



Requirements traceability to enable mission readiness

PLM Road Map™ & PDT North America 2025

PLM's Integral Role in Digital Transformation From Strategy to Execution

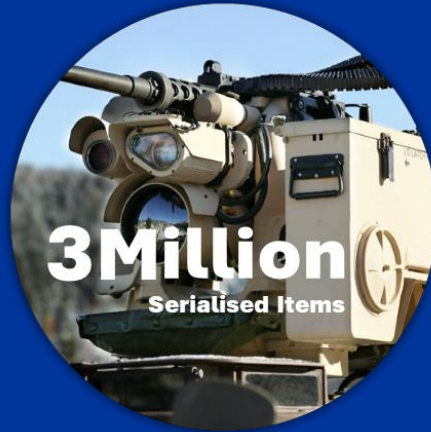
*Elevating PLM to an Enterprise Business Solution,
the PLM Professional's Road Map to Success*

CIMdata

May 7 & 8

eurostep

Introduction



Defence industry challenges

- Increased global threat levels
- Increasingly complex platforms
- Shifting business settings

Availability,
Mission Readiness
Cost

Defence industry challenges

Denmark will 'buy, buy, buy' military gear, prime minister says

By Stine Jacobsen and Jacob Gronholt-Pedersen

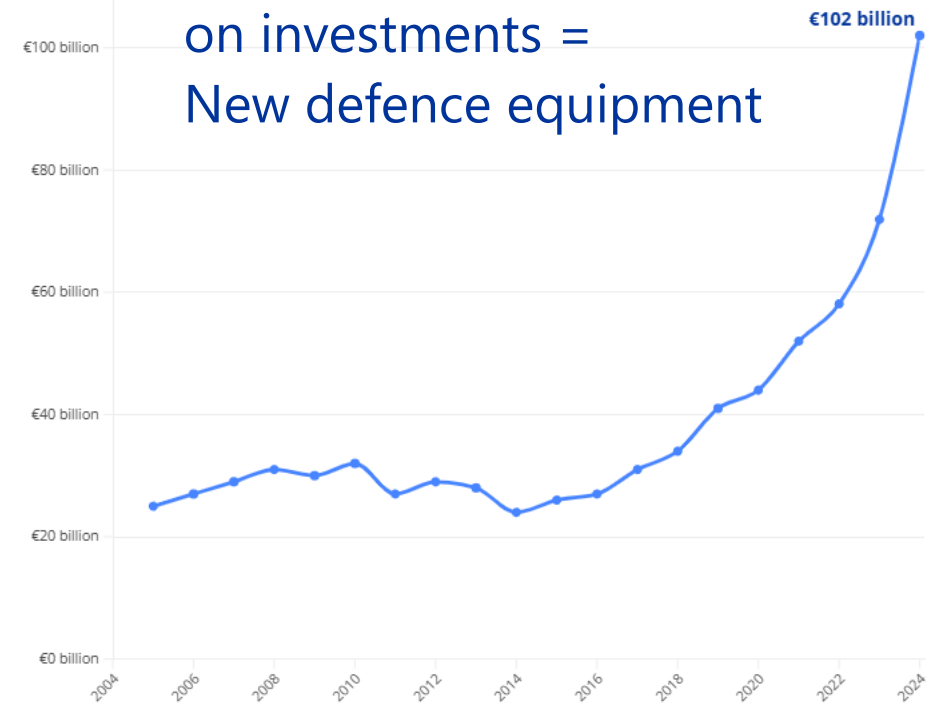
February 19, 2025 6:39 PM GMT+1 · Updated 2 months ago



Defence investments (2005-2024)

