

# Elysium's Commitment to Openness

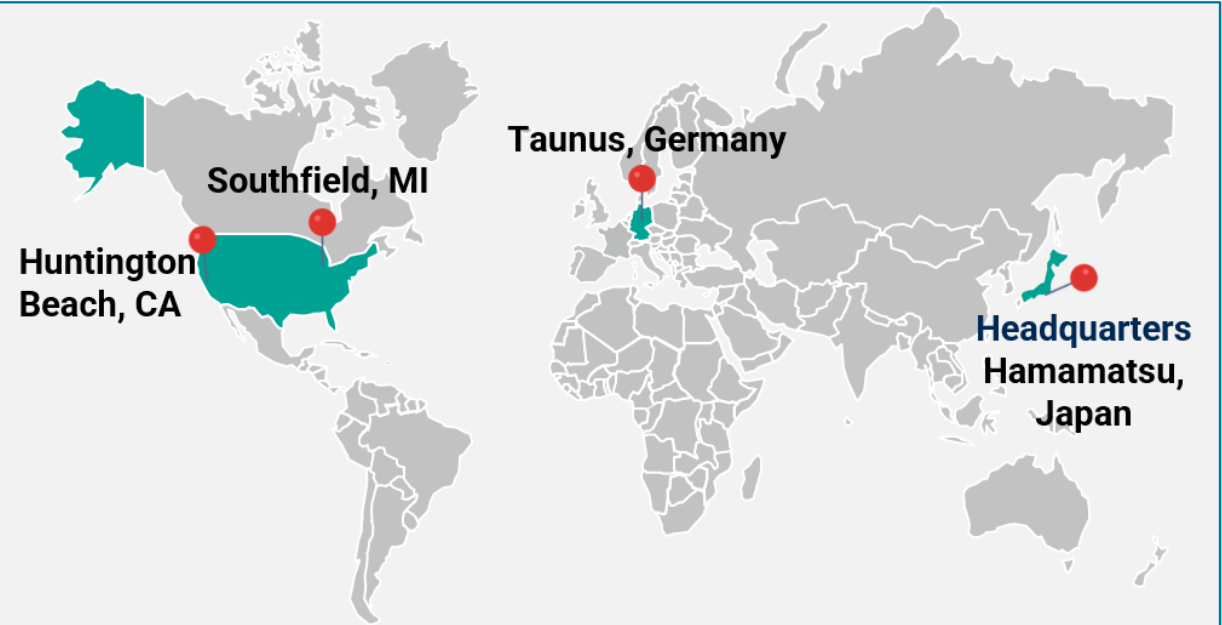
Yasuhiro Asano, Elysium

Thu., 1 October 2026 | nh Frankfurt Airport West | Raunheim, Germany

# Elysium | Your Enabler for True 3D Interoperability

## About Elysium:

- Global Software Company
- Over 40 Years of CAD Data Interoperability Expertise
- Strong Partnerships with CAD & PLM Vendors
- Specialize in Model-Based Digital Capabilities
  - CAD Migration
  - Model-Based Workflow
  - Point Cloud Handling



