

Technical Data Collaboration Portals



Connecting People to
the Digital Thread

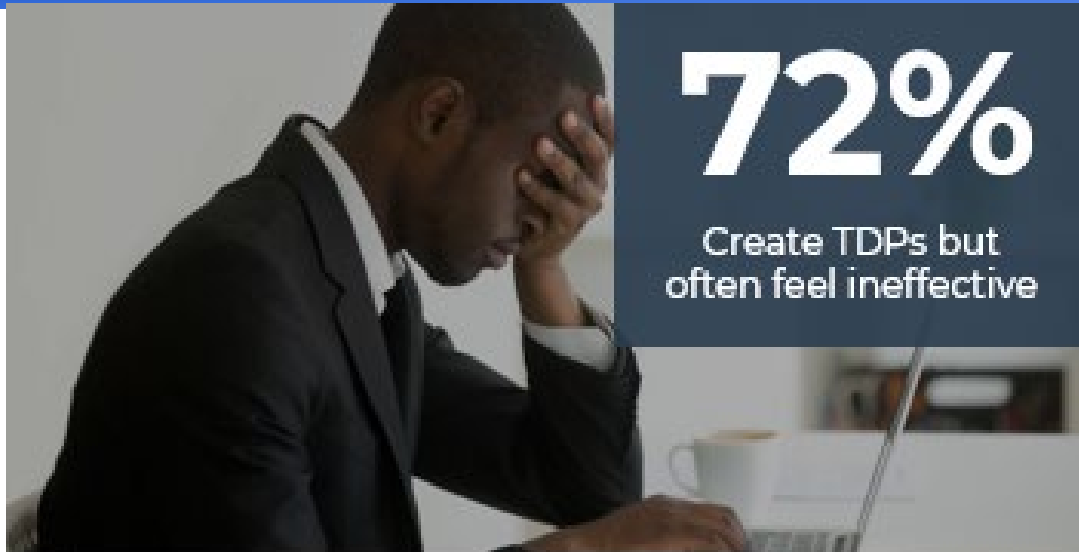
GLOBAL PRODUCT DATA INTEROPERABILITY SUMMIT 2023



- **Patrick Dunfey, Anark Corporation Vice President of Marketing and Alliances**
- **25 years of CAD, MBD, PLM, AR, IoT, and Engineering Solutions via work as a mechanical engineer and leadership roles in software organizations**
- **Located in Boston, MA**
- **Volunteers as youth soccer and basketball coach, plays guitar, camps, hikes, runs, bikes, swims and is a struggling home renovation artist.**

The State of Collaboration in Manufacturing

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72%

Create TDPs but often feel ineffective



50%

Engineering time spent on finding, packaging, sharing and explaining data



54%

Use email attachments to share product data



76%

Concerned about IP security with external collaboration

Lifecycle Insights research study: The State of Supply Chain Collaboration in Manufacturing 2022. n=201 discrete manufacturing respondents

How Does Sharing Technical Data Challenge You?

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- **Downstream recipients want 2D drawings** when you are trying to move to 3D
- Producing **accurate** technical data packages (TDP) to share engineering product data is a **cumbersome process that risks delivery delays**.
- Creating **MIL-STD-31000B compliant 3Di PDFs** is a required deliverable for my government contracts.
- CAD native files, zip files, model-centric formats are unorganized and **require special viewers for each native format**.
- **Packaging and sharing CAD leads to more questions than answers from the downstream recipient**



How is technical data publishing and collaboration delaying your product innovation and delivery?