30%

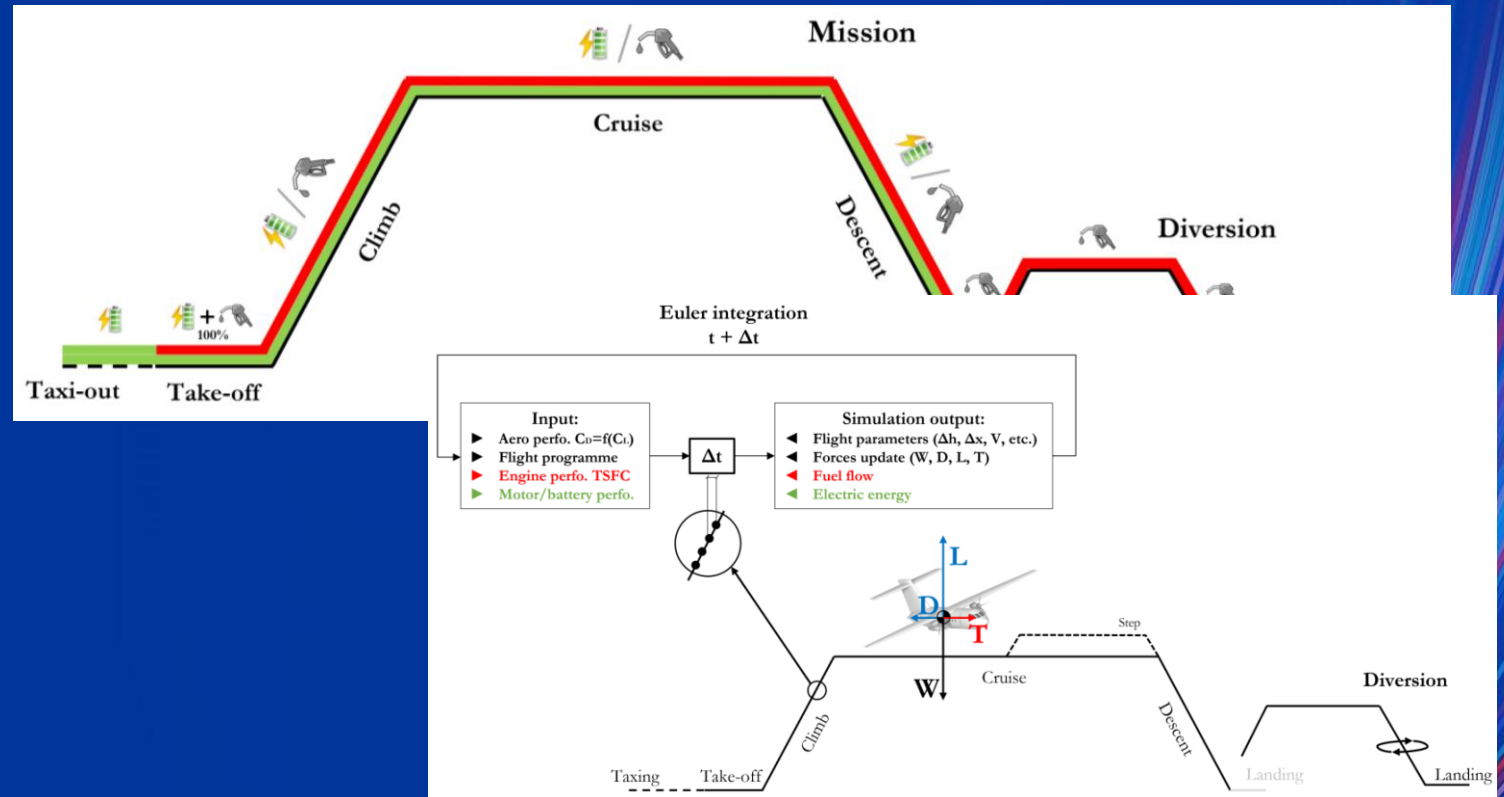
on investments =
New defence equipment



Source: European Defence Agency

Let's talk about requirements

- Operational
- Product requirements
- Product Support System
- Commercial



Palaia, G.; Abu Salem, K. Mission Performance Analysis of Hybrid-Electric Regional Aircraft. Aerospace 2023, 10, 246. <https://doi.org/10.3390/aerospace10030246>

A recent example of changing requirements

- Reorient ongoing Naval ship project from Baltic Sea patrol ships to Arctic-capable vessels



“With Sweden and Finland now NATO members, Denmark’s focus on Baltic defense has shifted, allowing the country to reorient its priorities toward securing its Arctic territories, particularly Greenland” – Danish Minister of Defense Troels Lund Poulsen

Source: <https://www.navalnews.com/naval-news/2025/03/danish-consortium-ready-to-build-new-arctic-patrol-vessels-and-frigates/>

The Operator's view on an asset

*"As a **Maintenance planner** I need:*

- *Maintenance schemes for general supervision so that I can plan my maintenance properly "*

