



# DIGITAL TRANSFORMATION

**THE MORE THINGS CHANGE  
THE MORE THEY STAY THE SAME**

By Mark Lackovic at



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# OVERVIEW

## of Digital Transformation

### Digital Transformation

is a popular topic of discussion amongst today's manufacturing leaders, and rightfully so. The future of Making things is changing very rapidly. Consumer demands, technology advancements and driving competitive advantage are forcing change at a record pace and turning manufacturers on their head. There is no question why so many manufacturers feel as if they are being left further behind.

### What is Digital Transformation?

While there are many appropriate articles about Digital Transformation, given the onslaught of all the things manufacturers must do to stay relevant, what I have found are that many articles have taken an overly generic approach. Here is an example of what I am referring to. This is a definition of

“*Digital transformation is the application of digital technologies to fundamentally impact all aspects of business and society.*”

To the contrary, some articles are written very specific to what a vendor may be selling. And that is not necessarily a bad thing. We have seen an abundance of technologies that have truly transformed leading companies.

Things like product innovation, AI, IoT, automated manufacturing, IT infrastructure, robotics, and/or even social benefits of product innovation in the form of green materials and technologies, etc. These are positive examples of where one definition of digital transformation can make a difference. But it is critical for the customer to understand the impacts of these technologies at an enterprise level.

## Focus on the Fundamentals

Here is my challenge to you and what truly inspired me to write this whitepaper. While neither of the above scenarios are bad, they do not necessarily help customers prepare and/or execute a proper strategy to take on a true Digital Transformation or directly deal with the broader challenges most manufacturers have been struggling with for years. The reality is that many customers are simply not ready for a digital transformation. They have not addressed the fundamentals to allow for an effective transformation.



### What do I mean by that?

Digital transformation is not a new thing. It's been around since the 90's, it just keeps popping up in different forms with different names. Regardless of what you call it, there is one simple fact. Customers need to focus on the fundamentals before they make large investments in new areas.

While digital transformation is unique to every individual manufacturer, we see multiple examples where customers are focused on new initiatives. In these instances, the basic blocking and tackling of their organization has been ignored or too immature to get the ROI from new investments.

***The more things change, the more they stay the same.*** These new versions of digital transformation from above are leapfrogging, thereby, minimizing the real transformational things that companies should be focused on. The fact is, companies continue to struggle with essential challenges that have literally plagued them for 30+ years...and even preventing them from working on new transformational things. So, in that context, Digital Transformation is your path towards operational efficiency and enterprise unity. We think the definition should be...

“ *Digital Transformation is the application of digital technologies that unifies data and standardizes process for all stakeholders throughout your entire product lifecycle (Design, Make, Use).* ”

You should focus on the practical application of technology towards an essential goal required to advance in Digital Transformation. Without getting the fundamentals down, the basic blocking and tackling of data, and your process throughout your ecosystem, the other components of Digital Transformation are almost futile.

The one certain thing is that we must always be making progress toward the goal of digital transformation. And digital transformation should not be viewed as a thing to be feared or intimidated by. Business principles still rule, so how we go about taking advantage of opportunities like digital transformation should always bear this in mind. Who we are, what we do, whom we do it for, why we do it, how we do it; these are still the guiding principles of your business. And as a leader, or THE leader, of the business, you are in the Captain's chair.

I have been in the business of digital transformation for manufacturers for 30 years, and I consider myself one of the “experts”. To make myself of value to you right now, I will share some wisdom that is intended to help you systematically move towards the goal of digital transformation. And for this whitepaper, we are focused on process and data related to the Product Lifecycle. As you read through the paper, you will see that digital transformation requires all aspects of Leadership, Process, People, Technology, and Data for companies to make significant transformational progress.



# COMPANIES

## and Digital Transformation

Companies who have the best outcomes with Digital Transformation have two things in common: **Leadership Commitment** and **Enterprise Maturity**. Let's look briefly at each.

**Leadership commitment** means that there is a strategic plan that connects Digital Transformation to the company's vision and mission, and how it will help the company meet its financial objectives. Digital Transformation, as it relates more specifically to effectively managing data and process throughout the Product lifecycle, touches all aspects of your organization. It is imperative that you have a broader strategy and understand the consequences and effects it has within and across departments.