Labor Intensive
Publishing Process



Repackaging Data for
Compliance / Clarification



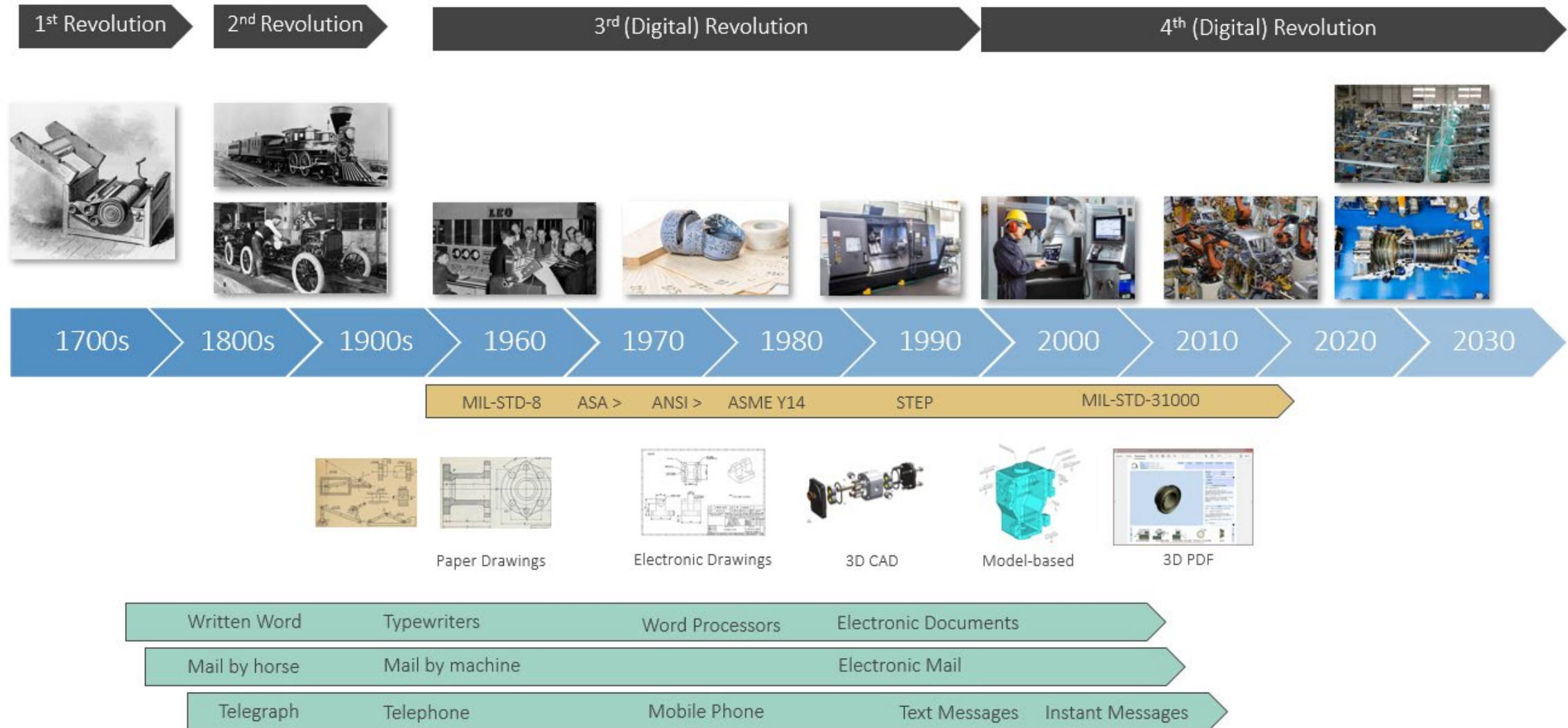
Miscommunication,
Errors, Scrap, Rework



Incomplete or Incorrect
Data Shared

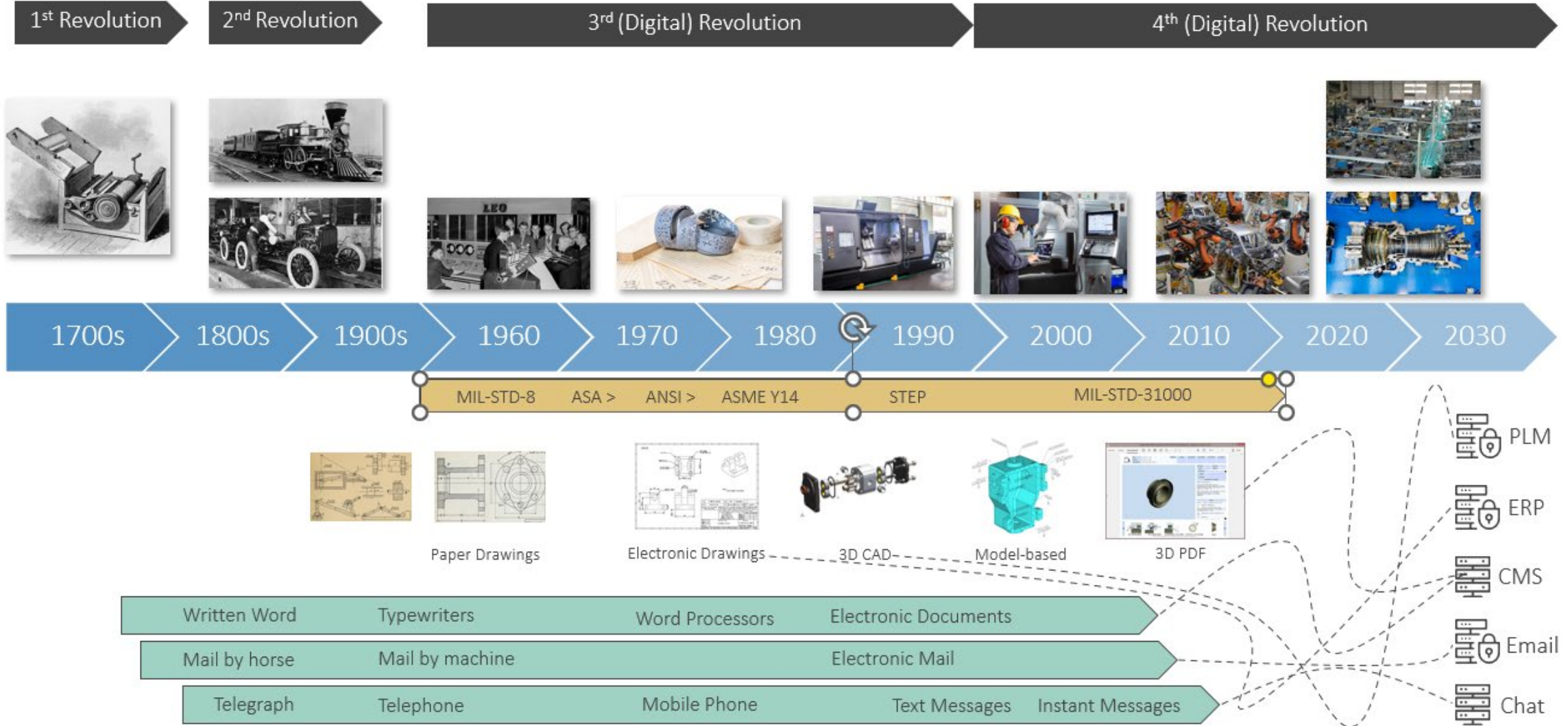
The Digital Thread Disconnect

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The Digital Thread Disconnect

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Technical Content Collaboration Trade-offs

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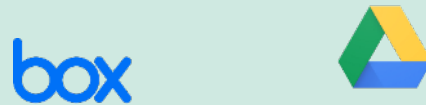
PLM Add-ons

- Direct access to authoritative data
- Cumbersome configuration, user experience
- Limited interoperability with other systems
- Challenging to extend to outside suppliers
- Limited collaboration



File Sharing

- Simple user experience
- Only the data you need
- No direct connection to authoritative data
- No built-in collaboration
- Lack of security, traceability



Generic Communication

- Simple user experience
- No direct connection to authoritative data
- Limited, generic collaboration
- Lack of security, traceability



Technical Product Data

Content Collaboration

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Generic Collaboration Tools: Falling Short

“ The pandemic has cemented collaboration software as the hub for where work gets done, but the daily operations of a business largely happen in other specialized applications, such as software for financial planning, supply-chain management, and managing customer relationships.

This can lead to a lot of “invisible” work for employees to bring data, information, and insights to the spaces where colleagues are making decisions and moving projects forward.