"I would also need:

- *MTTR, MTBF, and LORA data so that I can optimize repair vs replace strategies and reduce life cycle cost"*

*"As a **Support analyst** I need:*

- *Reliability and supportability data so that I can simulate system availability levels for upcoming deployments and usage scenarios"*

*"As a **Mission planner** I need:*

- *Equipment performance data under extreme conditions and mission profiles so that I can find out whether current logistic strategies are compatible with the new mission profiles.*

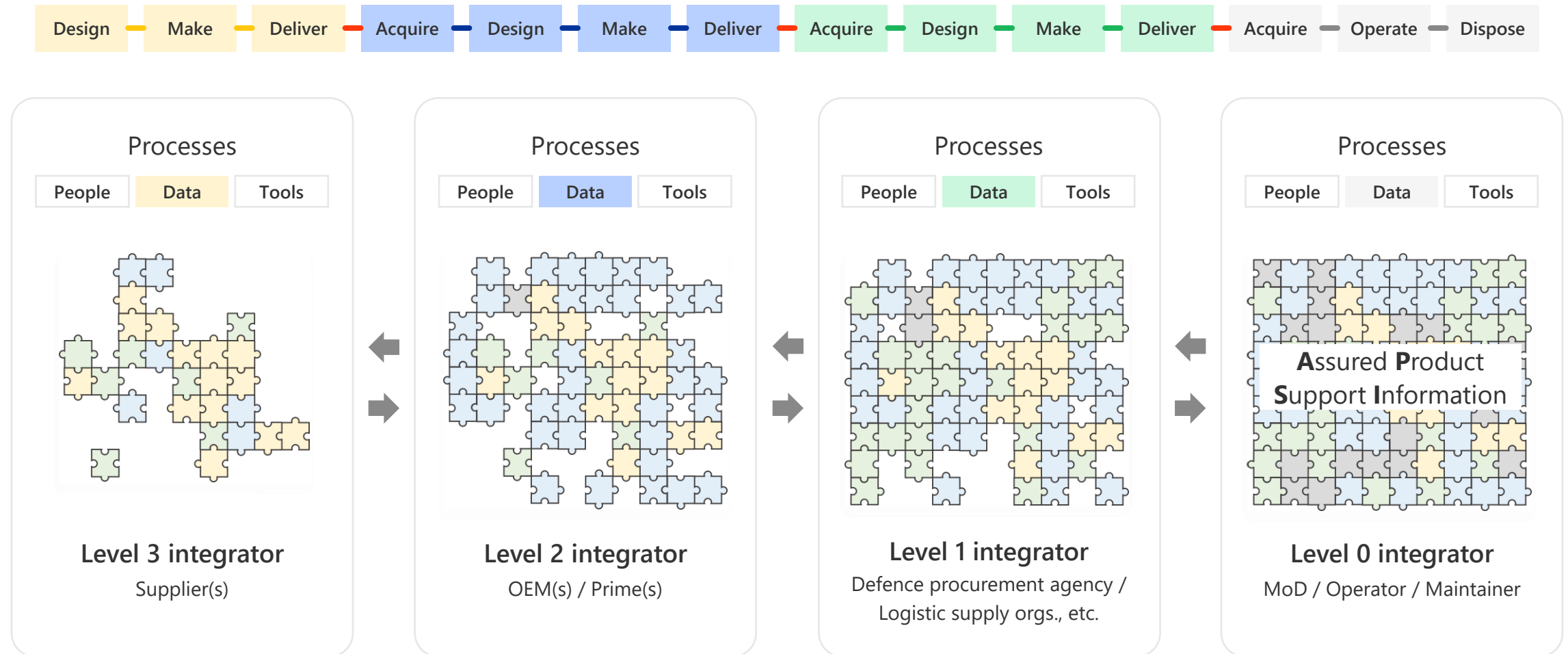
The data debt challenge

- Historically we have noted a huge product data “**shortage**” in military context
- Over time it evolves into a “**data debt**” problem, i.e.
 - A situation where there is an insufficient amount of qualitative data available to meet the needs of a particular analysis, decision-making process, or application.
- Impacts the **ability to make informed decisions** about a systems performance and management



