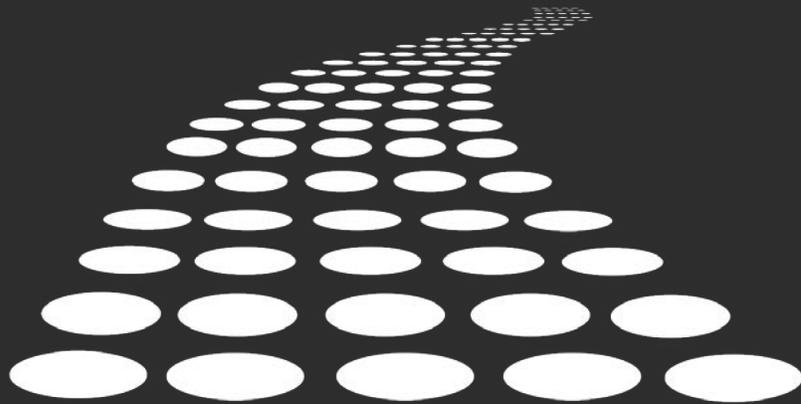


# The Technical Data Collaboration Maturity Model

**Where Are You on the Path to a  
Next Generation Supplier Portal?**



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# The (Poor) State of Supply Chain Collaboration

In a post-pandemic world, where no industry escaped impact from supply chain disruption, manufacturers are motivated to make their supplier relationships more connected and partnership-focused.

Indeed, Gartner® finds that “62% of the most mature procurement organizations highlighted that developing stronger, more collaborative relationships with their supply base is a top priority.”<sup>1</sup>

For discrete manufacturers, the intention to optimize collaboration could not come at a better time. As it stands today, collaboration is difficult.

Inside discrete manufacturers, a complex mix of disconnected files and data need to be made accessible, usable, and maintained for internal and external users across the value chain.

In the day-to-day activities of gathering the data, collaborating, and ensuring security, most companies run into some or all of the impediments described here:

## 3 COMMON BARRIERS TO MANAGING AND SHARING DATA

### 1. Gathering Data

Without an automated process, collecting data that suppliers need takes work from various groups in the product development organization. This leads to frustrations all around, such as:

- Engineers are routinely peppered with questions and asked to pull together files and data for suppliers, often while it is in different phases of completeness.
- Supply chain managers and procurement don't have control over the process, and have to rely on others (i.e. Engineering and IT) to package or directly share technical data with suppliers.
- Procurement specialists have to manage the tricky job of getting specific files to numerous suppliers using a mix of email, FTP sites, or granting access to a PLM system.
- Each step is often a manual process, with a high risk of human error.

1) Gartner, “Follow Gartner’s 4-Step Framework to Implement an Effective Supplier Collaboration Strategy,” Miguel Cossio, 2021

## 2. Communicating & Collaborating

Once data is collected internally it needs to be communicated clearly to suppliers. This is often done with email or some sort of file share that have their own set of problems, such as:

- Conveying structured data, such as with BOMs and hierarchical CAD data poses challenges for interpretation.
- Manually assembled data packages often lack consistent formats leading to confusion and misinterpretation.
- Discussions around product data are often lost in email threads and disconnected from the product data.

## 3. Securing

Once information is passed to the supplier there is still a variety of mishaps that can occur, such as:

- Once data is downloaded there is no control of it and multiple versions stored in several locations can cause very expensive errors.
- Emails and file shares are not secure, introducing the possibility of IP leaks.
- Suppliers must continuously question if they are working with the most recent data.
- Follow up questions about the original datasets are not stored with that dataset, leading to the same questions being asked and answered multiple times.

COMING UP...

**The Technical Data Collaboration Maturity Model on page 6 will help you go from fighting fires in your supply chain to collaboration nirvana.**



# A Host of Collaboration Problems, But How to Solve Them?

Considering the breadth of impediments to sharing and collaborating on technical data, it's little wonder manufacturers want to prioritize supplier collaboration.

Despite the best intentions, however, the path forward for manufactures can still be unclear. Some may be confused as to what steps to take next, or overwhelmed by the sheer complexity of the status quo inside their organization.

That's where The Technical Data Collaboration Maturity Model is helpful.

If you're among the majority of manufactures who wish to prioritize the evolution of supply chain collaboration, you'll find this five-stage model helps you pinpoint where you are today and where you can go next.