## CAD & PLM Vendors Partnership:



Elysium  
CADfeature™



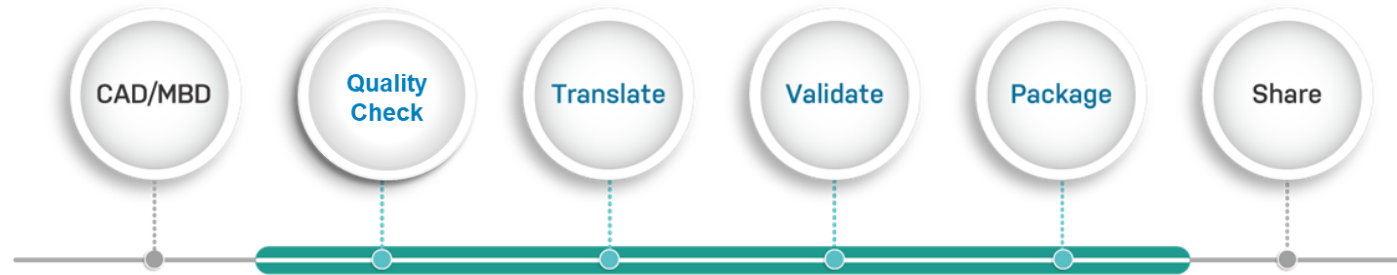
Elysium  
3D-SUITE™



Elysium  
InfiPoints®

# 3D-SUITE™ | The True Interoperability Platform

All-in-one platform to support MBE Lifecycle



PDQ Check



Healing



Translation



Validation



Simplification



Report Creation/  
Data Packages



Mid-surface Extraction



Reverse Engineering



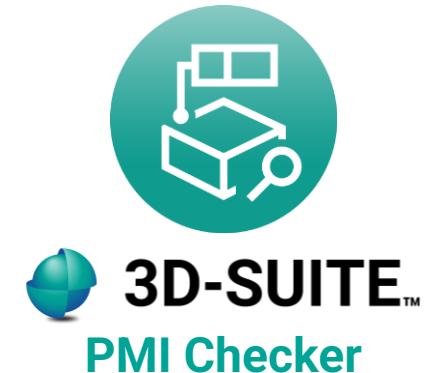
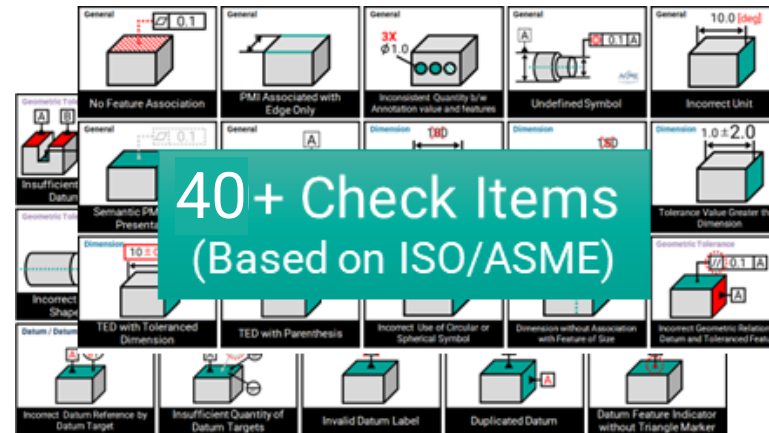
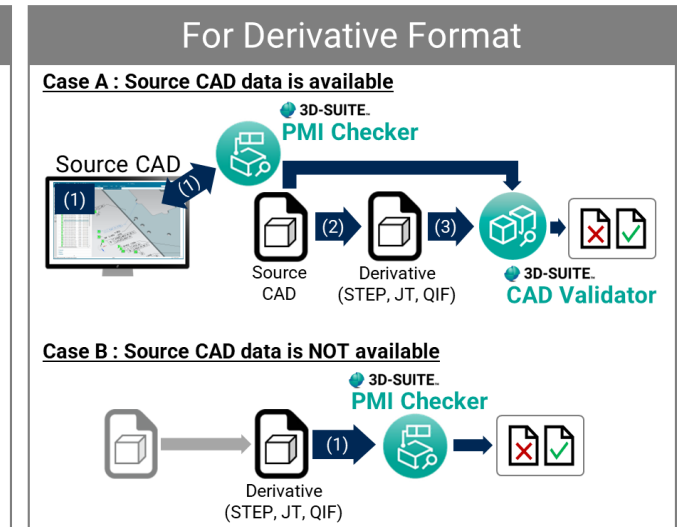
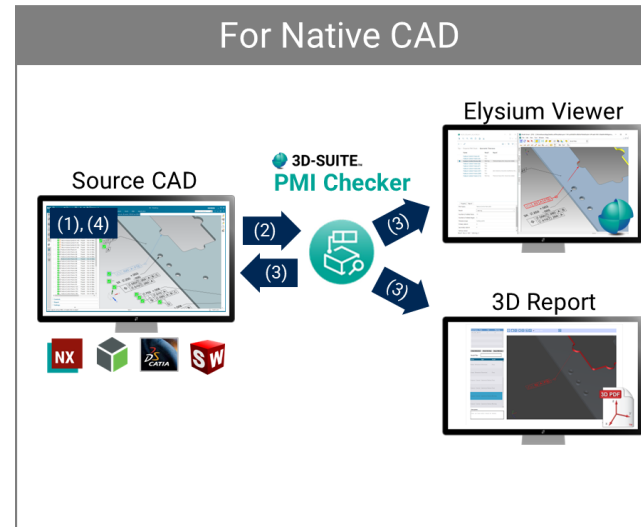
PMI Check

