

The Need for a Governance Digital Thread

PLM Road Map & PDT Europe 2023

THE NEED FOR A GOVERNANCE DIGITAL THREAD

Regulations will also push companies to implement a connected digital thread

PLM Road Map™ EMEA & PDT Europe 2023

The Digital Thread in a Heterogeneous, Extended Enterprise Reality

A call for PLM Professionals to share their knowledge & experience

CIMdata®

15 & 16 November

europstep



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The Know-How to Know Now



Jos Voskuil

www.virtualdutchman.com

Two types of Digital Thread

I think it's both

I would say the digital thread is created by machines for people

Increasingly, we talk about digital fabric and digital weaves

My truth is



What, Me Worry?



Digital Thread, on the other hand, is a framework that tracks a product or system's data throughout its lifecycle and links it in a verifiable way. Digital thread is thus seen as a prerequisite for end-to-end networking and for change traceability

To me, digital threads relate to BOM continuity and also insights/data analytics in the PLM space, combining product, financial, and NPI-NPD data

I don't see Digital Thread as traceability. One problem I see in the PLM world is that there is no leadership. For me, a Digital Thread is digitally accessible data (machine-readable)



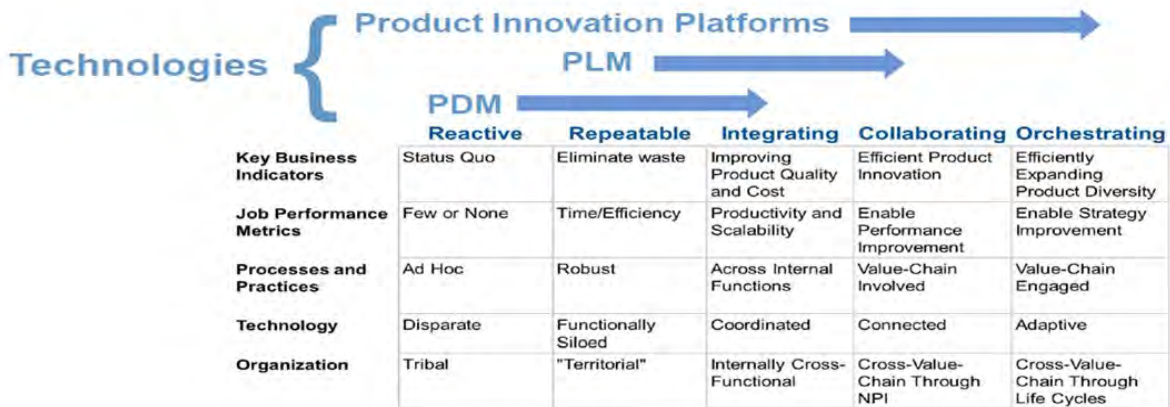
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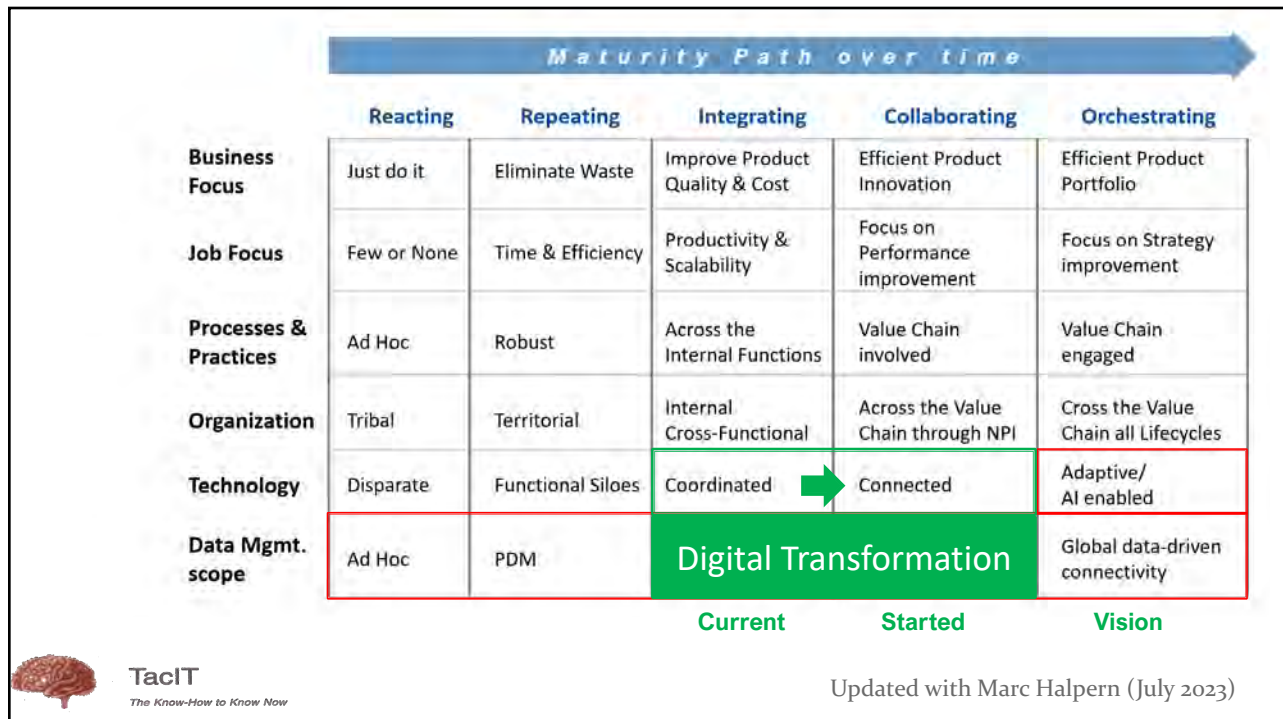
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Using Coordinated and Connected



