

A Technical Data Collaboration Maturity Model



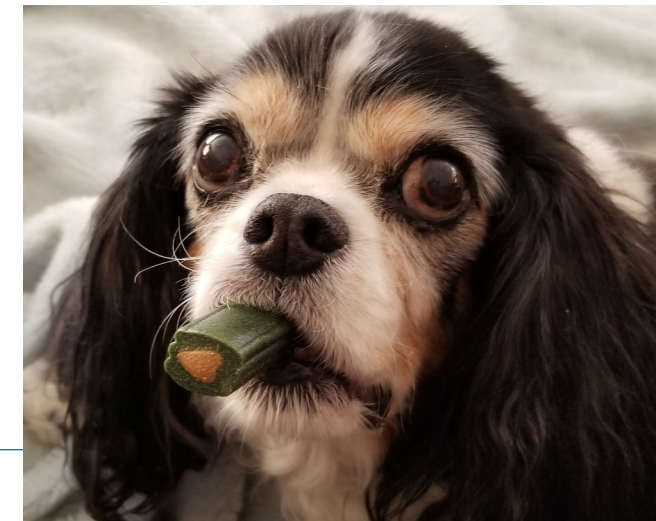
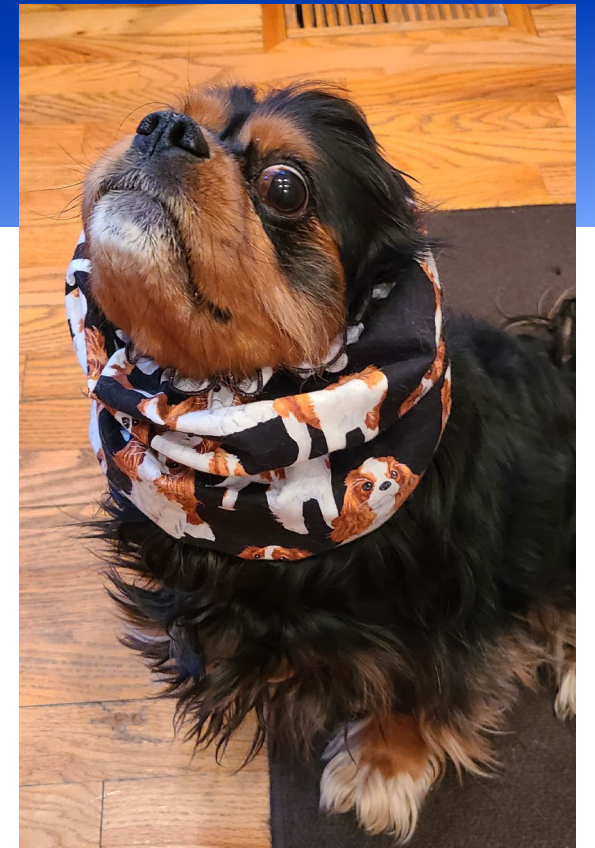
Moving to an Integrated Technical
Data Portal vs. File Based TDPs



Presenters Bio

Global Product Data Interoperability Summit | 2022

- **James Martin, Anark Corporation, Senior Manager of Customer Engagement** james.martin@anark.com
- **35+ years of CAD, CAM, CAE, MBD, PLM, Data Management, Standards and Engineering Solutions via Consulting, Development, Implementation roles**
- **Based near Anark Headquarters in Boulder, CO**
- **Skiing, golfing, hiking, travel, Japanese language and culture with my wife Yuko and 20-year-old son Kyle**
- **Part **Full** time Cavalier King Charles Spaniel rescuer**



Enabling Digital Thread Value For Our Customers

Global Product Data Interoperability Summit | 2022



Maximize use of engineering data, information, and expertise; enhance performance across the enterprise

Engineering •

Manufacturing •

Optimize manufacturing operations to deliver more quality products on time, at cost



Securely connect people
to the information and expertise
they need to improve performance



Optimize strategic sourcing processes, improving supplier efficiency and responsiveness

• Supply Chain

• Service

Optimize service & support operations to drive services growth and profitability with happy, customers