”

“ ...most surveyed employees aren't getting what they need out of their collaboration tools because they're not integrated with the data and information they need to do their jobs... ”

Harvard
Business
Review

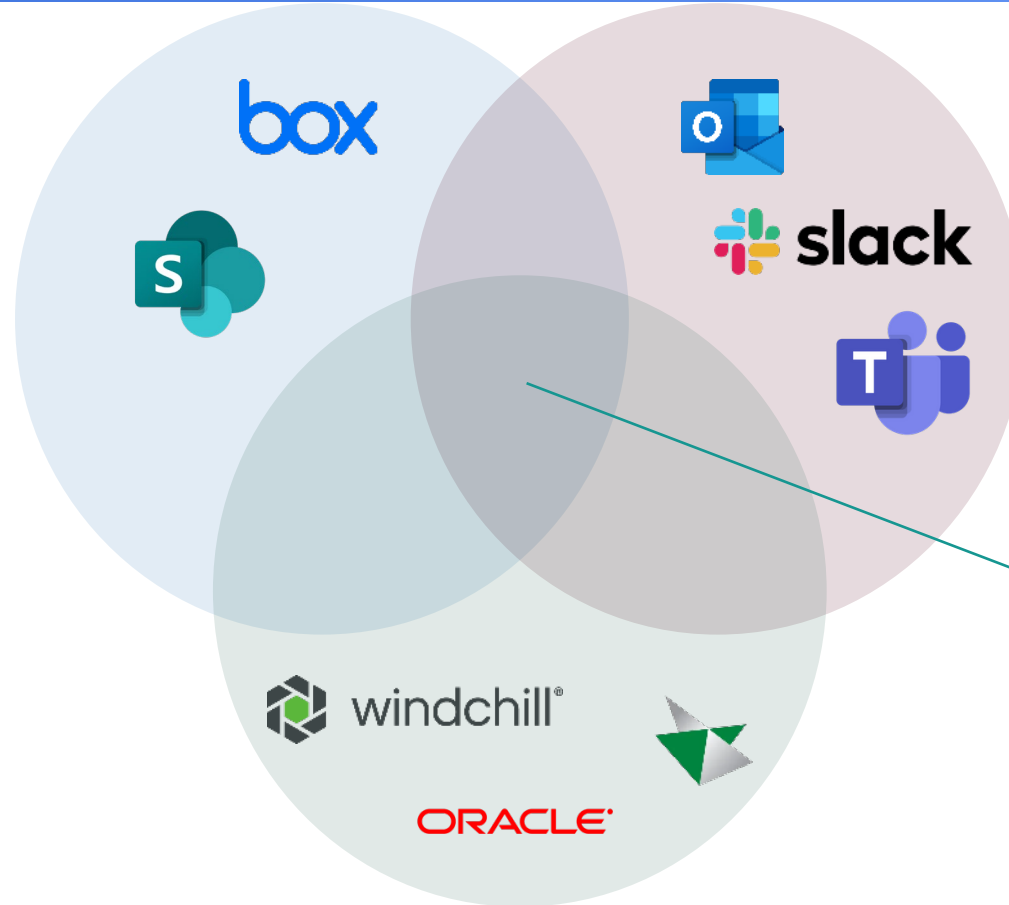
Survey: Employees Want Business Technologies to be More Collaborative, HBR, February 23, 2023

All-in-one Collaboration For Manufacturers

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File Sharing Apps

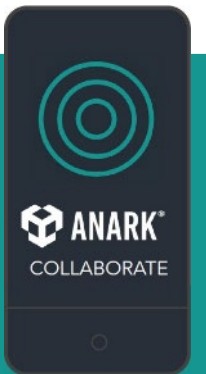
Simple user experience to share and access content, no expert insight, lack of security



Communication Apps

Simple user experience to exchange messages, no context or traceability to the content

File-sharing convenience and communication simplicity in a modern collaboration platform that understands technical product data.