New (2025)

<https://www.elysium-global.com/en/product/3d-suite/>

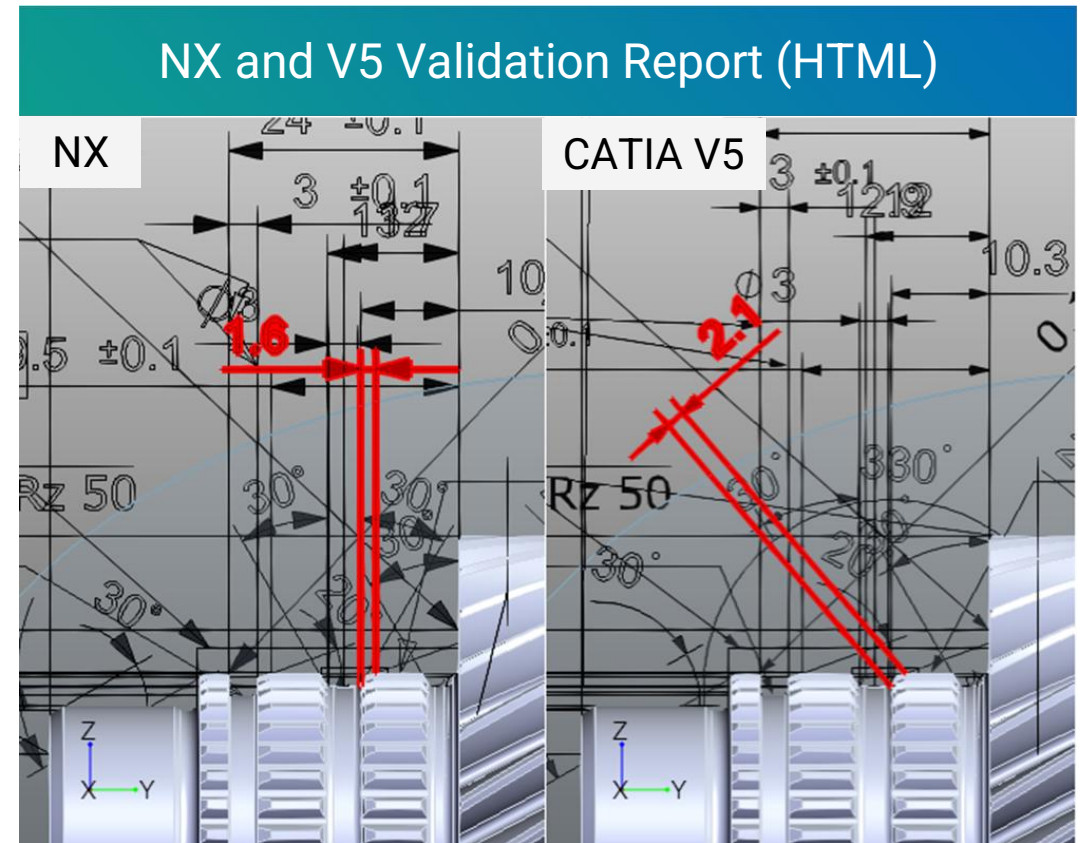
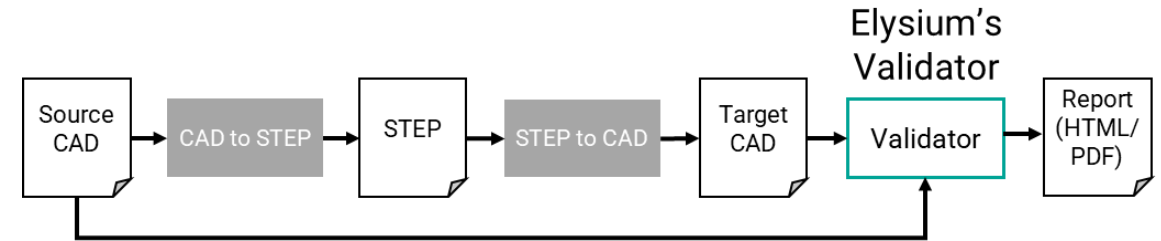
# Featured Technology | PMI Checker