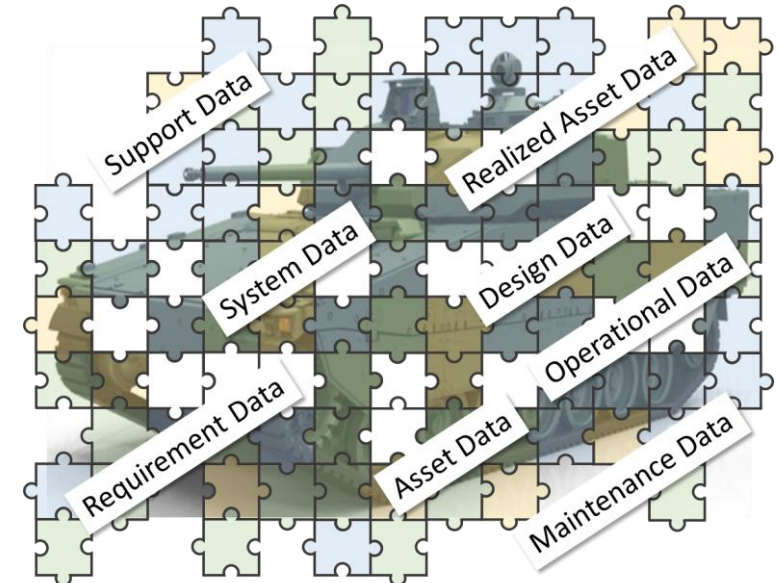
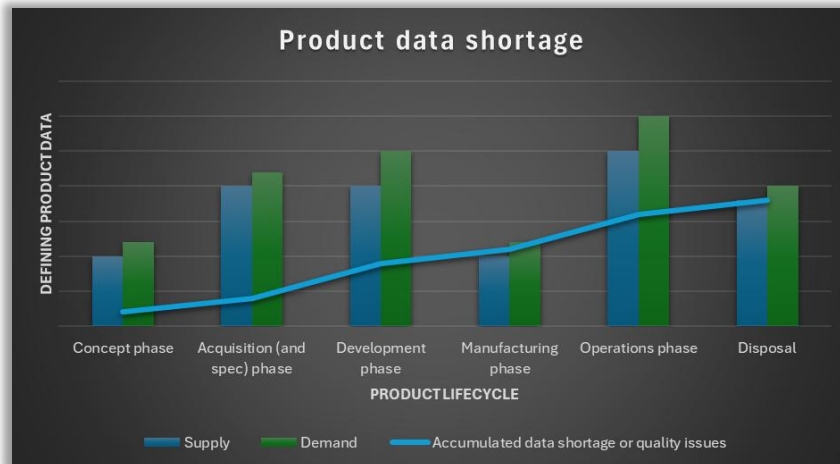
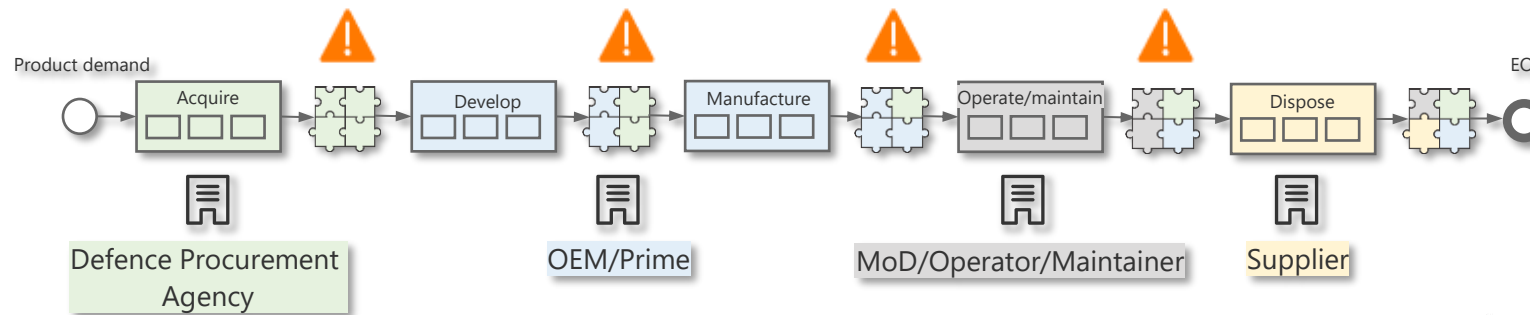
The product data supply chain