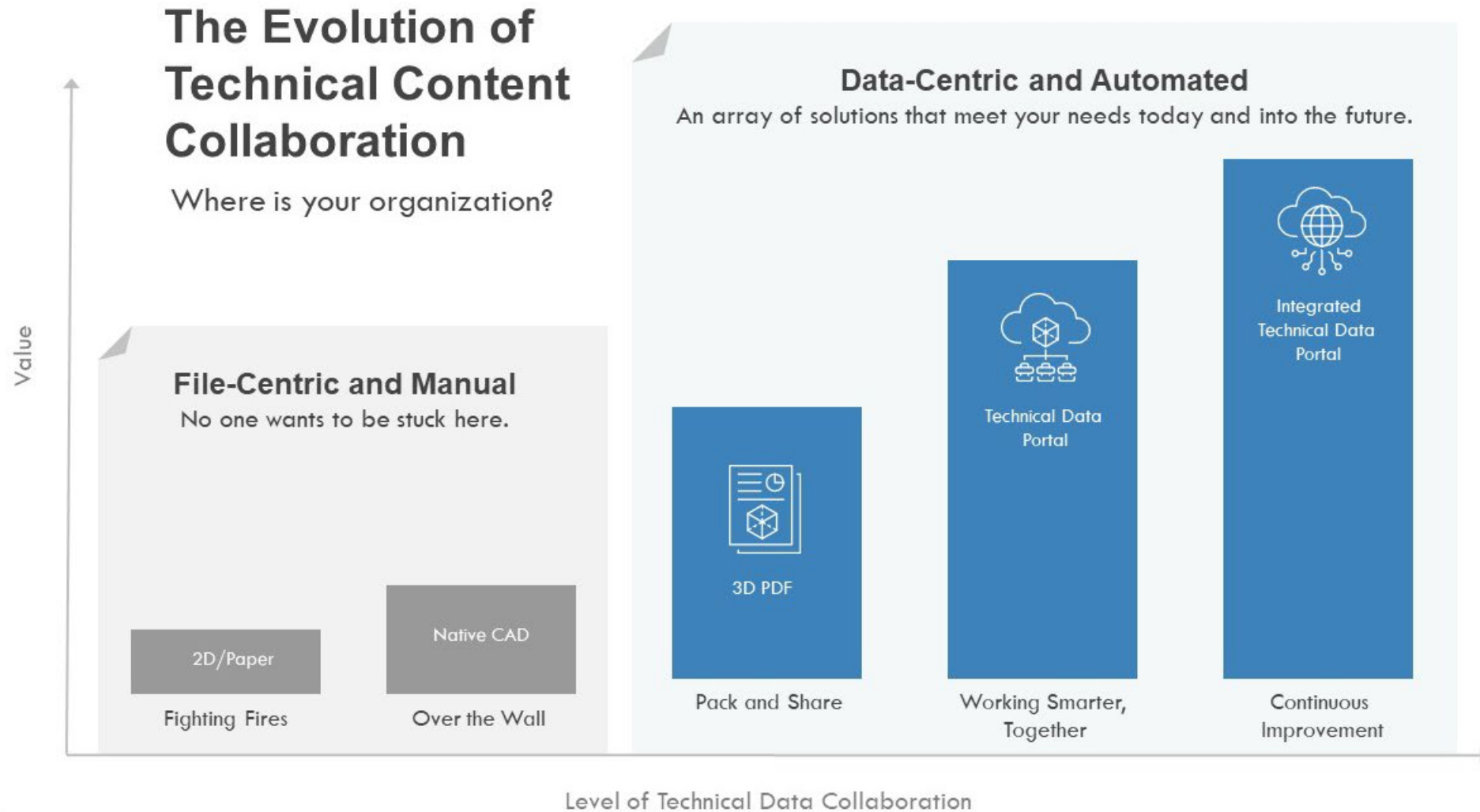


Authoritative Data Management

High fidelity data access for expert users, without universal access or traced activity history

Technical Data Maturity Model

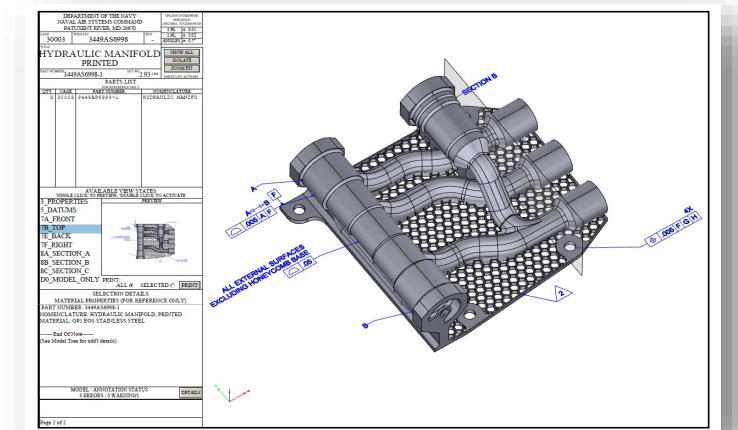
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Anark 3D PDFs and MIL-STD-31000B