### THE CHALLENGE:

While everyone has the best intentions to deliver on corporate objectives, the moment enterprise type decisions are passed to a department level is often when/where challenges can occur, especially if they are not tied to a broader enterprise vision. All too often, department heads will focus on "their" specific portion of a problem, when they actually need to consider how to solve more profound enterprise-wide challenges, collectively with their peers. The domain or siloed approach can exponentially perpetuate the problem.

We have also seen the siloed approach implemented due to political, personal and/or due to the lack of a strong culture. This can certainly make the process even more challenging. As you dig deeper into understanding these issues, it's more important than ever for Executive Leadership to create a strong, unified vision, strategy, and well-communicated roadmap.



## THE OPPORTUNITY:

To the point above, the answer is not usually a single solution, nor is it an annual target. It is a longer-term vision, with a holistic approach and commitment to a roadmap and prioritizations. Culture, leadership, buy-in, vision, change management, and collaboration are all critical components. The bottom line – it is leadership’s job to develop and execute a strategy. That is what the shareholders are expecting of them. It is incumbent upon the CEO to communicate and articulate the strategy to all key stakeholders and ensure everyone is bought in. Digital transformation must be woven into any successful strategy to thrive today and in the future. It’s not just the CIO’s job or the VP of Engineering.

Strategic plans that lead to the best outcomes are ones that are developed by the teams who will be responsible for executing them but **not conducted or managed within any specific silos or domains.**

**Enterprise Maturity** refers to the organization’s **degree of formality** and optimization of process, data, and technology across the product lifecycle as well as the **readiness**, or capability to successfully undertake a project or projects. I will discuss each in more detail later in the document. Understanding Maturity and Readiness is critical for ensuring the success of enterprise projects. While often discussed at the same time, these concepts are different, Maturity addressing the state of process and capability, and readiness dealing with current capacity. The two concepts work together in helping an organization understand what its most important priorities are, where it will gain the most significant returns on investment, and how it needs to prepare itself for enterprise-wide projects. The bottom line is, you must have sound fundamentals.

I will summarize all of this into one simple paragraph:

“ *Data Transformation will never be achieved when companies lack an overall strategy for data and/or lack process standards for lifecycle efficiency of your products. Lack of maturity will leave individual domains/ departments left to fend for themselves, which forces a solution approach to the problem, creating disparate data, which perpetuates a lack of enterprise maturity, resulting in the need for manual and ad hoc process as the vicious cycle repeats.*

Mark Lackovic, Partner, D3 ”

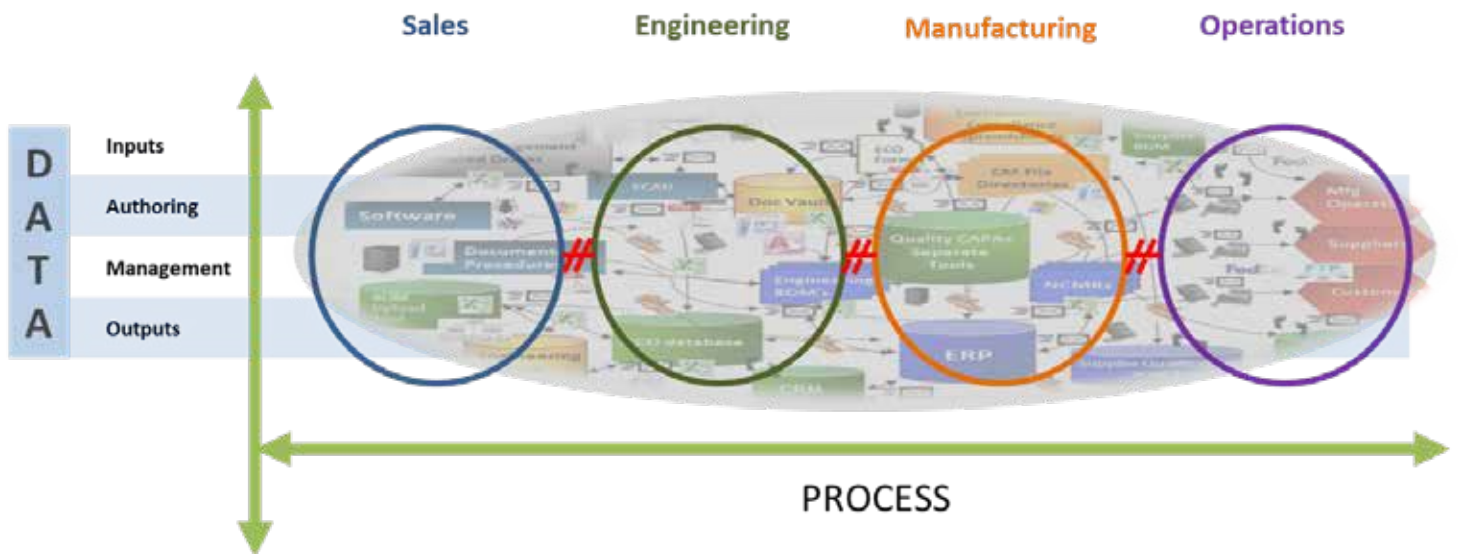
For more clarification, let's break the above paragraph down and look closely at some of the more common challenges customers face when implementing enterprise solutions, directly tied to your Product Lifecycle and Product Data. From there, I will offer some suggestions.