This thought exercise can help your company chart a path towards overcoming the most common collaboration hurdles while reducing errors, increasing quality, and improving on-time delivery of sourced components.

The Maturity Model will help you go from Fighting Fires in Stage 1 to Continuous Improvement Nirvana in Stage 5.

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## Structured Data Readability is Key to Supply Chain Performance

A key priority for supply chain managers is to improve how structured data is maintained when shared. One area to look at is BoMs.

Current methods of BoM sharing (e.g., PDX) more closely resemble machine-readable versus human-readable data. With little additional context to help orient comprehension, mistakes are inevitable.

Common problem areas in BoM data include:

- inconsistent formats & contents,
- language barriers,
- inconsistencies with CAD files,
- invalid supplier info, and
- obsolete or incorrect parts.

**“Supply chain interactions are seriously hindered by the lack of a standard data format for BoMs, unacceptably high error rates, and a lack of technology and tools to validate BoMs. The problems are pervasive, and the consequences, far-reaching. The cycles required to clarify or correct data can directly affect time to market and time to volume.”** <sup>2</sup>

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2) [http://thor.inemi.org/webdownload/projects/ese/BoM\\_paper.pdf](http://thor.inemi.org/webdownload/projects/ese/BoM_paper.pdf)

## Figure 1: Technical Data Collaboration Maturity Model

The Technical Data Collaboration Maturity Model shows the progression from file-centric to data-centric collaboration, and the business and people benefits that accrue as you move from technical data packages in stage 3 to a Technical Data Portal in stages 4 and 5.

 <b>Fighting Fires</b>	 <b>Throw it Over the Wall</b>	 <b>Pack it Up and Share</b>	 <b>Work Smarter, Together</b>	 <b>Collaboration Nirvana</b>
<b>2D or Paper</b>	<b>Native CAD</b>	<b>3D PDF TDP</b>	<b>Technical Data Portal (TDP 2.0)</b>	<b>Integrated Technical Data Portal (TDP 2.0)</b>
<ul style="list-style-type: none"> <li>Recipients interpret content in silos, without clear direction</li> <li>Highly manual sharing and consumption process</li> <li>Specialized skills required to use the data</li> <li>No version control</li> <li>No IP security</li> <li>Collaboration is disconnected from the content</li> <li>Files sent and shared without trace</li> <li>Incomplete information</li> <li>Changed data not available</li> </ul>	<ul style="list-style-type: none"> <li>Recipient comprehension improves with 3D visualization</li> <li>Manual sharing process</li> <li>Specialized skills required to use the data</li> <li>CAD tool or viewer required to use the data</li> <li>No version control</li> <li>No IP security</li> <li>Collaboration is disconnected from the content</li> <li>Files sent and shared without trace</li> <li>Data can be altered</li> <li>Very large files to transfer and open</li> <li>Incomplete information</li> <li>Changed data not available</li> </ul>	<ul style="list-style-type: none"> <li>Recipients only need Adobe reader</li> <li>Comprehension improves with 3D visualization</li> <li>Share more than just the CAD data</li> <li>Consistent, repeatable experience with templates</li> <li>Automate publishing</li> <li>Limited IP security</li> <li>Collaboration is disconnected from the content</li> <li>Files sent and shared without trace</li> <li>Very large files to transfer and open</li> <li>One-way sharing of content</li> <li>Changed data not apparent</li> </ul>	<ul style="list-style-type: none"> <li>Recipients only need a web browser on any device</li> <li>Comprehension improves with 3D visualization</li> <li>Share more than just the CAD data</li> <li>Consistent, repeatable experience with templates</li> <li>Automate publishing of version-controlled source content</li> <li>Collaborate with markups and chat in context of the content</li> <li>Manage access policies</li> <li>Stream content for near zero load times</li> <li>One-way sharing of content</li> <li>Changed data not apparent</li> </ul>	<ul style="list-style-type: none"> <li>Recipients only need a web browser on any device</li> <li>Comprehension improves with 3D visualization</li> <li>Share more than just the CAD data</li> <li>Consistent, repeatable experience with templates</li> <li>Automate publishing of version-controlled source content</li> <li>Collaborate with markups and chat in context of the content</li> <li>Manage access policies</li> <li>Stream content for near zero load times</li> <li>Recipients share files back with collaborators</li> <li>Changed data is highlighted for review</li> </ul>
<b>File-Centric</b>			<b>Data-Centric</b>	

## The Five Maturity Model Stages

### Stage 1: Fighting Fires

The first stage is categorized by the historic use of paper drawings as well as digital two-dimensional drawings that require interpretation by your supply chain. The days of mailing drawings are behind you, but the use of email is still rampant, and SharePoint becomes a file dumping ground. Version control is cumbersome and difficult. In stage 1, communication is verbal or through disconnected email threads.

