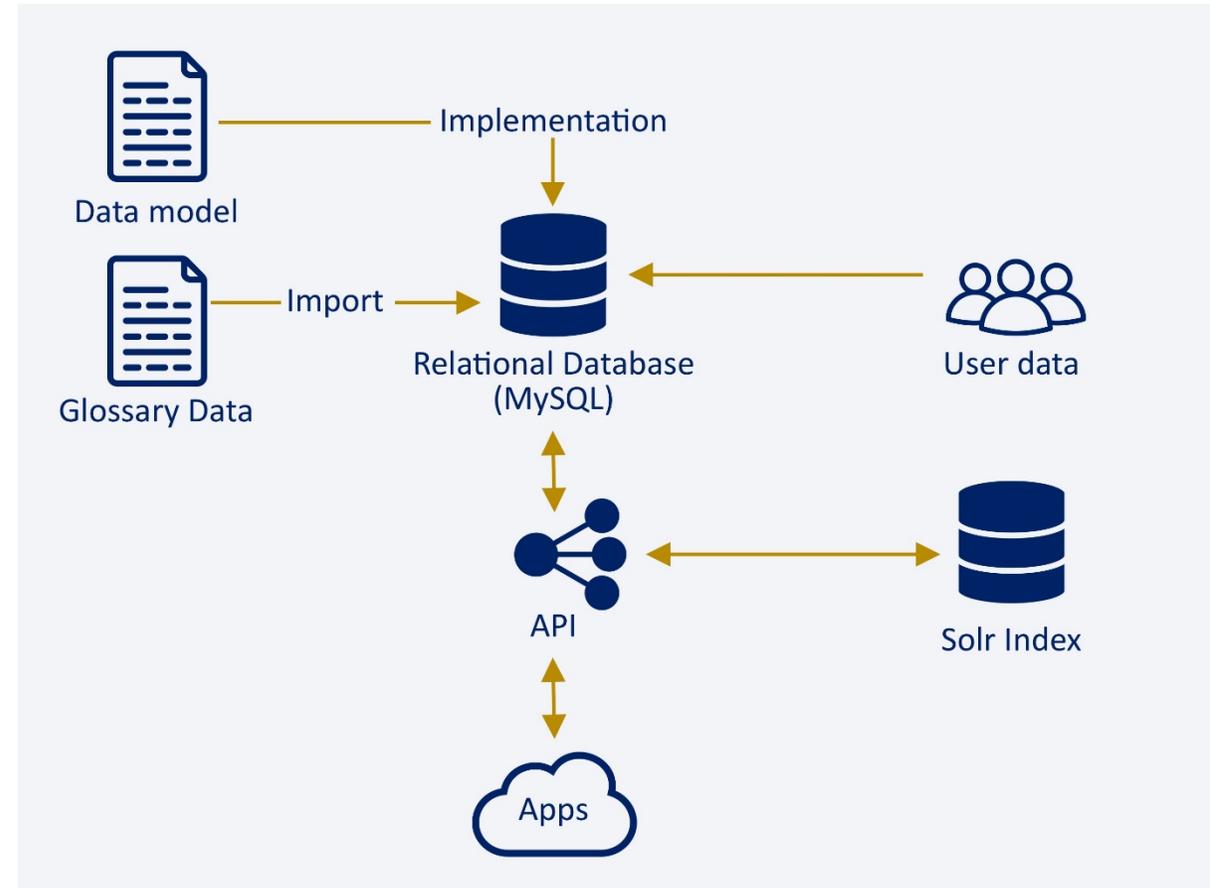
## SKOS Export

```
-<rdf:RDF>
  -<skos:ConceptScheme rdf:about="http://thesaurus.esa.int/voc/">
    <dc:title>Technology Tree</dc:title>
  </skos:ConceptScheme>
  -<skos:Concept rdf:about="http://thesaurus.esa.int/voc/?id=27">
    <skos:prefLabel xml:lang="en">Payload Data Processing</skos:prefLabel>
    <skos:broader rdf:resource="http://thesaurus.esa.int/voc/?id=11"/>
    <skos:narrower rdf:resource="http://thesaurus.esa.int/voc/?id=286"/>
    <skos:narrower rdf:resource="http://thesaurus.esa.int/voc/?id=961"/>
    <skos:narrower rdf:resource="http://thesaurus.esa.int/voc/?id=1472"/>
    <skos:notation rdf:datatype="http://thesaurus.esa.int/dtp/#ttcodes">1-A</skos:notation>
  -<skos:scopeNote xml:lang="en">
    Covering specific digital signal and data processing technologies and techniques, as well as specific (high-speed, high-capacity-oriented) hardware (e.g. DSP, storage), software (signal/image processing, data compression/fusion) and networking technologies (including protocols and standards).
  </skos:scopeNote>
</skos:Concept>
</rdf:RDF>
```