Source: Marc Halpern (Gartner PDT Europe 2015)



Updated with Marc Halpern (July 2023)

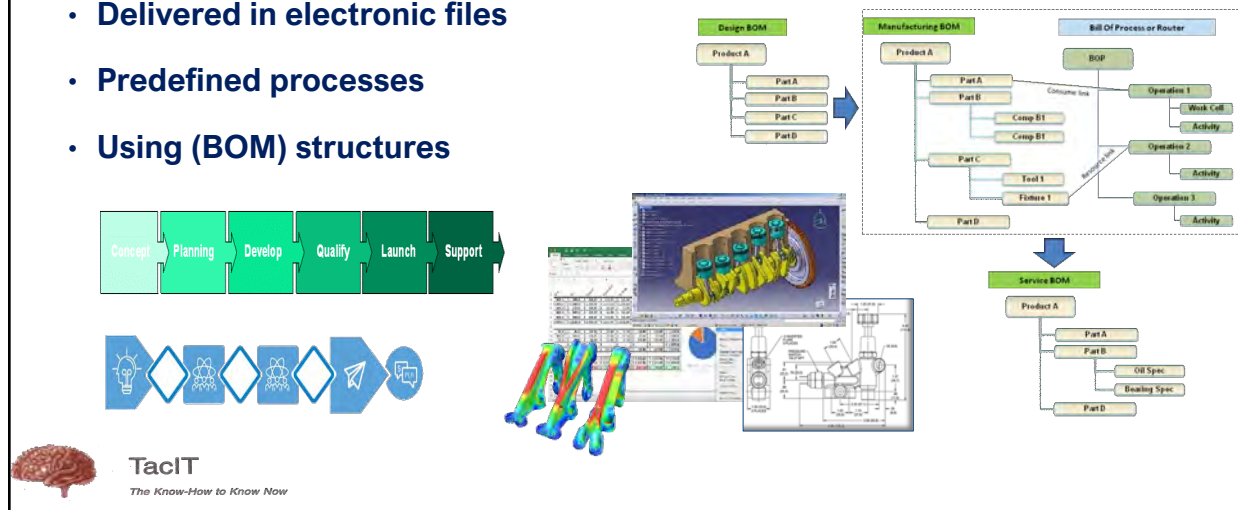
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Coordinated in an evolutionary scope