### Stage 2: Throw it Over the Wall

In stage 2 companies begin to put some guardrails around data sharing and provide product data in the form of native CAD. Email is still commonly used to communicate and companies are using services like SharePoint or Box for file sharing.

While 3D geometry helps with understanding, sharing native geometry requires the use of complex software and a distinct skill set. Additionally, the data is outdated the moment it is downloaded. Security is a concern as files can be changed (accidentally or intentionally) with ease.

### **Stage 3: Pack it Up and Share**

Many companies go through a period where they tried to use the tools provided by their CAD vendor to communicate with the supply chain. While these free tools seems promising, eventually limitations are revealed.

Bill of materials data and CAD hierarchies are combined with metadata that largely exists in PLM or PDM systems. This means supplier communication comes from various sources. This has led to the evolution and adoption of CAD-agnostic technical data package using 3D PDF.

While there has been significant productivity gains using a standard such as PDF, stage 3 still has problems that stem from the fact that 3D PDFs are still just files. When downloaded they can be shared indiscriminately, and security is a concern. These files can be rather large, and they can take a long time to open and interact with as well as being prohibitive to transfer. Version control is still cumbersome and limited.

### **Stage 4: Work Smarter, Together**

Stage four is where customers move from a file-centric mentality to a data-centric mentality. The technical data package, once a file, becomes a technical data portal. Data is streaming, in real time, on any device and there is no question of applicability. Security is robust, with time limits for viewing data and dynamic watermarking to ensure that screen captures are stamped with information such as user and time.

The Technical Data Portal is typically linked to the authoritative source of product data, such as PLM, and the publishing is automated reducing the potential for user error. There is a focus on proper dissemination and embedded visualization. Suppliers are served with the right files and documents instead of having to download them.

A major advantage of stage four is contextual collaboration inside of the technical data portal. Suppliers can ask questions around an item, that question is passed to the product owner to answer, and the entire interaction is captured inside of the system for future reference.

### **Stage 5: Collaboration Nirvana**

The final stage is defined by advancing industry trends towards closer supplier partnerships and product co-development. Information, including files, are shared bidirectionally within the context of the technical data portal framework where discussions are captured and available to OEMs and suppliers.

By adopting a Technical Data communication platform, companies are able to take advantage of emerging upgrades to the ecosystem. This next evolution of the next generation Technical Data Portal will be focused on continuous improvement through analysis of ongoing supplier communications and advances in social collaboration tools.

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The Maturity Model outlines a linear progression from one stage to the next, but your own progression through the different stages of the model can be as unique as your design and sourcing environment. Next, see how GE Gas Power evolved from file-centric Technical Data Packages to a data-centric Technical Data Portal.

# A Typical Customer's Evolution to a Technical Data Portal

## Challenges

Many customers struggle with the classic as-is state for manufacturing and supplier collaboration. People do not use their PLM system the way it is intended.

Teams resort to emailing files back and forth, so redlines from suppliers and manufacturing never make it back to the product definition in PLM and there is no traceability or visibility into how decisions were made, or conflicts were resolved.

Other companies struggle with knock off, imitation products hitting the market almost as soon as the genuine article.

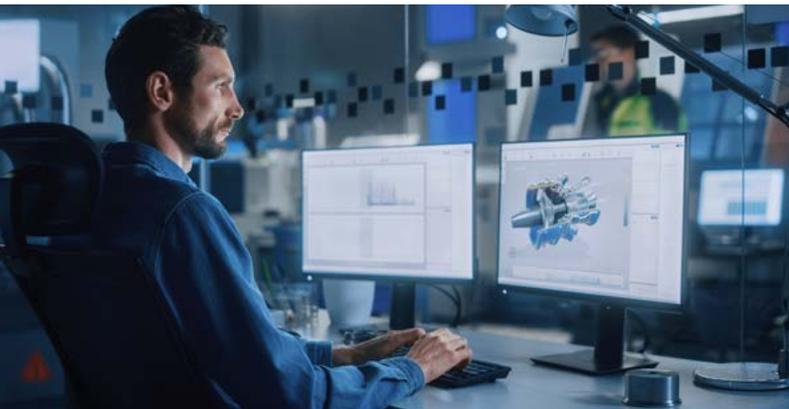
The highly manual processes and mostly unidirectional flow of data to suppliers makes collaboration and visibility difficult. These conditions can lengthen engineering cycle times and make it hard to improve error rates – ultimately this prevents companies from achieving the quality gains that are possible.