- Validate PMI definitions for
  - Native CAD (V5 / NX / Creo / SW)
  - Derived formats (STEP / JT / QIF)
- Check items based on
  - Standards (ISO/ASME)
    - ISO 10303-1851: PMI data quality
  - Practical expertise
- Results viewable in
  - CAD / Viewer / 3D Report
- Customizable Checks (Future)
  - Check Items / Criteria / Error Level



# Featured Technology | Validation

- Detect only significant differences between two CAD models
- Validation between CAD & STEP
  - Assembly Structure / Geometry / Attributes
  - PMI Graphics / Semantics
  - Saved Views / Section Views
- Validation results in 3D PDF / 3D HTML
- Validation between 2 STEP files
- Customizable validation criteria
  - Items, Threshold, Scripting (Advanced)
- Continuous improvements
  - Usability / Handling of Large Assemblies



# Standard Support | Implementation Coverage (JT / STEP)

| Information                    | JT  | STEP (P21)     | STEP (XML) |
|--------------------------------|-----|----------------|------------|
| Product Structure              | ✓   | ✓              | ✓          |
| Geometry (Exact / Tessellated) | ✓   | ✓              | N/A        |
| Model Styling                  | ✓   | ✓              | N/A        |
| Validation Properties          | ✓   | ✓              | ✓          |
| User Defined Attributes        | ✓   | ✓              | ✓          |
| Graphic PMI (Assembly / Part)  | ✓   | ✓              | N/A        |
| Semantic PMI (Assembly)        | ✓   | ✓              | TBD        |
| Semantic PMI (Part)            | ✓   | ✓              | N/A        |
| Saved View (Assembly)          | ✓   | ✓              | TBD        |
| Saved View (Part)              | ✓   | ✓              | N/A        |
| Kinematics                     | N/A | N/A            | ▲ (*1)     |
| Composite Materials            | N/A | ▲ (*2)         | N/A        |
| UUID (Persistent ID)           | N/A | Prototype (*3) | TBD        |

|     |                     |
|-----|---------------------|
| ✓   | Supported           |
| ▲   | Partially supported |
| N/A | Not Applicable      |

(\*1) Basic kinematic pairs are supported.

(\*2) Basic constituents and properties are supported.