Providing the right information at the right time in the right context

- Delivered in electronic files
- Predefined processes
- Using (BOM) structures



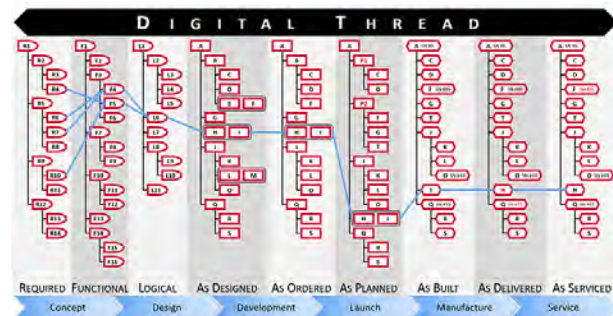
Coordinated in an evolutionary scope

Providing the right information at the right time in the right context

- Delivered in electronic files
- Predefined processes
- Using (BOM) structures
- Overlay structures

Part of the enterprise backbone

Aras / Contact / Neo4j / Netvibes / Mendix / Navigate /



→ The coordinated Digital Thread



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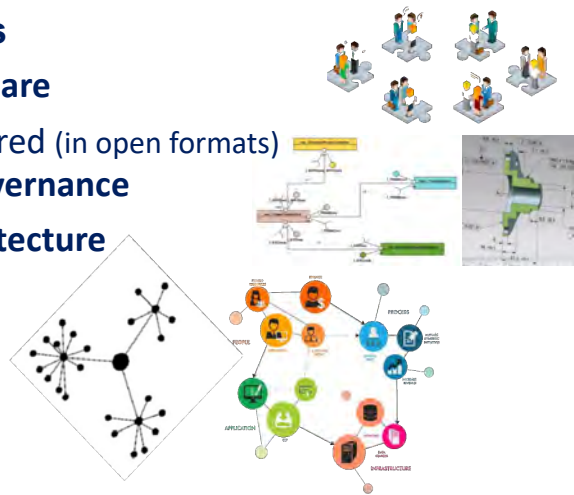
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Connected

Providing **actual** information for **anyone** connected in a **relevant context**

- **Data(sets) & Accountable persons**
- **Using Modeling Apps & Datasets to share**
- **Reliable data uniquely created and shared (in open formats)**
- **Master Data Management & Data Governance**
- **The importance of an Enterprise architecture**

➔ The **connected** Digital Thread



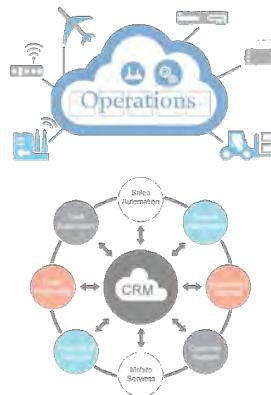
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The **Connected** Digital Thread – the building blocks

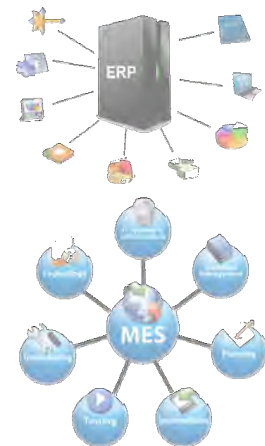


Microservices
APIs / Low Code platforms

Dashboards
Apps



CIMdata Product Innovation Platform



Closer to customers, Empower employees, and Transform internal business processes