# SILOED DOMAINS

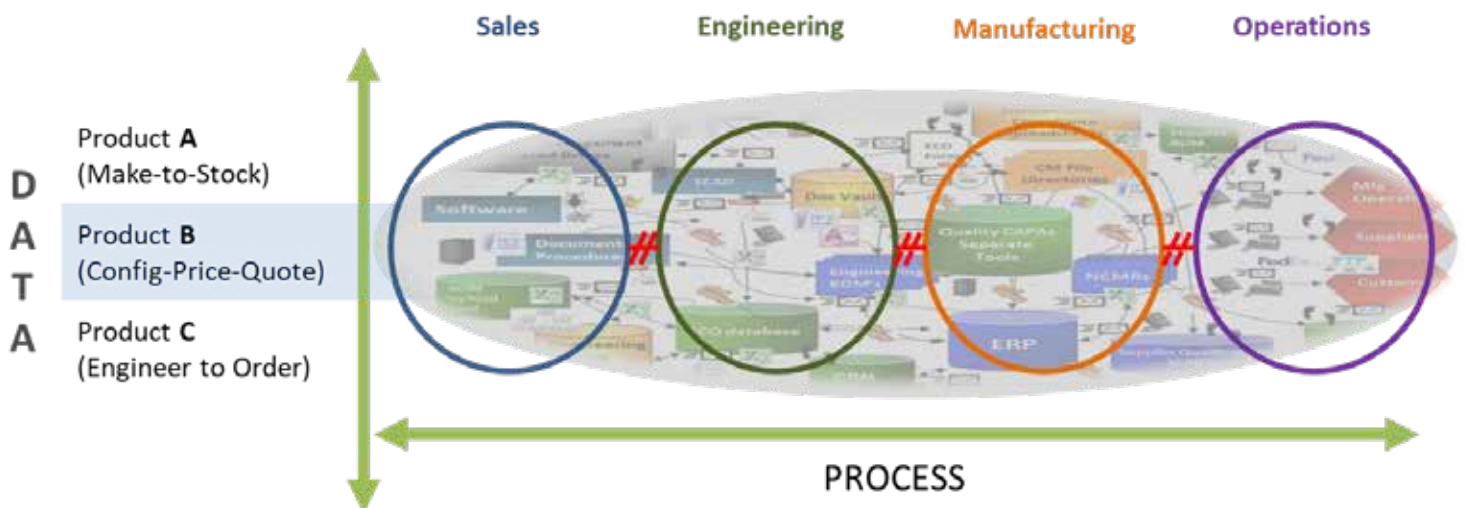
All companies have functional domains/departments that interact with critical data throughout the Product Lifecycle. I like to think of the human body analogy with blood (Data), arteries (Process) and major organs (Stakeholders). For simplicity, I will focus on four that are most common (Sales/Marketing, Engineering, Manufacturing, Operations).