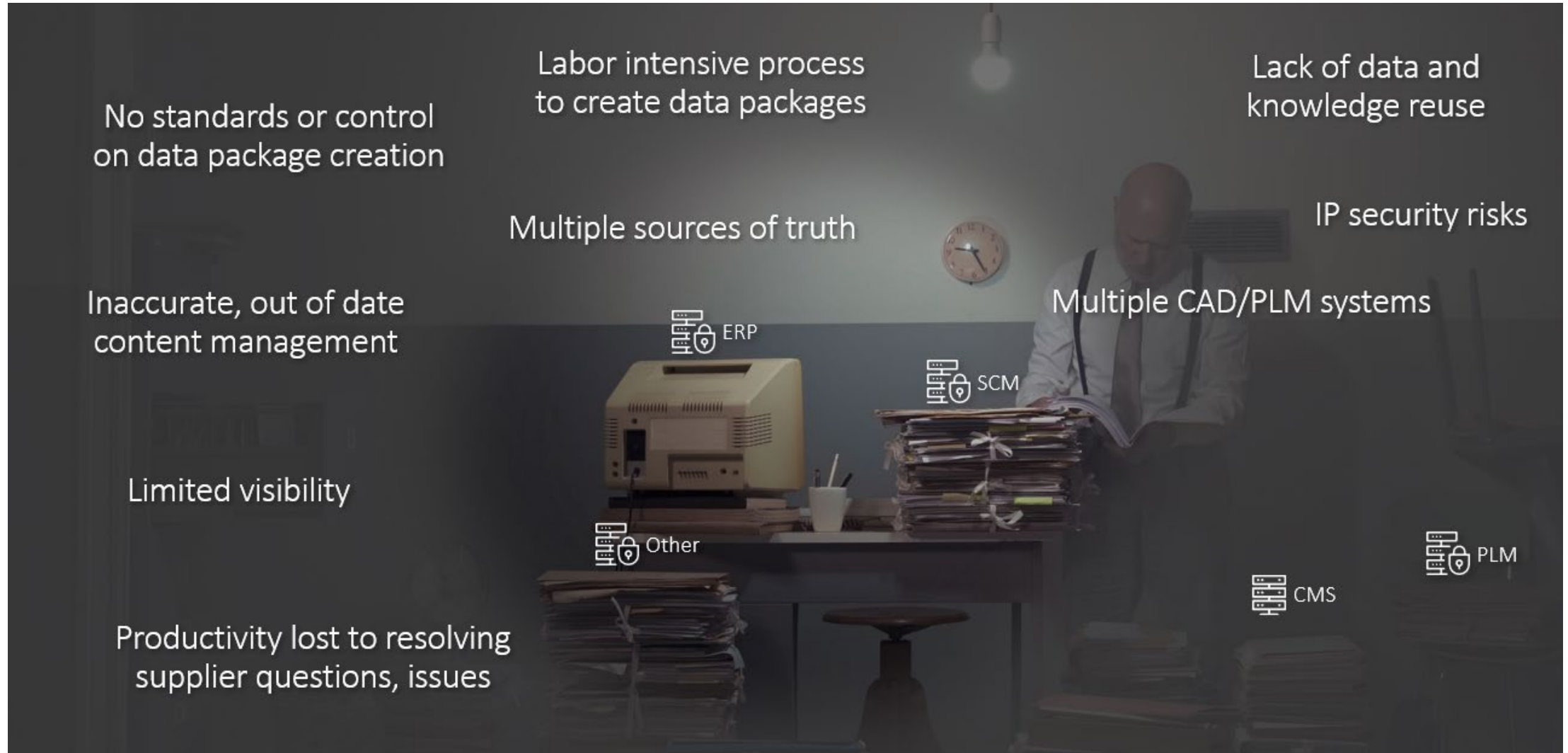
Enabling Digital Thread Value For Our Customers

Global Product Data Interoperability Summit | 2022



A Disconnected Thread of Information is the Enemy of Efficiency

Global Product Data Interoperability Summit | 2022



Is Sharing Technical Data The Same as a Digital Thread?

Global Product Data Interoperability Summit | 2022

72%* of manufacturers create technical data packages to share technical data with their supply chain and design partners

Less than half (47%*) those companies feel effective

*Lifecycle Insights research on *The State of Supply Chain Collaboration in Manufacturing* n=201 manufacturers across Electronics and High Tech, Automotive, Heavy Equipment, Med Devices, Consumer Products, Aerospace and Defense

Majority of companies still use email attachments for technical data collaboration

Less than one third (27%*) use modern tools

*Lifecycle Insights research on *The State of Supply Chain Collaboration in Manufacturing* n=201 manufacturers across Electronics and High Tech, Automotive, Heavy Equipment, Med Devices, Consumer Products, Aerospace and Defense

No Time Left For Product Innovation

Global Product Data Interoperability Summit | 2022

Engineers spend 40% of their time finding, packaging, sharing, and explaining technical data.

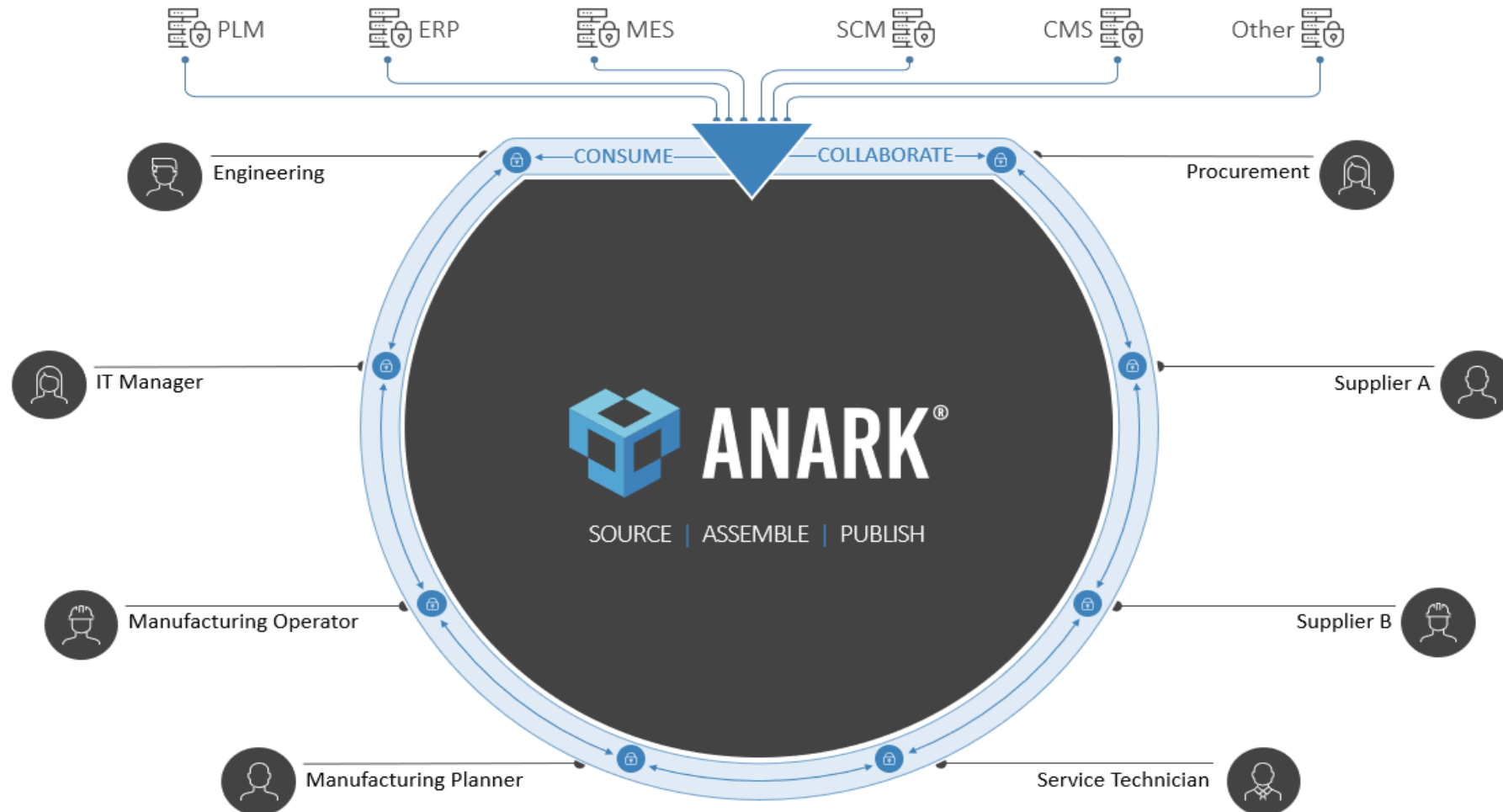
Most find their processes cumbersome, time-consuming, and error-prone