## ECSS eGlossary use case

# Technical architecture

- Datamodel implemented on a central database
- For advanced search capabilities we are using the Red Data Search & Discovery platform (based on SOLR)
- 1 API for all connections (Apps) including SOLR.
- 3 Interfaces using the same repository



# ECSS eGlossary use case

## Technical implementation (overview)

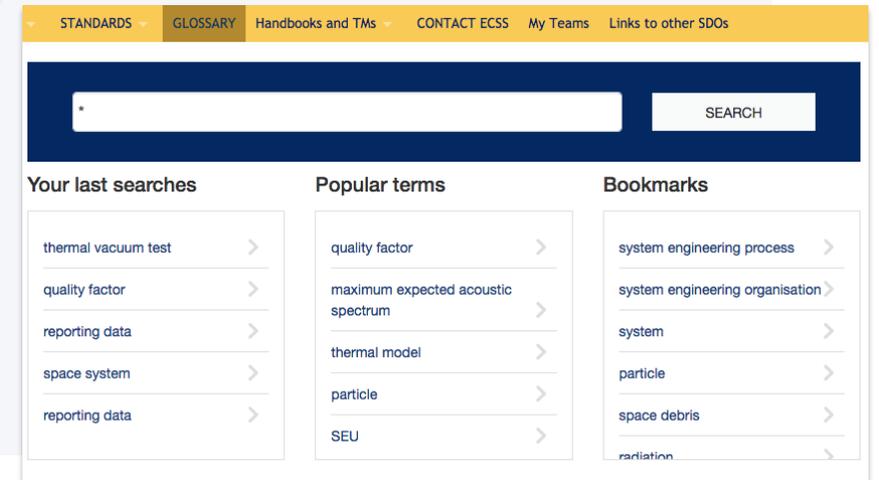
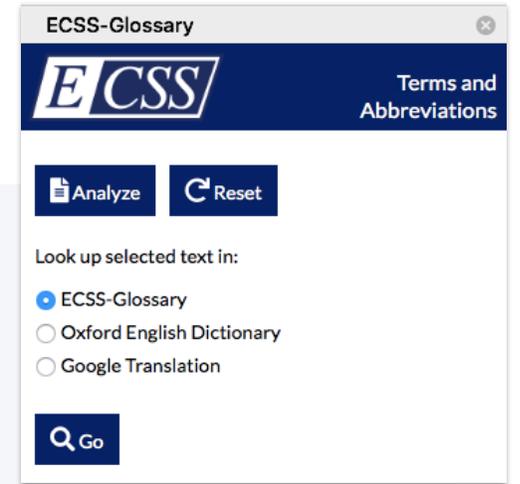
ECSS-S-ST-00-01C