The vertical axis represents layers of core competencies where the data (inputs/outputs) must be interchanged seamlessly (blood). The horizontal axis refers to the process (Arteries) of how the data flows to all the critical departments (organs). If you swap out the wrong blood type, or cut a major artery, or have a kidney failure, the lifecycle stops to perform efficiently.

If these layers of data don't act as a unified platform, you are only pumping bad blood into the bloodstream, thereby infecting anyone that comes into contact. The chaos represented underneath these siloed domains becomes the norm. Managers, teams, and individuals are left to fend for themselves to simply get their jobs done, with little regard for others throughout the process. That sounds harsh in a way, but it is the reality for so many companies. Before you know it, you have an influx of new point solutions, manual data entry, ad hoc processes, etc.

To compound the challenge further, many companies have different product lines, business units, or separate divisions. Often, these represent entirely different business models altogether. When I refer to business models, I am referring to make-to-stock, configure-to-order, and engineer-to-order as examples. What many companies struggle with, or tend to overlook, is the fact that each one of these business models can, and probably should, have different ways of how data is created and manage. In addition to having a process for which it travels across your organization. It may require entirely different strategies.

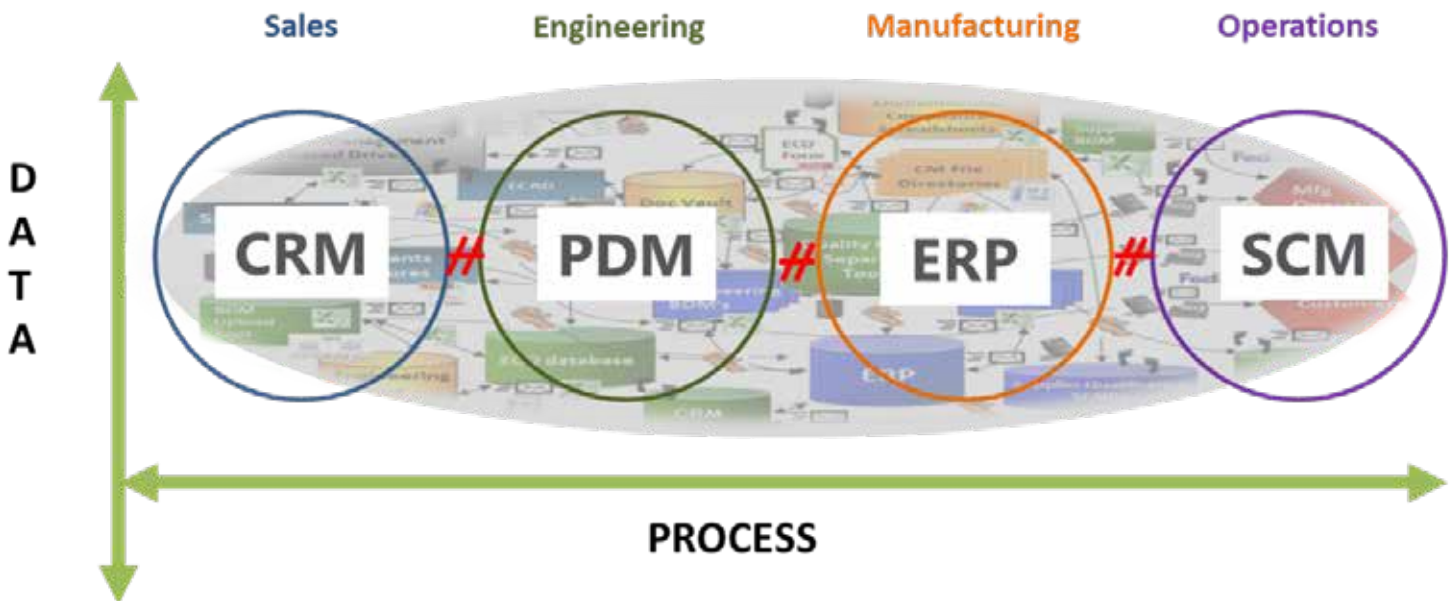


Companies often look for the silver bullet solution and dismayed with the overall results for this very reason. And this is where the chaos ensues. Not for lack of trying by any means. It is lack of a unified strategy between the domains themselves or simply taking a tool approach to a wider problem.