And what is needed to support the projects in acquiring product data



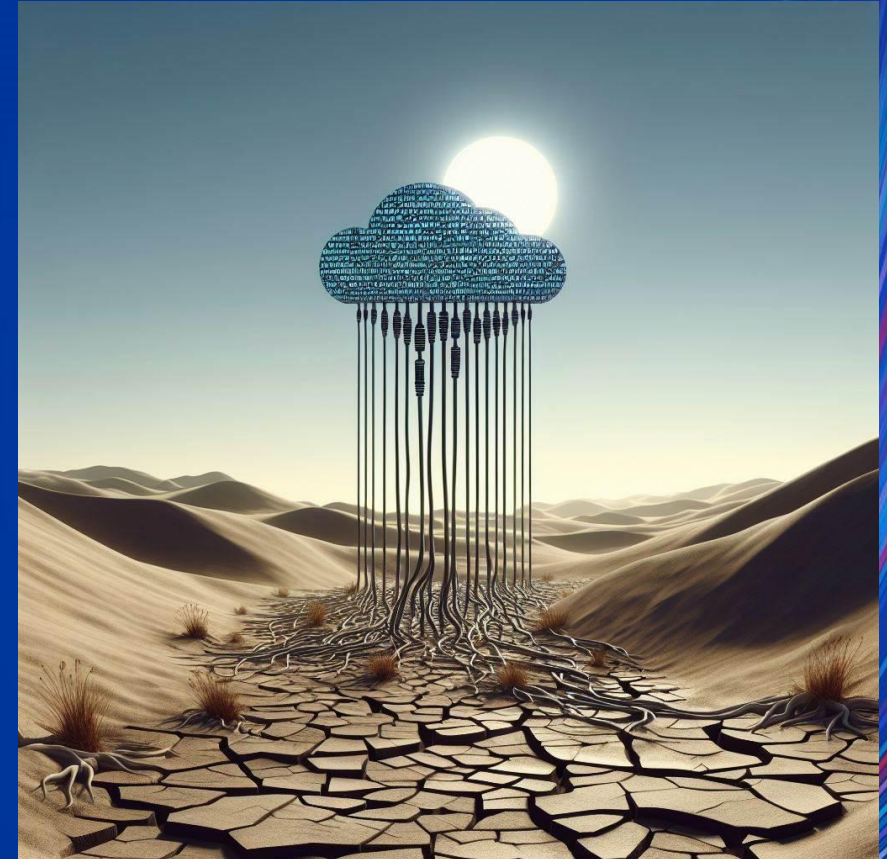
The data shortage problem

- In Defence settings data shortage becomes a problem
 - Situation: Many different types of products, evolving business contexts, complex product data supply chain