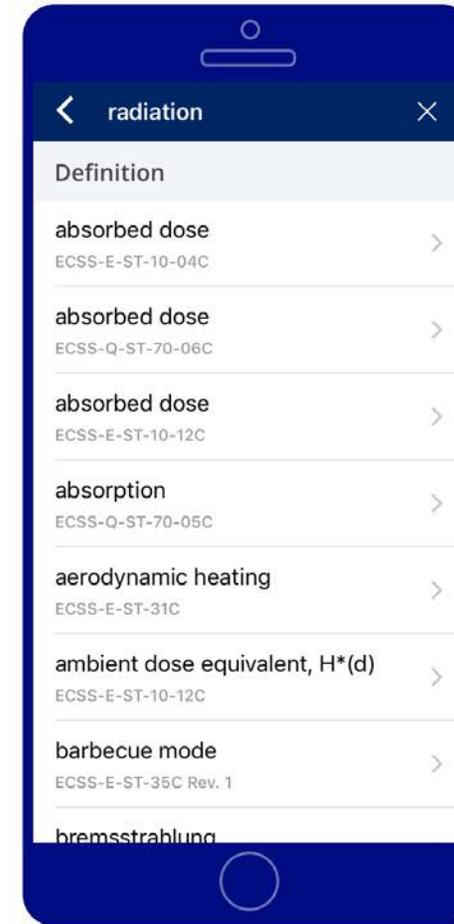
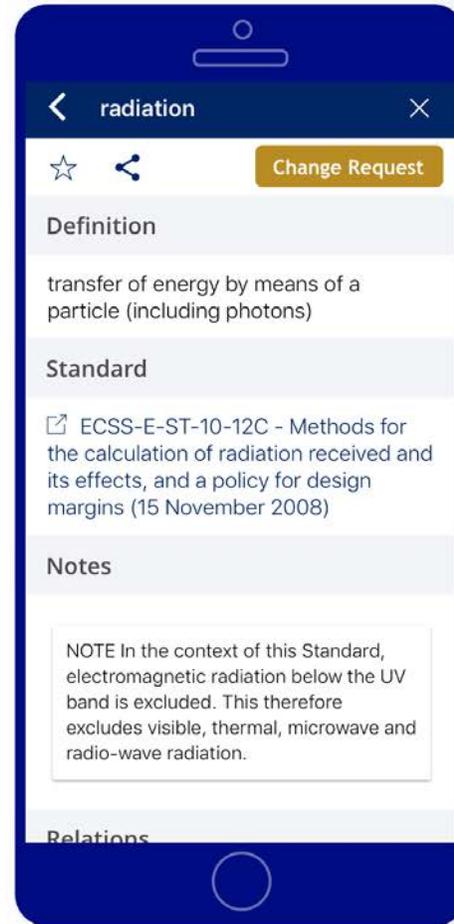
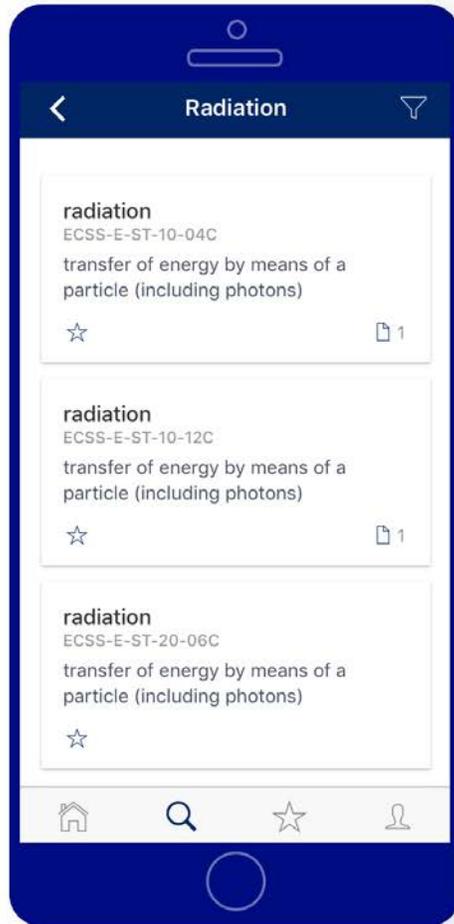
ISO 25964 based model