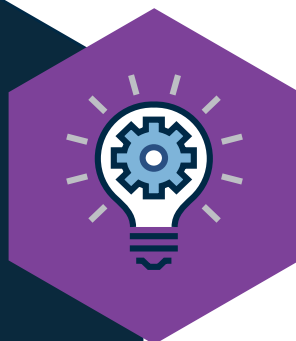
# POINTED SOLUTIONS

Let's discuss more around point solutions. The siloed approach, mentioned above, causes organizations to investigate a solution or technology approach to the problem. In other words, "we are in sales, so we need a CRM solution," "we are in manufacturing, so we need an ERP solution," "we are in engineering, so we need a PDM (Product Data Management) solution". And while this may be true, often, the big picture of how these systems function together within the product lifecycle is overlooked. The diagram on the next page represents this.

Anyone reading this article has implemented numerous technologies over the years, hoping to solve common issues and challenges that have plagued operational efficiency. Many, if not most of you, already have 2 or 3 of these business systems in place today. And while they may have solved some critical, and well needed elements of your business, they still lack the connectedness of data and process, and your teams are left to fend for themselves for coming up with "ways" to get it done.



It ties back to the point that companies focused on the individual domain and not the actual lifecycle of the products. Focusing on niche data and/or an individual domain process will ultimately create or perpetuate a silo. We relate these business systems to something we call a “solution of record”. They rely more heavily on the data that resides within them as opposed to a process around them. And by this very fact, you may have solved a few symptoms and not necessarily the overarching problem.



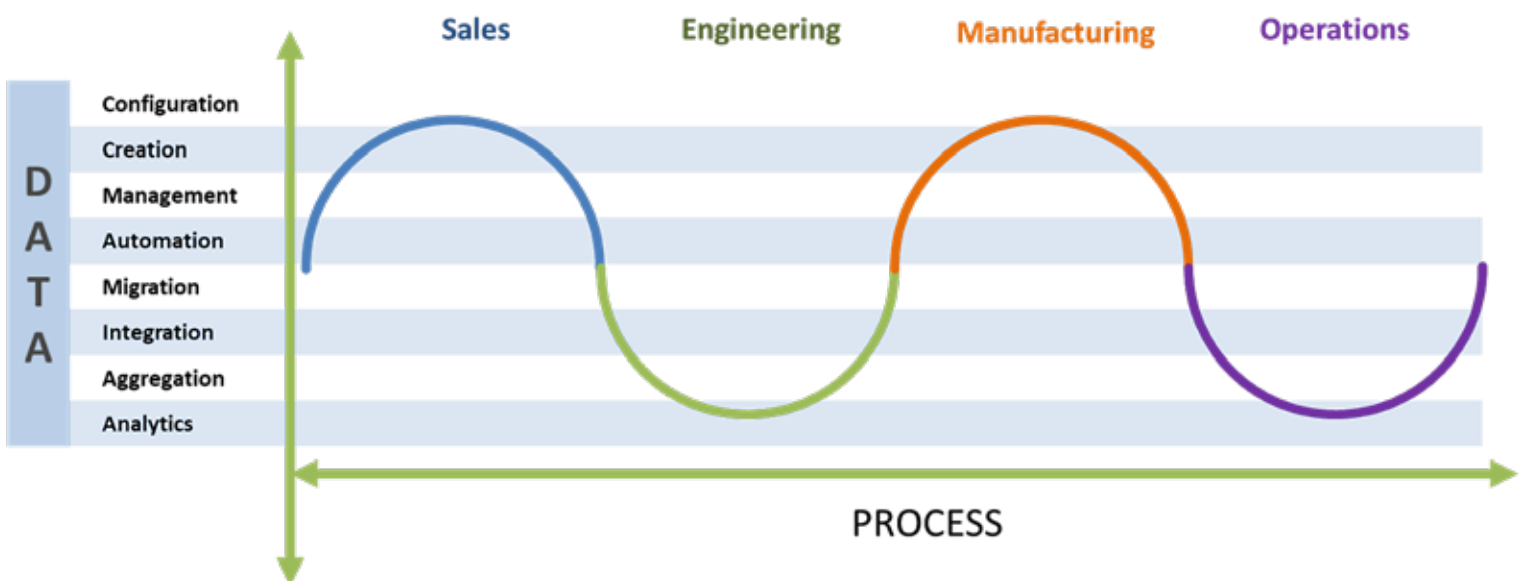
## HAVE COMMENTS OR QUESTIONS YET?