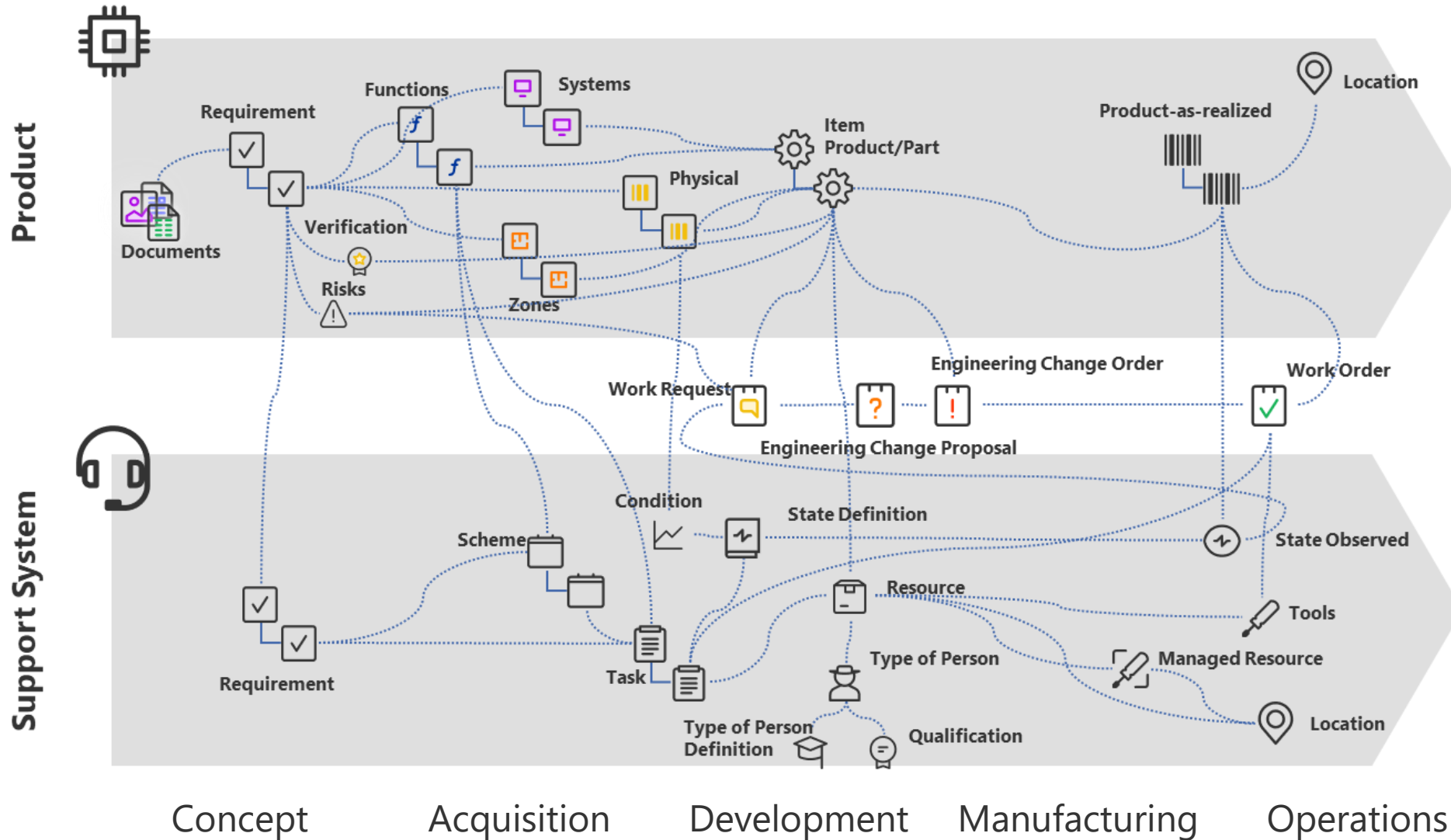


The cause

- One cause of the data “shortage” or “debt” issue is outdated IT systems
- Another cause is poor tool and model interoperability – “data silos”
 - Requirements are often exchanged as specifications
 - Mainly in human readable forms, e.g. Drawings, Documents etc.
- Yet another cause, that must be emphasized more; is the **lack of contracting, and product data supply chain processes and tools**
 - Business process data needs are often overlooked
 - Product data requirements



Information Scope



Standards are good – but is not the complete answer

- Standards, standards, and even more standards!
- Standards typical address:
 - The way we work (processes)
 - The data exchange (exchange formats)
- Examples, in this context
 - Reports according Geia 0007 or 1388-2B
 - ASD S-Series, S3000L in particular
 - ISO 10303 AP239 PLCS
 - ReqIF