Central repository



# ECSS eGlossary mobile app — user interface



# ECSS eGlossary public website — user interface

radiation SEARCH

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1. RADIATION ECSS-E-ST-20-06C 0
2. RADIATION ECSS-E-ST-10-12C 1
3. RADIATION ECSS-E-ST-10-04C 1
4. VACUUM ULTRAVIOLET (VUV) RADIATION ECSS-Q-ST-70-06C 0
5. SYNCHROTRON RADIATION ECSS-Q-ST-70-06C 0
6. RADIATION WEIGHTING FACTOR ECSS-E-ST-10-12C 4
7. RADIATION VERIFICATION TEST (RVT) ECSS-Q-ST-60-15C 1
8. RADIATION LOT ACCEPTANCE TEST (RADLAT) ECSS-Q-ST-60-15C 1
9. RADIATION DESIGN MARGIN (RDM) ECSS-Q-ST-60-15C 0
10. RADIATION DESIGN MARGIN (RDM) ECSS-E-ST-10-12C 0

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radiation SEARCH

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## radiation

**RELATIONS**

- absorbed dose  
ECSS-E-ST-10-12C
- absorbed dose  
ECSS-E-ST-10-04C
- absorbed dose  
ECSS-Q-ST-70-06C
- absorption  
ECSS-Q-ST-70-05C
- aerodynamic heating  
ECSS-E-ST-31C
- ambient dose  
equivalent, H\*(d)  
ECSS-E-ST-10-12C

**STANDARD**  
ECSS-E-ST-10-12C - Methods for the calculation of radiation received and its effects, and a policy for design margins (15 November 2008) + "Identified typographical error"

**DEFINITION**  
transfer of energy by means of a particle (including photons)

**NOTES**

NOTE In the context of this Standard, electromagnetic radiation below the UV band is excluded. This therefore excludes visible, thermal, microwave and radio-wave radiation.

radiation SEARCH

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## Earth infrared

**RELATIONS**

- radiation  
ECSS-E-ST-20-06C
- radiation  
ECSS-E-ST-10-12C
- radiation  
ECSS-E-ST-10-04C

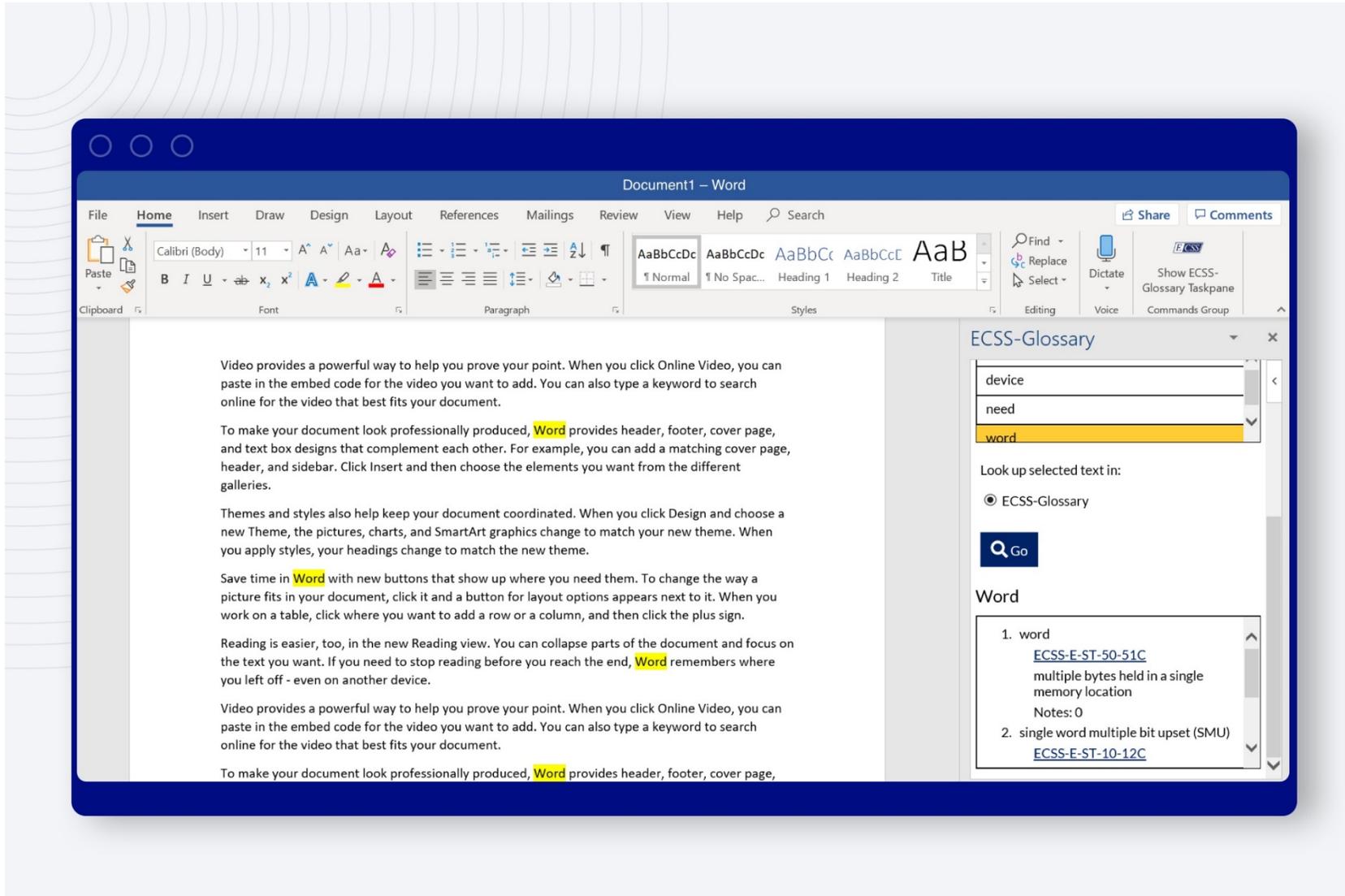
**STANDARD**  
ECSS-E-ST-10-04C - Space environment (31 July 2008)