(\*3) CAx-IF Test Cases

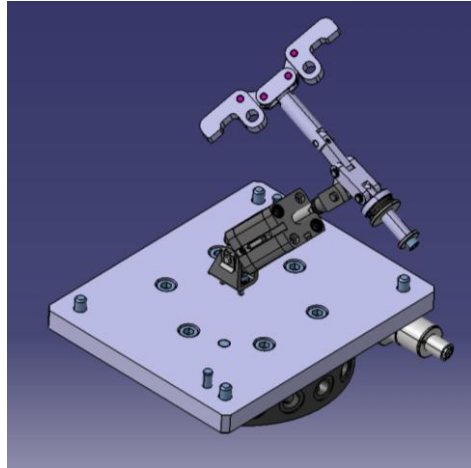
New



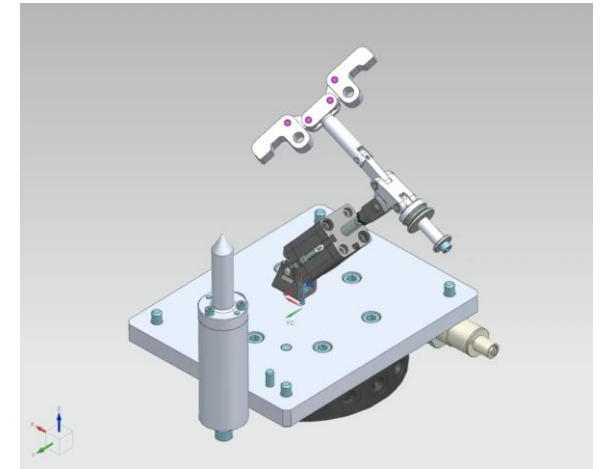
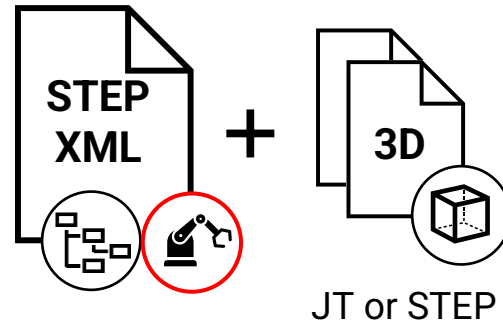
Keep expanding translation/validation capabilities according to industry demands

# Standard Support | Kinematics

- Support for kinematics translation via STEP AP242 XML
  - CATIA V5 to STEP XML
  - STEP XML to NX
- Basic joint types supported
  - Revolute / Prismatic / Cylindrical / Spherical / Planar / Fully Constrained



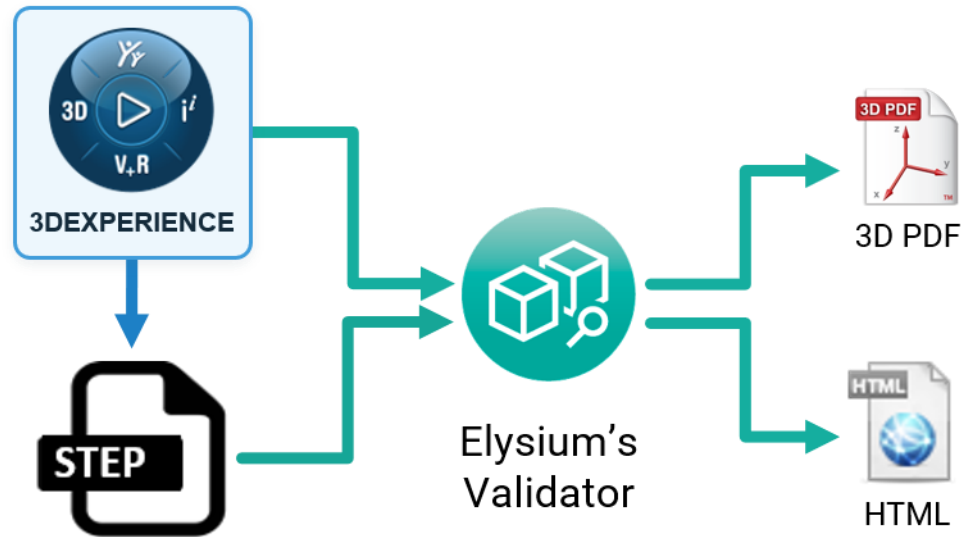
CATIA



NX

# Standard Support | Composite Materials

- Composite Material Validation between 3DEXPERIENCE and STEP (New)
  - Structures and Constituents
  - Ply Orientation (Rosette Axis / Curve)
  - Constituent Geometry
  - Material Properties