⚠ But many projects still fail to acquire and collect the product data ⚠

Contract for information *SMART* ly

S - Semantics

- Clearly and unambiguously define the semantics of what is being asked

M - Measurable

- Set enforceable data quality KPIs in the contract

A - Accurate

- Precise specification of what information is being asked for

R - Reasoned

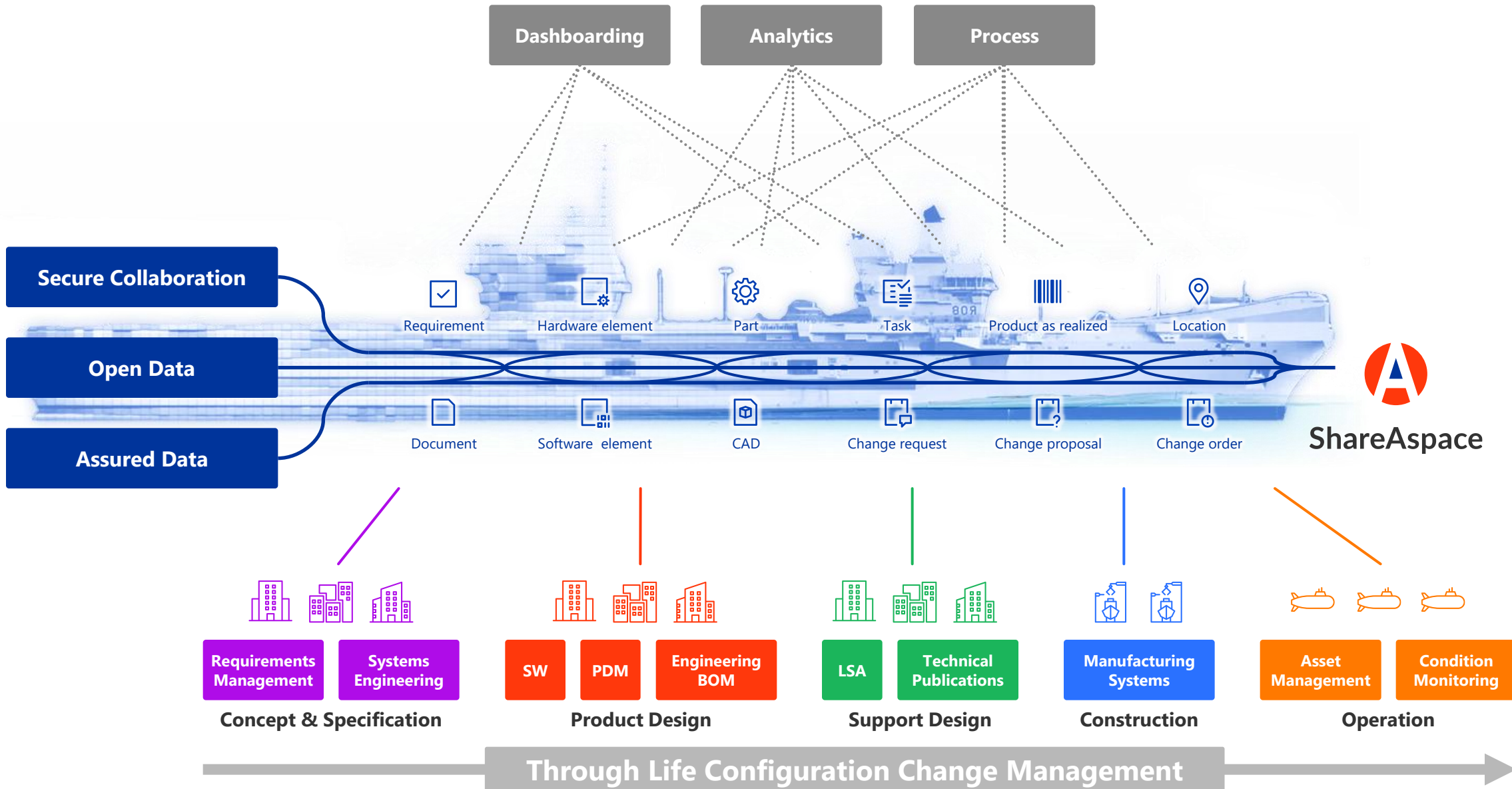
- Request only what's necessary

T - Timely

- State when the data is needed

PLM Road Map™ & PDT Europe 2024
Value Drivers for Digitalization of the Product Lifecycle
Insights for the PLM Professional—Why the investment, what are the
returns, and how are they achieved?
23 & 24 October

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Conclusions

- Competitive and military advantage requires good data, at the point of decision
 - Product data must be **accessible, accurate, and assured** to be readily available
- Assets are expensive, supply chains complex, effective data creates opportunity
 - More focus must be put on Product **data acquisition** and **collection** to avoid data shortages
- Things change, all the time, can the decisions you need to make keep up with that change
 - Maintaining **traceable links** to constantly changing **requirements** is an enabler
- This will enable you to feed information from your supply chain into the digital thread
 - To enable informed decisions at any point → **to ensure Mission readiness**

Thank you! Questions?

simon.pettersson@eurostep.com

The Eurostep logo, featuring the word "eurostep" in a white, italicized sans-serif font with a small red dot above the "e".

- Accelerating mission-ready decisions: turning high-quality data into timely, informed action