**DEFINITION**  
thermal radiation emitted by the Earth

**NOTES**

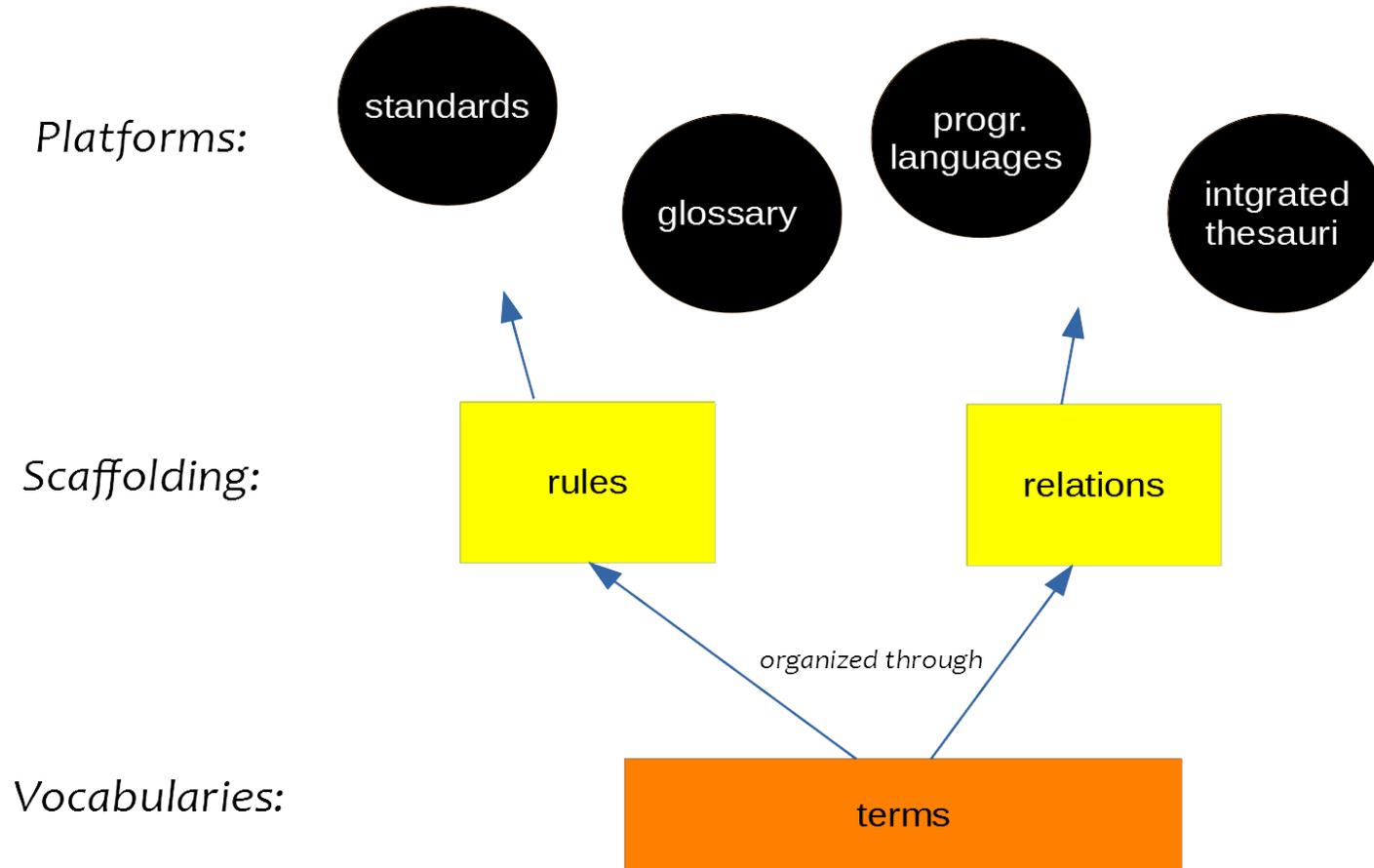
NOTE It is also called outgoing long wave radiation.