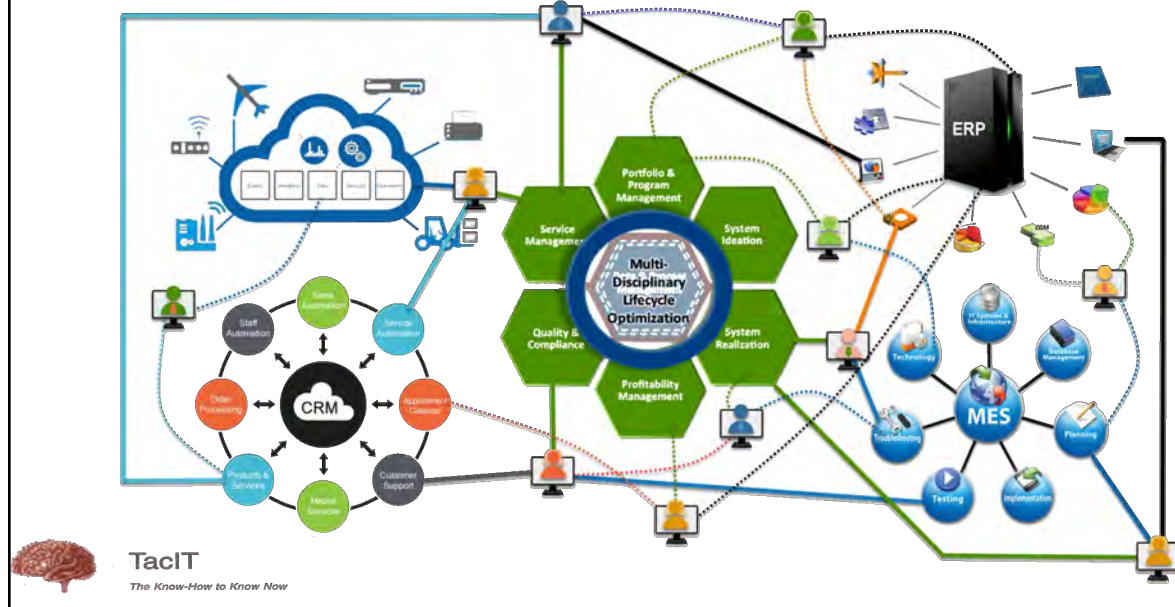


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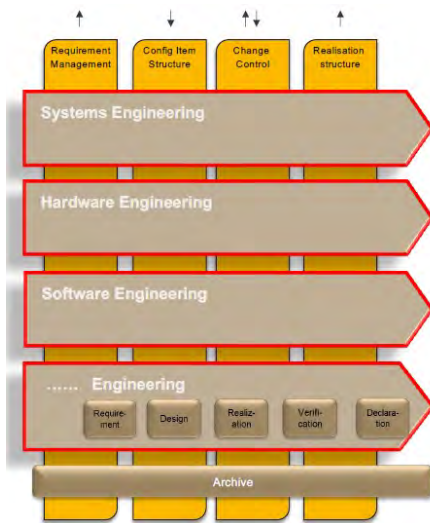
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The Connected Digital Thread



The future: Federated PLM (Coordinated AND Connected)



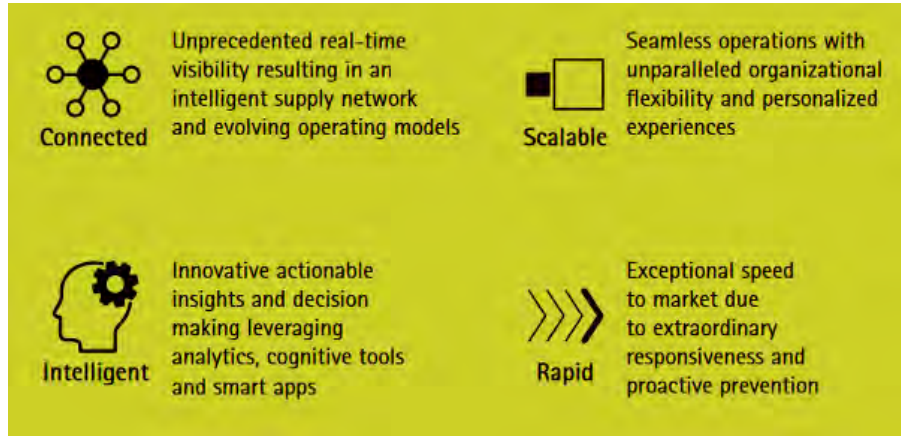
The PLM infrastructure is a mix of:

- A traditional PLM System: **System of Record**
- Extended with other datasets that might come from:
 - Excels (disconnected)
 - **Systems of Engagement**
 - Other platforms (ERP, CRM, MES and IIoT)

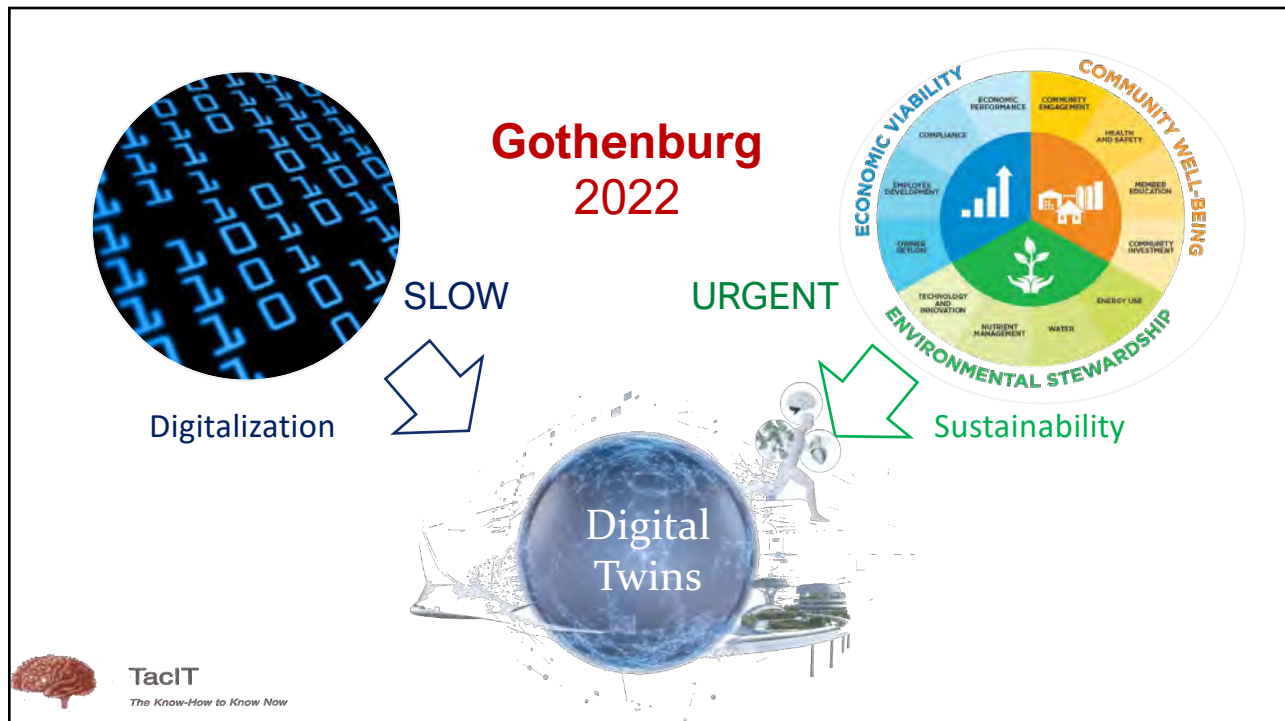
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Don't forget the WHY



Accenture: Digital PLM (2014)



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Meanwhile the climate does not wait



2022



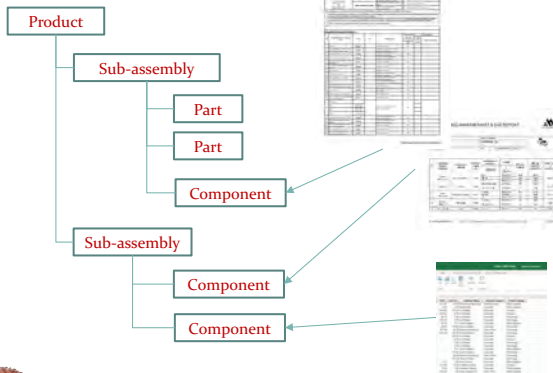
2023



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Let's look at RoHS (since July 2006) or REACH (2008)



How does your company deal with RoHS/REACH?