*Lifecycle Insights research on *The State of Supply Chain Collaboration in Manufacturing* n=201 manufacturers across Electronics and High Tech, Automotive, Heavy Equipment, Med Devices, Consumer Products, Aerospace and Defense

Connecting People to the Digital Thread

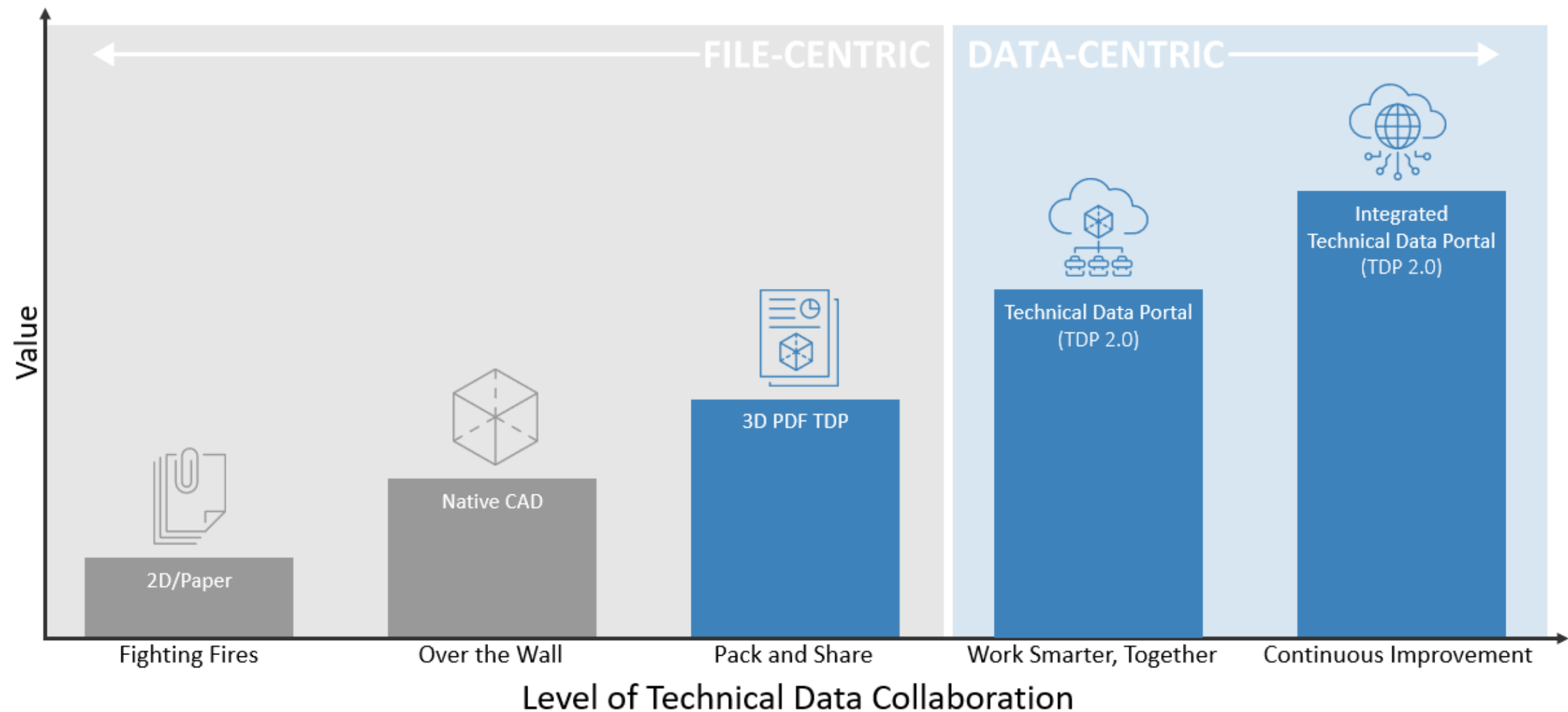
Global Product Data Interoperability Summit | 2022