# ECSS eGlossary word add-in — user interface



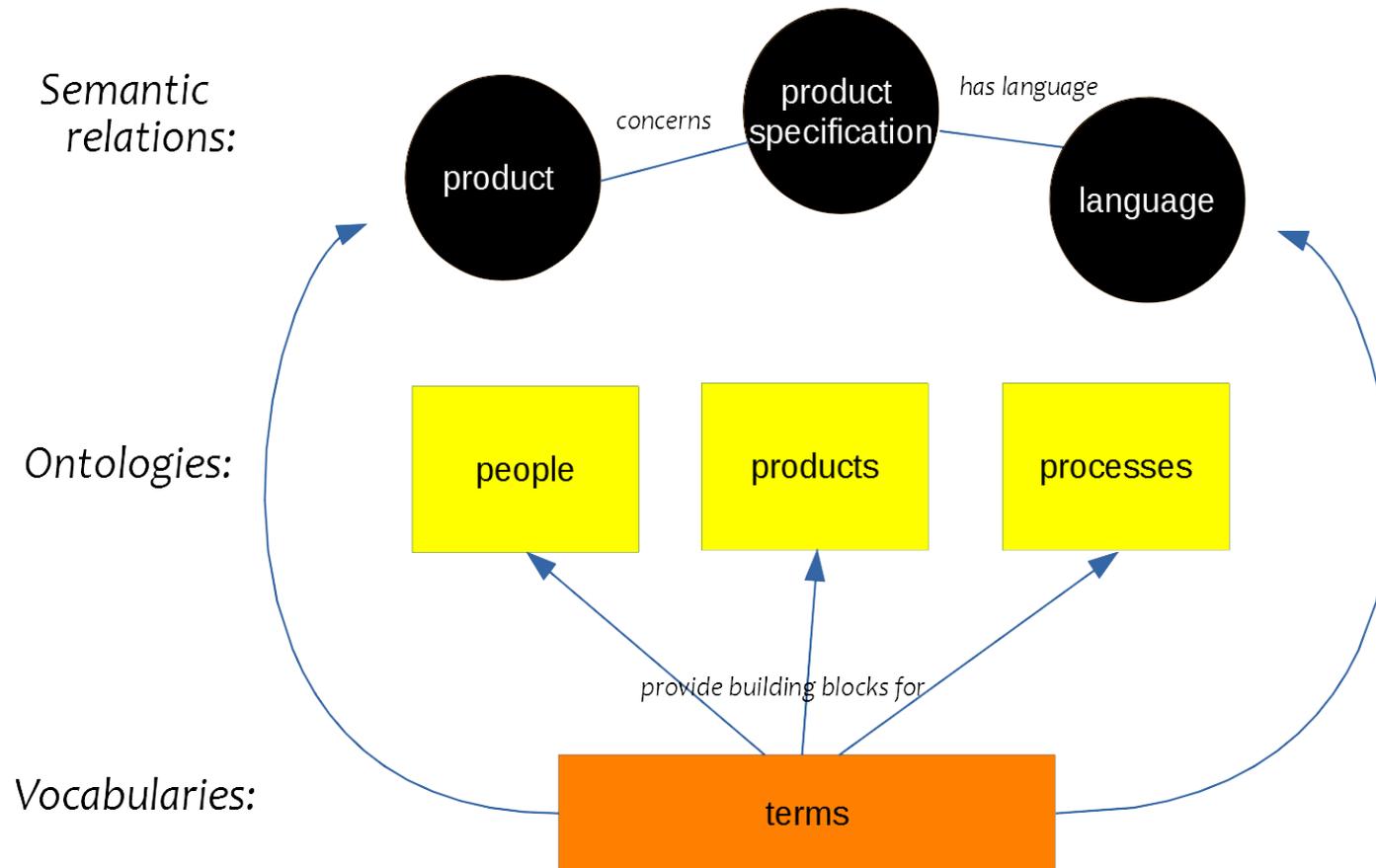
# ECSS eGlossary use case

## From vocabularies to platforms



# ECSS eGlossary use case

## From vocabularies to semantic relations



# Next steps...

## Taxonomy

The screenshot displays a taxonomy management interface. At the top, there is a search bar containing 'Calibration Systems' and a search button. Below the search bar, a breadcrumb trail reads: [Product tree](#) > [Ground Segment](#) > [Spacecrafts](#) > [Antennas and Feeds](#) > [Calibration Systems](#). The interface is divided into two main sections: a left-hand 'Product Tree' and a right-hand 'Term Details' section.

**Product Tree:** A hierarchical list of terms. The 'Calibration Systems' term is highlighted. The tree structure is as follows:

- Product Tree
  - Ground segment
    - Development and Contruction of Space Segment
    - Ground Segment of Operating
  - Spacecrafts
    - Antennas and Feeds
      - Antenna Mirrors
      - Calibration Systems**
      - Feed Systems
      - Frequency Selective Surfaces
    - Satellite
    - Space Transportation, Manned Flights and Infrastructures

**Term Details:** The details for 'Calibration Systems' are shown. It includes a status bar with 'Draft', 'Published', 'First issue', 'Second issue', and 'Third issue'. Action buttons for 'Archive', 'Export', 'Edit term', and 'Change Request' are present. The metadata shows: 'Creation date 20-04-2016 | Last modified 16-05-2016 | Superseded 16-05-2016'. The 'Definition' is: 'set of activities based on a set of tests allowing to characterise the gyro non-random performance and, when relevant, to define the compensation parameters used to improve the performance.' The 'Preferred term to' section lists two options: 'Calibration System Operations (14-05-2016)' and 'Calibration System (13-05-2016)'. A note states: 'A preferred term is a duplicate term that is the latest officially accepted term.' The 'Standard' is 'ECSS-E-ST-20-06C - Spacecraft charging (31 July 2008)'. The 'Branch' field is currently empty.

# Thank you!

# Questions?

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