Many companies attempt to share native CAD with their suppliers directly but consuming this type of data is difficult for many suppliers. Manufacturers often lack the software tools and expertise to interpret models and mistakes are made when they attempt to interpret the data.

## Standardizing Technical Data Sharing

Many customers' paths address the full spectrum of symptoms and conditions that contribute to delay and error when it comes to sharing data internally and with suppliers.

It begins with publishing engineering data into technical data packages (TDP) in the form of 3D PDFs, providing technical data access to everyone who doesn't have the native CAD application.



**Anark enables the evolution to a Technical Data Portal for cross-functional technical content collaboration.**

## **Traceable Collaboration Turning Point: Crossing the Threshold to Technical Data Portal**

Using Anark for technical collaboration, customers have taken their supply chain ecosystem from a complex mix of disconnected files into a Technical Data Portal for cross-functional technical content collaboration.

It starts with engineering, internal manufacturing, quality, and document services that collaborate through engineering release of 2D and 3D CAD, and additional technical content.

The sourcing teams match 3D views to the parts they are ordering from suppliers, and then suppliers are looking at the same released data that the internal teams have reviewed, released, and ordered.

Throughout this process, embedded collaboration tools enable these teams to ask questions and get answers within the context of the technical data.

### **Sample Results**

- 40% reduction in engineering error related issues
- ~120k+ TDPs generated annually
- Secure, traceable data access improves process consistency
- Contextual collaboration eliminates miscommunication and improves knowledge transfer
- Web-based portal delivers data access to everyone

The move to a Technical Data Portal has had a transformative effect on supply chain operations and supplier performance for customers. Everyone can access accurate, up-to-date technical data without technical tools or training.

Secure, traceable data access lets the team retrace their steps if something goes wrong. Real-time collaboration (rather than email) improves supplier visibility.

Customers have stated that they now know who's logged in and using the data. They see all the dialogue around the content, and have traceability of all feedback, redlines and commentary.

This saves time and keeps side conversations out of email or other channels which were breeding grounds for delay, miscommunication, and errors.

# Practical Advantages of a Technical Data Portal

A Technical Data Portal effectively takes the traditional TDP process and makes it a “file-less,” way of communicating and collaborating with everyone in the value chain. For more effortless sourcing, assembling and publishing of files. This brings a host of advantages over working with files and traditional TDP, namely:

- Authoritative data is sourced from its native environment, without having to change or create new versions of files.
- All of the data’s connection to source locations/system are preserved
- The integrity of structured data is preserved.
- User interface is consistent for all users. Manufacturers and suppliers always see the same thing, and context is ever-present.
- All collaboration is contained within the portal. Conversation threads are visible and traceable.
- Data is synchronous and thus always up-to-date for all users.
- Security is enforced around objects and discussions on the portal.
- Access is instant and credentials-based for all users.
- All objects are viewable and usable without need for specialized software.

## Get a No-Obligation Assessment from the Industry Leader

When you use the Maturity Model to help identify and assess your organization’s current-state of collaboration competency, options for next steps become clearer.

Take an iterative path forward or move directly to Stage 4 and reap the benefits of a Technical Data Portal early. Anark can help you decide which approach to take.

[Contact Anark](#) for a **Technical Data Collaboration Maturity Assessment**, and get:

- a 10-point questionnaire to assess your current environment and identify options for improvement,
- our proprietary KPI calculator to help you predict the gains within your reach,
- more examples of discrete manufactures already using MBE Web, and
- recommendations and options on taking an iterative approach or fast-tracking your evolution to a Technical Data Portal.

[Book your Technical Data Collaboration Maturity Assessment Today](#)

# About Anark

With over 15 years of model-based manufacturing experience no one is more experienced in helping manufactures get more out their existing data.

Our expertise combines a deep understanding of publishing and sharing information-rich manufacturing data – using recipes to automate the process for consistency, repeatability, and payback that comes early and never ends.



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