- A. Separate process based on the (released) MBOM (reactive & manually)
- B. Integrated in product design (proactive & manually)
- C. Integrated digital process in the PLM system (proactive & connected)
- D. Integrated digital process in the enterprise (proactive & connected with PLM & ERP)
- E. Not relevant/ not aware

The need for a **Connected Digital Thread**



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The Sustainability dimension requires data-driven processes

GHG reporting

Investor related

Carbon tax

Digital Product Passport

econvent Centre

Higg Index

Catena-X Automotive Network

LCA

Usage, Distribution, Manufacturing, raw Materials, Landfill, Recycling

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The Sustainability dimension requires data-driven processes

ENVIRONMENTAL SOCIAL GOVERNANCE

Sustaira Sustainability & ESG App Platform

Sustaira App Delivery & Implementation Services

Sustainability & ESG Consulting

Klaus Bretschneider

Vincent de la Mar

mx mendix inovateus SIEMENS

PLM GREEN ALLIANCE

SUSTAIRA

green buoy consulting Sellen

LOGISTICK CSD The Challenge Public University GOOD CLOUD BuildingGreen

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<https://virtualdutchman.com/2022/09/11/plm-and-sustainability-talking-with-sustaira/>

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The Sustainability dimension requires data-driven processes



- Industry:**
Energy, Renewables and Utilities

Only 1/4 of Firms are ready for ESG Reporting Requirements

- Their Challenges**
- Lack of CO2 transparency of wind turbines
 - Increased costs of CO2 taxes
 - Limited core systems
 - Manual, error prone, inefficient, and Excel based processes.
 - Disparate Data Sources
 - No real-time insights or scenarios to optimize CO2 vs Costs

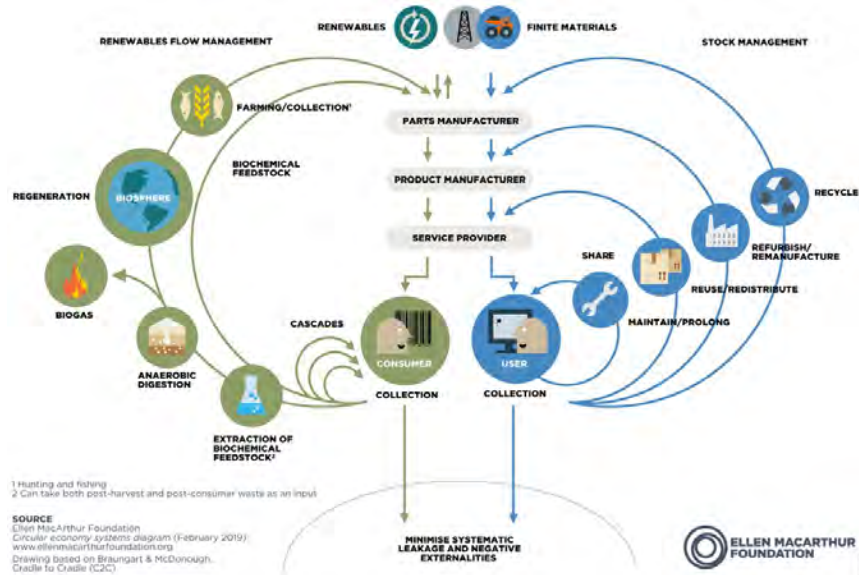
- The Solution**
- Solutions:**
- A CO2 scenario analysis app
 - PLM integration
- Value:**
- CO2 impact
 - Actionable insights of CO2 taxes
 - Direct integration
 - Meaningful Data Visualization
 - PLM and product optimization

"We're looking at an unprecedented speed of implementing projects in the next few decades. All these 2030 commitments – this sounds like big growth, but we're not able to build this amount physically...we're going to need digitalization to get the most out of our existing infrastructure and get the inefficiencies out of the system. We will need digital if we want to introduce renewables. It's not just an efficiency element; it's an indispensable enabler to drive the energy transition." **President and CEO**