Connecting People to the Digital Thread



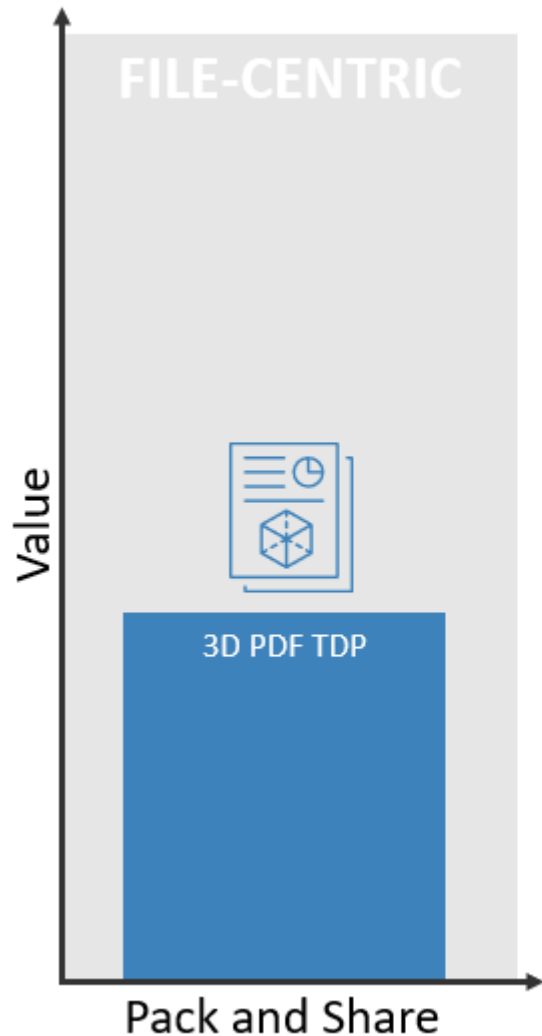
A Technical Data Collaboration Maturity Model

Global Product Data Interoperability Summit | 2022



3D PDF improved standards based TDP delivery, but it's not perfect

Global Product Data Interoperability Summit | 2022

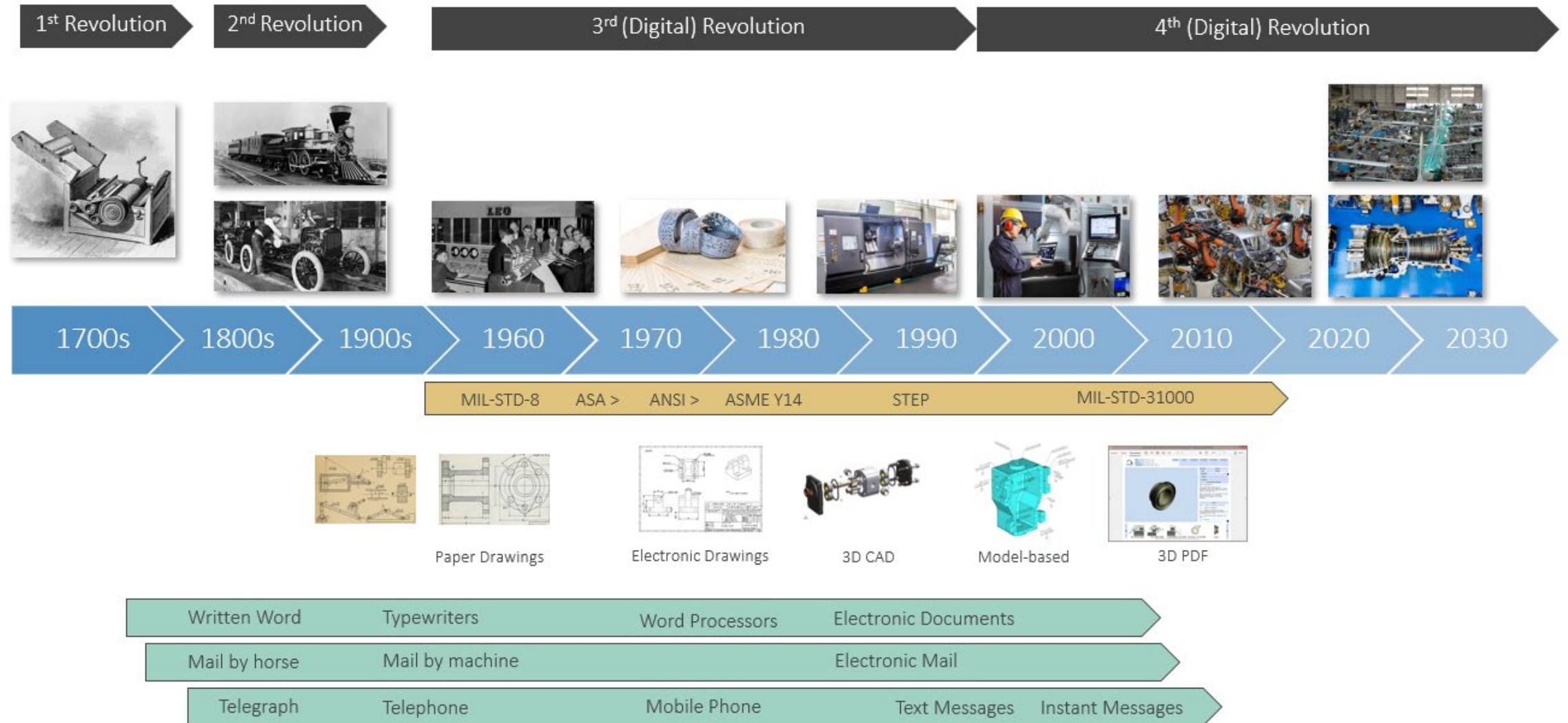


3D PDF TDP

- + Recipients only need Adobe reader
- + Comprehension improves with 3D visualization
- + Share more than just the CAD data
- + Consistent, repeatable experience with templates
- + Automate publishing
- Limited IP security
- Collaboration is disconnected from the content
- Files sent and shared without trace
- Very large files to transfer and open
- One-way sharing of content
- Changed data not apparent