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| Property                | Result | First Model | Second Model |
|-------------------------|--------|-------------|--------------|
| Fabric width            | Same   | 1180        | 1180         |
| Maximum deformation     | Same   | 15          | 15           |
| Limit deformation       | Same   | 25          | 25           |
| Weight per surface unit | Same   | 0.0006      | 0.0006       |
| Density                 | Same   | 0.0         | 0.0          |
| Ply angle               | Same   | 45          | 45           |

Clear Selection No Fit Fit Fit All Solid Outline Select a geometry type

### 3DEXPERIENCE

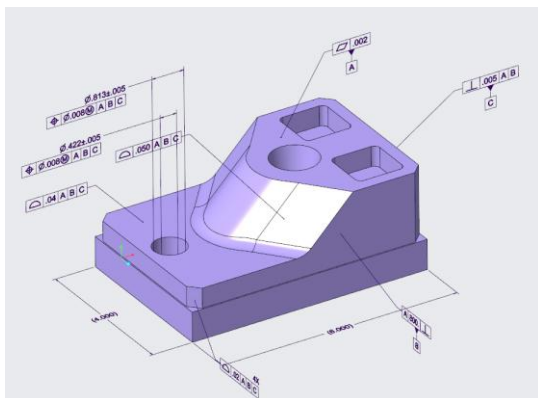
### STEP

3DEXPERIENCE and STEP Validation Report (3D PDF)

Model: CAx-IF C02

# Standard Support | UUID (Persistent ID)

- Published a White Paper on Operational Features and Characteristics (New)
  - Co-authored with Lockheed Martin (LMCO)
  - Proposed Representation Methods, Implementation Challenges, and Standardization Gaps
  - Challenges in Streamlining Downstream Operations
- Support for Bill Of Operational Features in STEP AP242 in Scope



CAX-IF R58J BOF (Creo)

BOF

POF

OF > UUID

Char > UUID

Char > UUID

OF > UUID

Char > UUID

## Persistent IDs in STEP AP242 Edition 4: Proposed Representation Methods for Operational Features and Characteristics, Implementation Challenges, and Standardization Gaps

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"PMI entities such as DIMENSIONAL\_SIZE and DIMENSIONAL\_LOCATION, when TOLERANCES are applied to them, POSITION\_TOLERANCE, and SURFACE\_PROFILE\_TOLERANCE, are equivalent to Characteristics in other standards."

However, from the perspective of QIF and Model-Based Characteristics (MBC), PMI and Characteristics are considered conceptually distinct.

For example:

- A graphical PMI annotation may contain multiple implied verification requirements,
- pattern annotations may need decomposition into multiple individual Characteristics,
- and Characteristics may include verification, sampling, or statistical semantics beyond the original PMI representation.

Therefore:

PMI ≠ Characteristics

PMI is primarily a representation mechanism.

Characteristics are operational quality semantics

At the time being, we will focus on characteristics explicitly specified in the PMI; however, in the future, we will likely need to treat specifications and standards—other than SD&T—that may not be created as 3D annotations as characteristics related to OF.

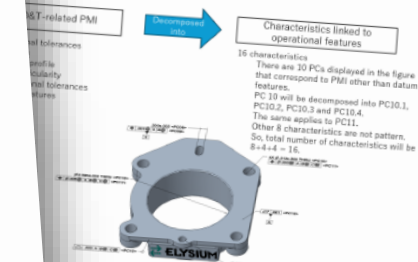


Figure 2: Relationship between PMI and characteristics

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Available for download from the [Elysium website](https://elysium.co.jp/)