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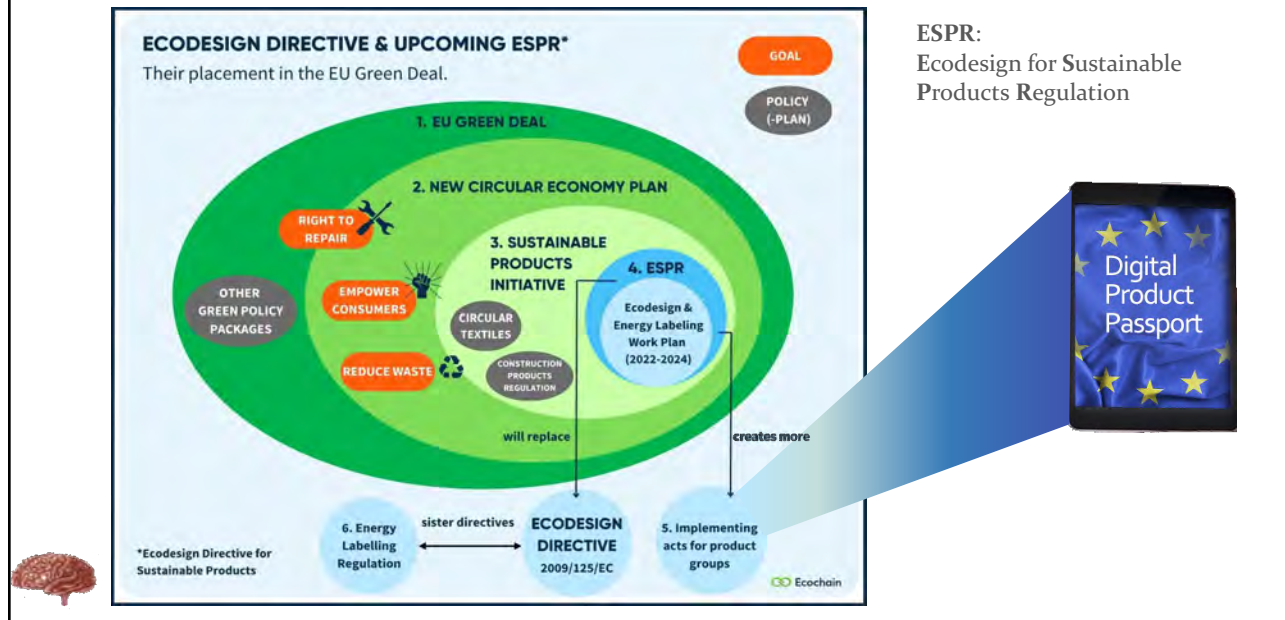
Not only GHG emissions → Material usage



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The European Green Deal



The Digital Product Passport

What:

Provide a digital twin of a product and its supply chain

By 2026, to be implemented for:

- Apparel
- Batteries
- Consumer electronics
- Other industries to follow

Why:

- More sustainable production (ESPR)
- Circular Economy
- Verify compliance to regulation
- Supporting customer's educated choices



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The Digital Product Passport (implementation)



UID based on ISO/IEC 15459:2015

GS1 Digital Link



GS1 Digital Link



- Provides traceability
- Implemented centralized and interoperable systems
- Data is shared securely
- Learn/adapt from the retail industries (PIM systems)
- The **connected** digital thread



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An automotive example – Catena-X



Catena-X
Your Automotive Network
OPEN SOURCE
DECENTRALIZED
SECURE



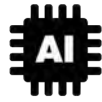
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The evolution of collaboration



“Real-time”
data sharing
(2023)



Asynchronous sharing of
data/files document-driven
(2010) → PLCS

ENOVIA TEAMCENTER windchill

The “golden age” of cPDM /
PLM systems – internal focus

VDA

Verband der
Automobilindustrie

Asynchronous sharing of
models (1994) → IGES



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Conclusions



#1 Focus on (connected) data

the **Connected** Digital Thread



Regulations will push you over
the next 5 years to change
the **Connected** Digital Thread



Coordinated → Connected

Adaptive/
AI enabled

the **Connected** Digital Thread



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