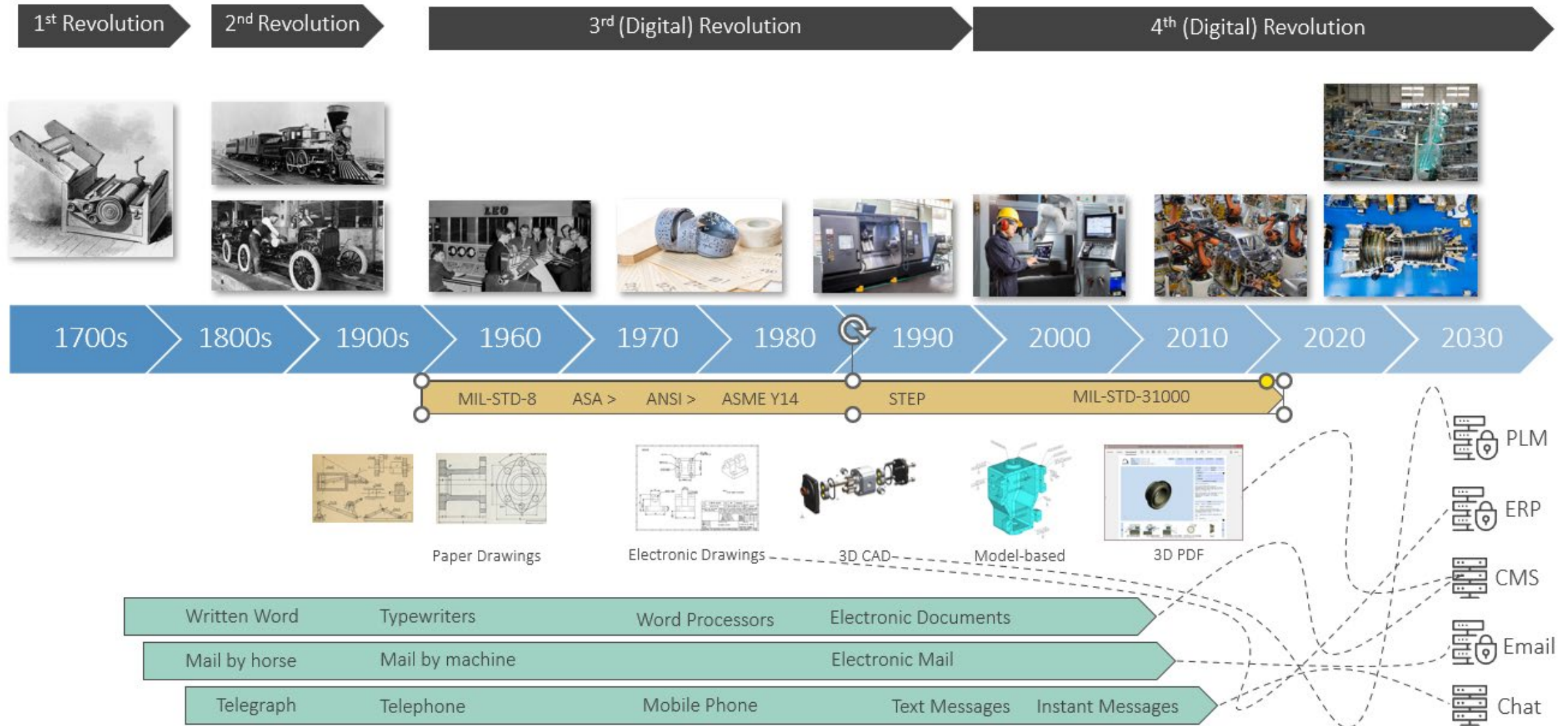
Manufacturing innovation has always been about speed

Global Product Data Interoperability Summit | 2022



But most digital methods of sharing data and collaborating are problematic

Global Product Data Interoperability Summit | 2022



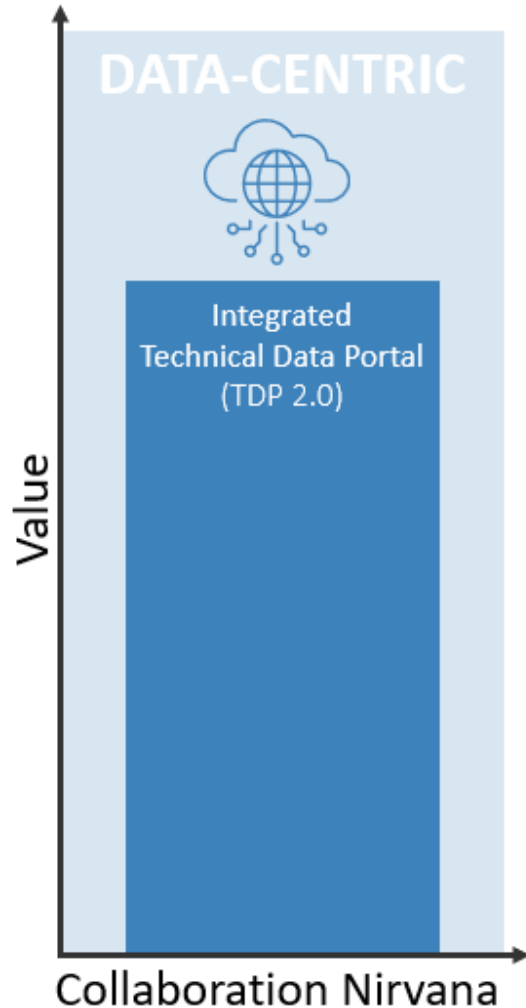
Moving from File Centric to Data Centric