# Key Message | Commitment to Openness



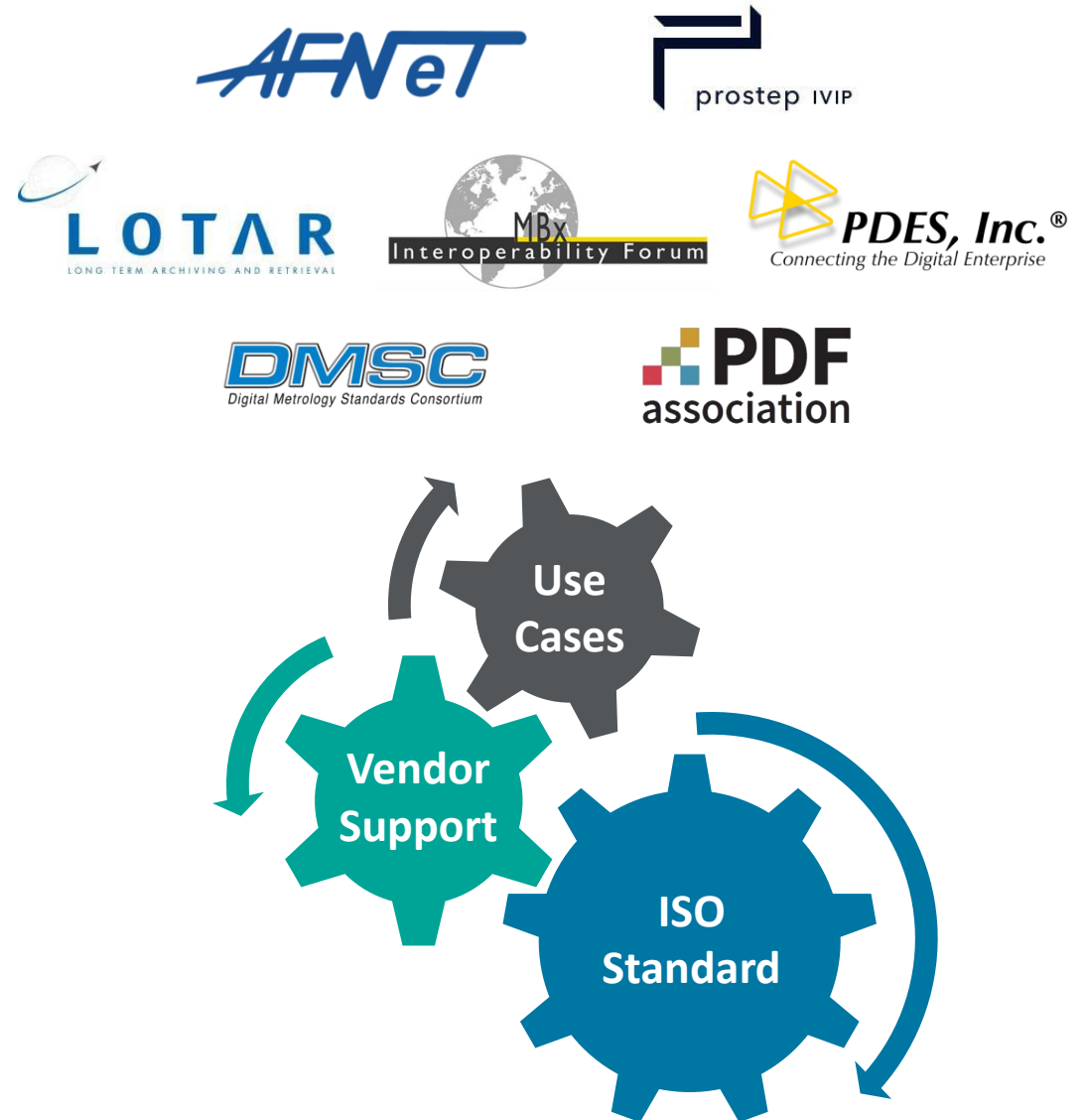
Elysium actively participates in leading standardization groups to stay aligned with evolving industry requirements.



In addition to STEP and JT, we support formats such as QIF and 3D PDF to address a wide range of use cases.



As an interoperability provider, Elysium serves as a "driving gear", connecting standards with real-world use cases to better support industry demands.





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Thank you for  
your time,  
your energy,  
and your invaluable insights.