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- Anark has been delivering cutting edge 3D PDF TDP solutions since 2006.
- MIL-STD-31000 has been an evolving TDP standard since 2008 to support U.S. DoD acquisition, production, inspection, engineering, and logistics.
- As part of the MIL-STD-31000B update in 2018, 3D PDF was added as a recommended option for a TDP format. Anark's 3D PDF is in Appendix B.
- Anark has proven capabilities for publication of MIL-STD-31000B compliant 3D PDF Technical Data Packages:



Web-based Technical Data Packages

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The screenshot displays a web interface for a technical data package. On the left, a sidebar titled 'Table of Components > BL3Z-19E624-1' contains a search bar and a 'Select For Download' checkbox. Below this, several download options are listed: 'BL3Z-19E624-1 BOM' (highlighted with a green box and a hand cursor), 'BL3Z-19E624-1 Drawing', 'BL3Z-19E624-1 Step File', 'BL3Z-19E624-1 Spec Sheet', and 'BL3Z-19E624-1 3D'. The main content area is titled 'Bill of Materials' and features a table with the following columns: Structure Level, Number, Quantity, Object Type Indicator, Manufacturer, Manufacturer Part Number, Vendor, and Vendor Status. The table contains 14 rows of data. A green callout box at the bottom right of the table contains the text: '...structured data like BOM data synced with PLM versioning'.