Global Product Data Interoperability Summit | 2022



A Disconnected Thread of Information is the Enemy of Efficiency

Global Product Data Interoperability Summit | 2022

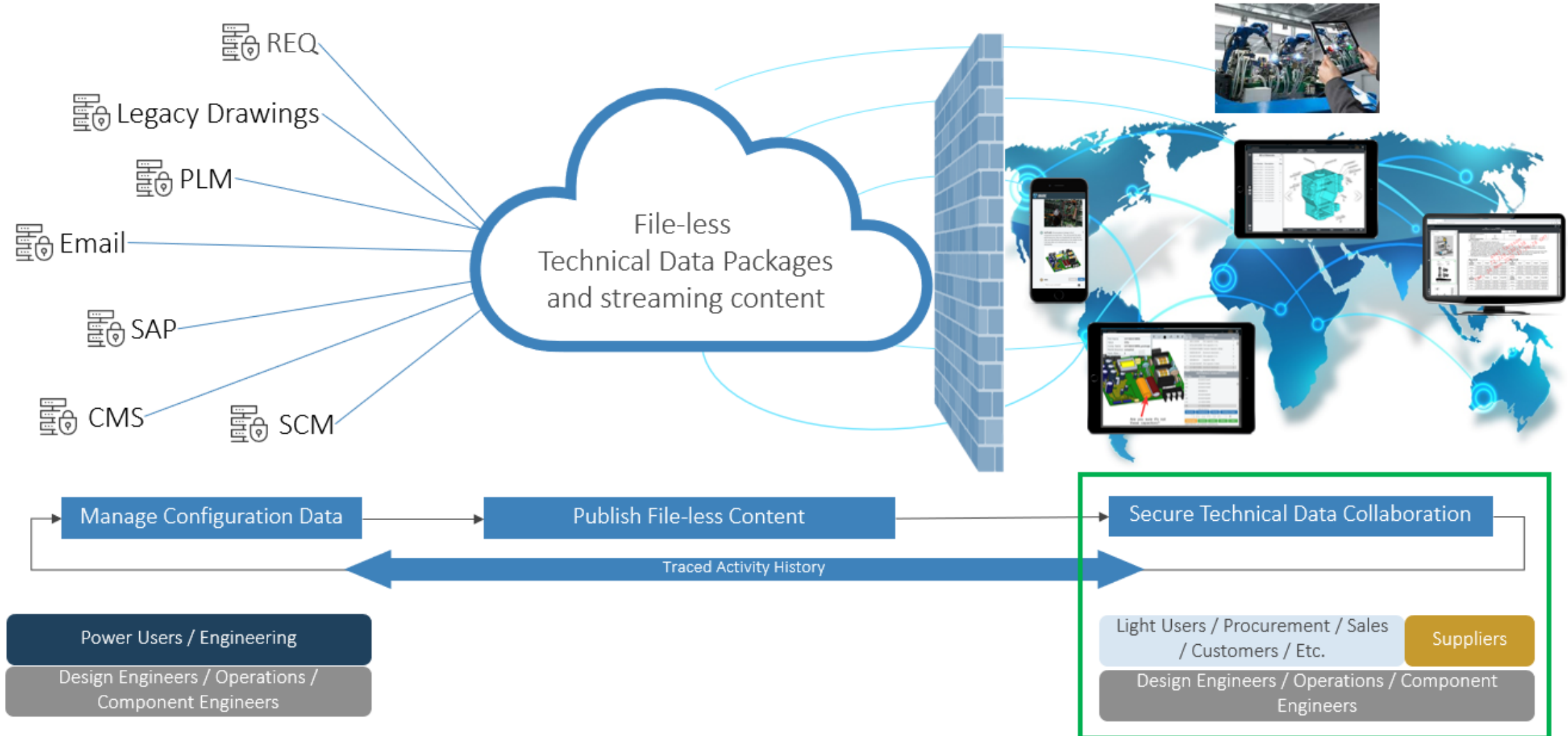


Integrated Technical Data Portal (TDP 2.0)

- + Recipients only need a web browser on any device
- + Comprehension improves with 3D visualization
- + Share more than just the CAD data
- + Consistent, repeatable experience with templates
- + Automate publishing of version-controlled source content
- + Collaborate with markups and chat in context of the content
- + Manage access policies
- + Stream content for near zero load times
- + Recipients share files back with collaborators
- + Changed data is highlighted for review

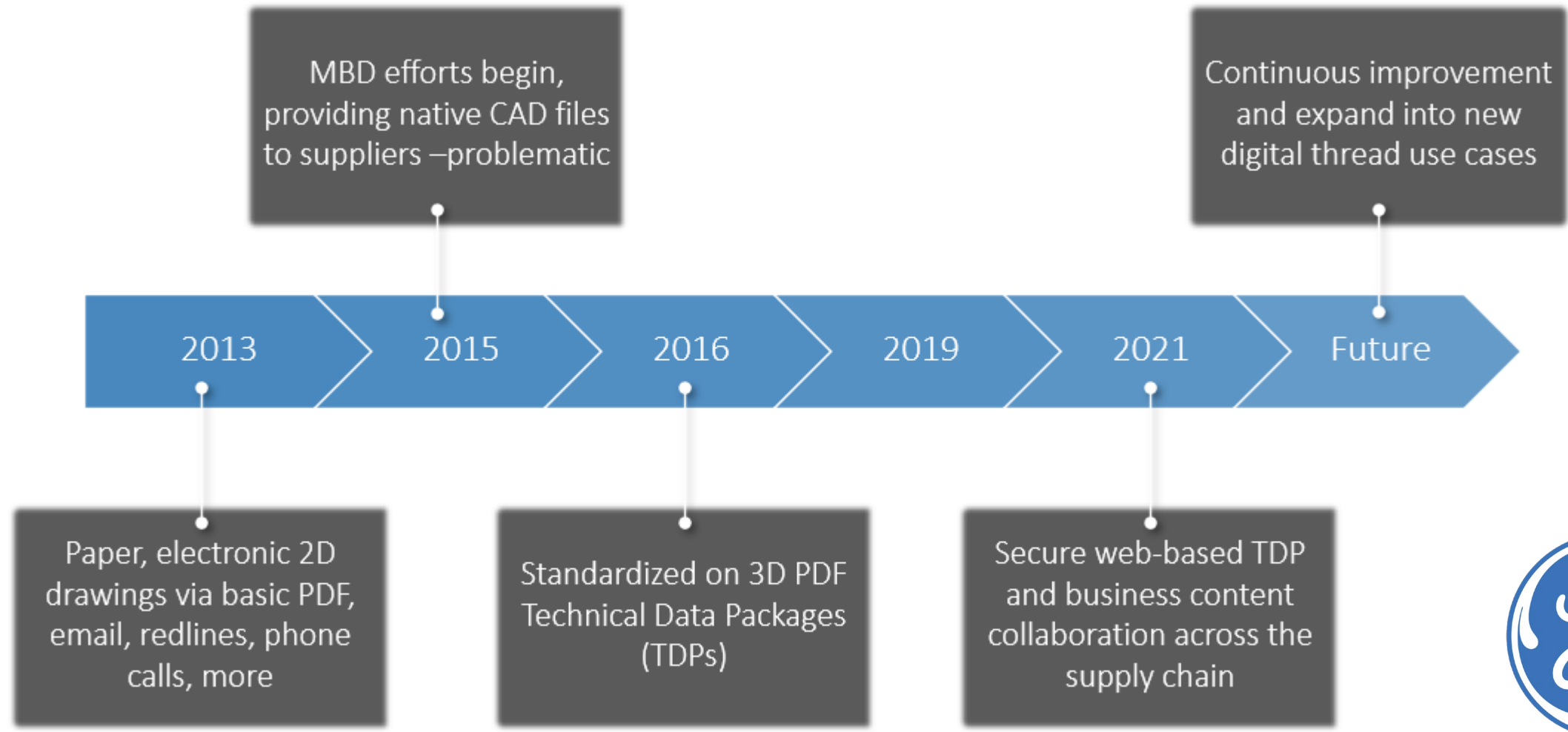
Intelligent Digital Engineering Collaboration Powered by Anark

Global Product Data Interoperability Summit | 2022



GE Gas Power – Rapid improvement in their Technical Data Maturity Level

Global Product Data Interoperability Summit | 2022



GE Gas Power - Strategic Supplier Collaboration: multi-CAD, multi-PLM

Global Product Data Interoperability Summit | 2022

Solution Elements:

- Automated TDP generation for supply chain, manufacturing, and field service
- ~120k+ TDPs generated annually
- Automated, PLM driven content publishing, both 3D PDF & MBEWeb
- Deployed within GE Power, GE Aviation, GE Healthcare, GE Transportation (Wabtec)



Solution Results:

- Substantial engineering cycle time reduction
- Improved collaboration
- Reduction in first article deviations from spec

“With Anark our error rate has gone down from 5% to 3% which is much lower than it used to be.”

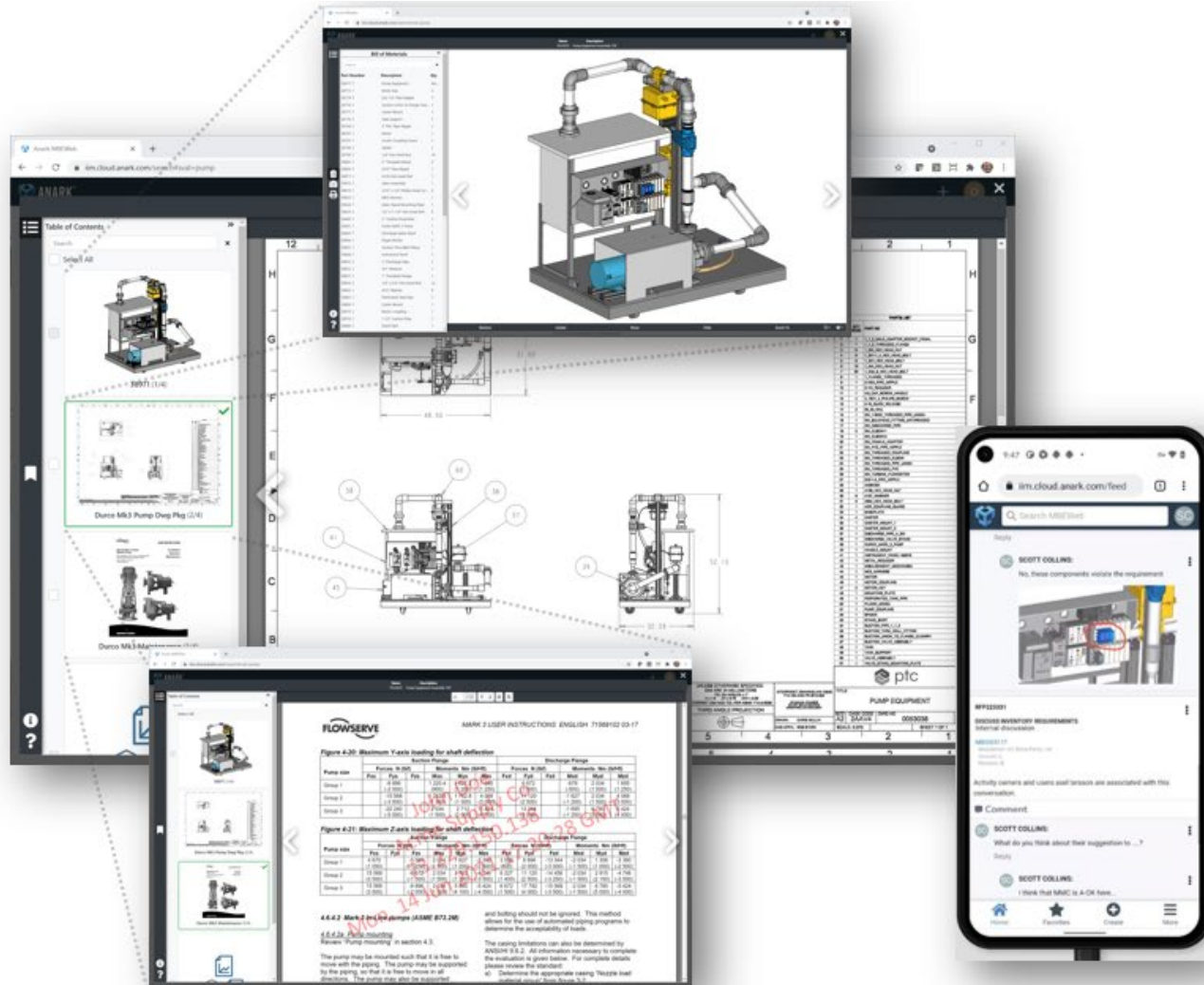
-Kena Yokoyama, Engineering Manager for Product Definition
GE Gas Power