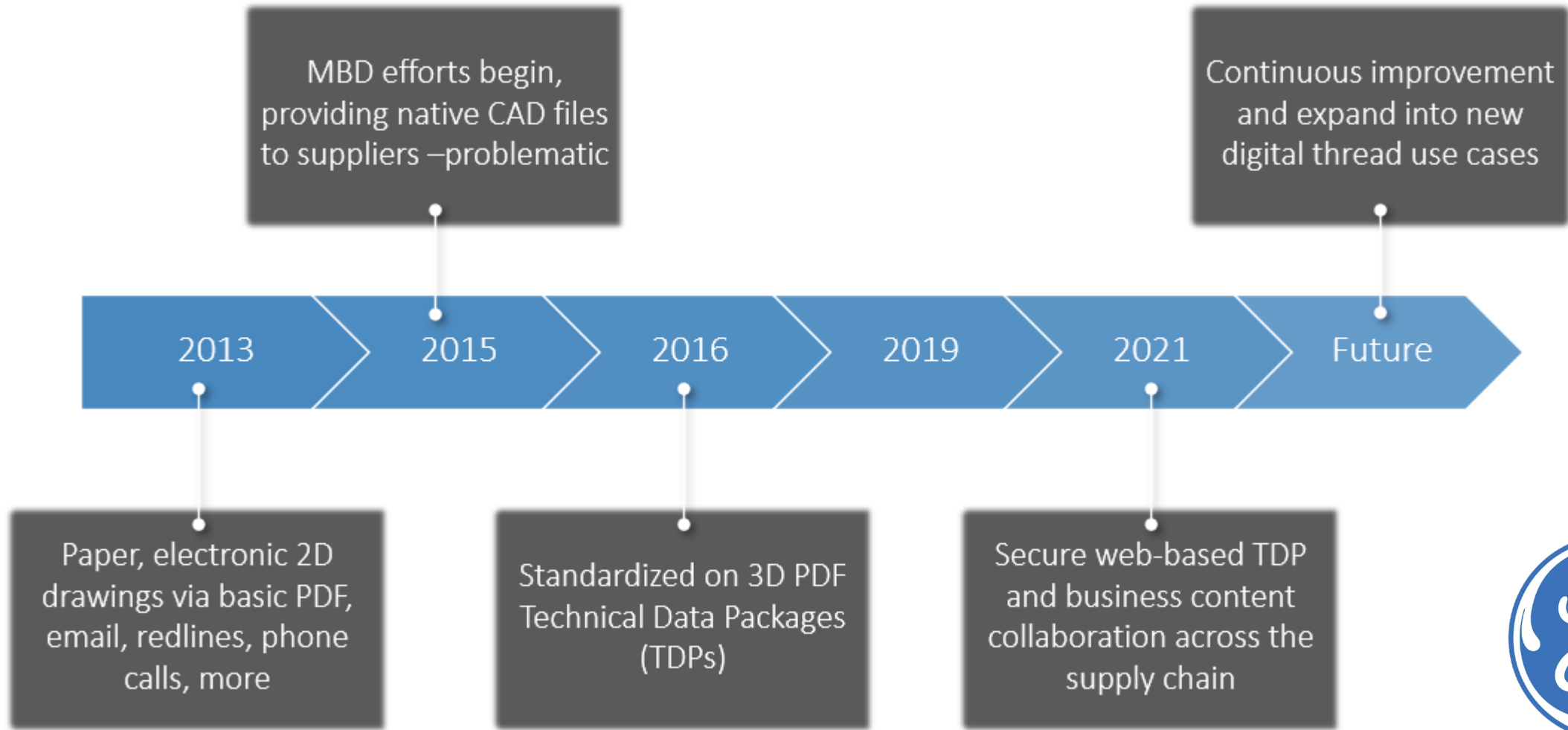
Structure Level	Number	Quantity	Object Type Indicator	Manufacturer	Manufacturer Part Number	Vendor	Vendor Status
1	BL3Z-19E624-1	1	Assembled Product				
2	RRC-013-W	16	Manufacturer Part	ACME Machine	W01307STL	ACME Vender	Approved
2	RRC-013-N	12	Manufactured Part	ACME MACHINE	N01307STL	ACME Vender	Approved
2	ASM-RRC-004	2	Assembled Product				
3	RRC-009-R	1	Manufacturer Part	ACME MACHINE	R009RC	MSC Industrial Direct	Approved
3	RRC-017-UHMW	7	Manufacturer Part	ACME MACHINE	UHMW017RNR	MSC Industrial Direct	Approved
3	RRC-017-UHMW	1	Manufacturer Part	ACME MACHINE	UHMW017RNR	MSC Industrial Direct	Approved
3	RRC-024-SR	7	Manufacturer Part	ACME MACHINE	RG12-S	Hardware Plus	Approved
2	1CS350745JJ	2	Manufacturer Part	Industrial Gas Spring	1CS350745JJ	Industrial Gas	Pending
2	94750A588	8	Manufacturer Part	Milita			
2	90876A435	8	Manufacturer Part	Milita			
2	RRC-020-H	4					

- ✓ Technical Data Packages are much more than 3D CAD
- ✓ Browser access to BOM, 3D CAD, 2D Drawings, documents and more
- ✓ Attach ANY other file types including STEP, native CAD, XML for simplified exchange

<https://www.anark.com/resources/videos/content-items-product-data>

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

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Enterprise-Wide Content Management, Visual Collaboration

Boeing Case Study



Solution Elements:

- Anark is a Boeing 2nd Century partner, providing an advanced content collaboration platform for use throughout the extended enterprise.
- Multi-data integrations within a diverse Boeing digital ecosystem, including PLM such as 3DS ENOVIA, Siemens Teamcenter, multi-CAD, supply chain management apps, and many in-house systems.
- Customizable low-code content templates to serve users across a broad array of functional areas and use cases.



Solution Results:

- Easy-to-use browser-based content access, visualization, and collaboration available on any device—for frontline workers in manufacturing, tooling, quality, supplier partners, and aftermarket service.
- Tailored digital experiences for 737 and 787 manufacturing that unite silos of dislocated data, unlocking the power of the digital thread for people—to improve quality and accelerate factory throughput.

The Anark Advantage – Keys to Digital Thread Value

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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

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

NAVY

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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