Learn more:

<https://www.anark.com/solutions/supplychain>

A more useful, collaborative, secure and easier to manage TDP

Global Product Data Interoperability Summit | 2022



- ✓ Aggregates information everyone needs into a transmittable object
- ✓ Packages any type of data
- ✓ Easy to consume, no additional tools/training required
- ✓ Securely limits/governs extent of intellectual property shared
- ✓ Improves technical communication to limit scrap, rework, and delivery risk
- ✓ Solves data dislocation problems
- ✓ Serves as a contractual artifact

Enterprise-Wide Content Management, Visual Collaboration



Global Product Data Interoperability Summit | 2022

Solution Elements:

- Boeing 2nd Century partner, providing easy-to-use technical content management and visual collaboration throughout the extended enterprise
- Integrate seamlessly within diverse Boeing data management and digital ecosystem, including 3DEXPERIENCE and Teamcenter



Solution Results:

- Efficiently distribute technical data for improved web-based content access, visualization, and collaboration to serve users across a wide array of functional areas and use cases
- Streamline 3D visual installation instructions, including wire harness, for 7-Series aircraft to improve quality and accelerate factory floor throughput
- 3D PDF-based TDP publishing for MIL-STD-31000 customer data deliveries

Automated, Validated MIL-STD-31000B 3Di TDPs



Global Product Data Interoperability Summit | 2022

Solution Elements:

- NAVAIR PMA-261 (CH-53K) award winning project to accelerate reception of OEM MBE based data to then create MIL-STD-31000 based 3D PDF Technical Data Packages (TDPs)
- Validated, standards-based 3D PDF TDP needed for effective communication, collaboration and archival with other organizations, especially the Defense Logistics Agency (DLA) and Naval Flight Readiness Centers



Solution Results:

- Avoids manual TDP creation process saving multiple FTE years of labor
- Avoided costs and overhead for delivering native CAD formats to organizations, especially the DLA, since costs to use and handle proprietary formats is not sustainable

The DOD is serious about Integrated Technical Data Portals

Global Product Data Interoperability Summit | 2022

MxD-21-19 - TDP Data Exchange Demonstration- Summer 2022

This project will modernize DLA/OSD's engagement with the Defense Industrial Base, and the Organic Industrial Base, using digital engineering data and modern Technical Data Packages (TDPs). Today, the DLA uses a system called C-Folders to distribute product data to potential suppliers and the DLA seeks to update this system with one that manages data sharing and collaboration for digital TDP data.

Anark was recently selected for this project!

Prove out cloud based, web accessed TDPs

More details when available shortly



The Digital Manufacturing & Cybersecurity Institute

The DLA is also exploring cloud based technical data options

Global Product Data Interoperability Summit | 2022

JETS - RFQ SP4709-22-Q-1034 (DLA Issued) Technical Data Management (TDMT) Application Support

DLA currently utilizes a Document Management System using (c-Folders) to enable vendors to view technical data to determine if they should respond to a solicitation. **C-Folders has end of life in 2025.** While DLA has focused on traditional 2D technical data and obtaining parts via the traditional supply chain process, DLA is now positioning itself to support more collaborative efforts in support of Additive Manufacturing and Digital Manufacturing. Data storage and management capabilities need to include engineering drawings in both 2D and 3D formats, along with other types of documents that define the manufacturing process of the part.

Anark and partners are pursuing this, and overlaps with MxD 21-19 concepts, but TDMT will be applied to all DLA technical data needs

The Anark Advantage – Keys to Digital Thread Value

Global Product Data Interoperability Summit | 2022



Source content from multiple systems

Include product lifecycle and model-based information

Secure your IP with file-less content and DRM

Make real-time visual collaboration accessible and easy

Track a history of discussions

Your Anark provided word of the day

Global Product Data Interoperability Summit | 2022



Snood

Thank You!



www.anark.com