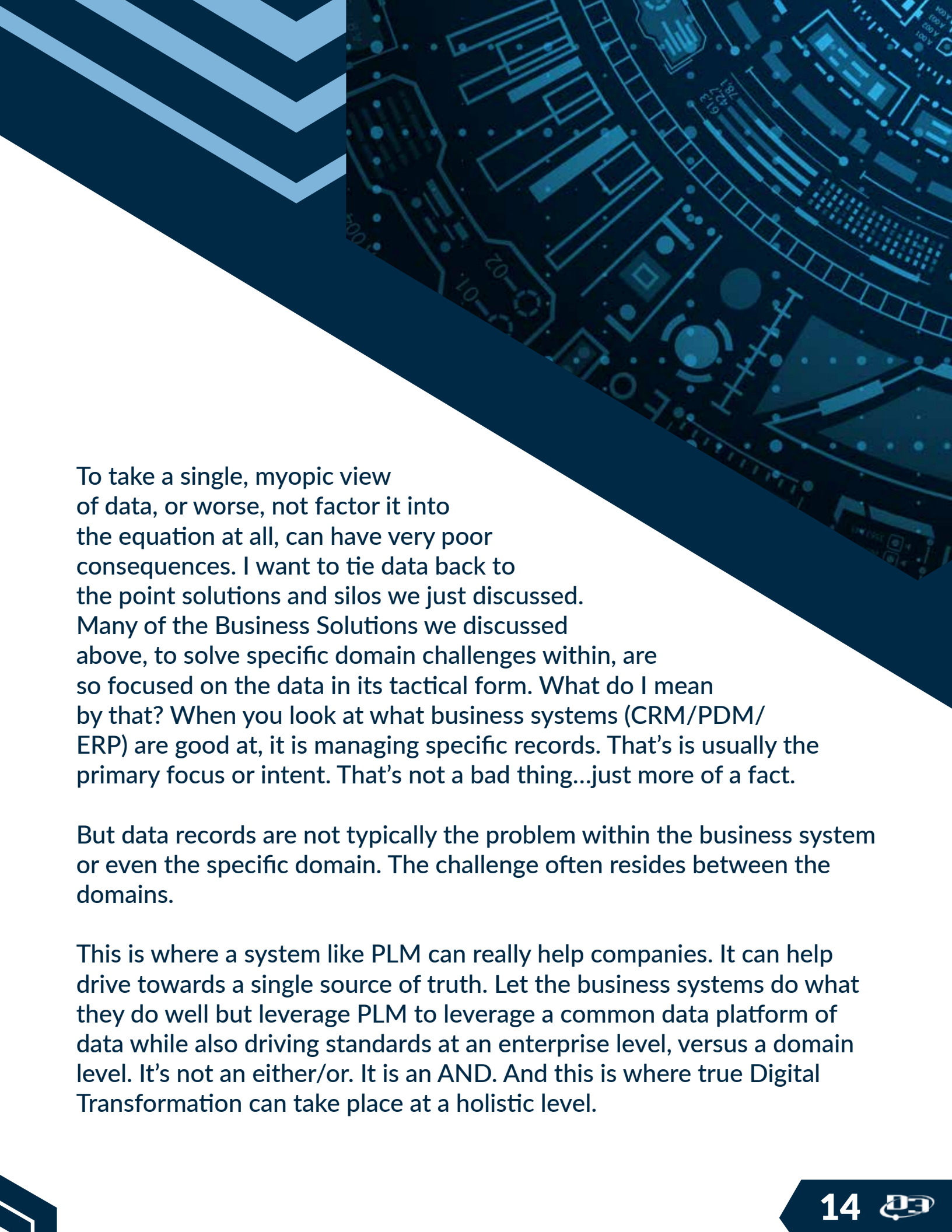
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# PRODUCT DATA IS AN ASSET

**Product Data** is the lifeblood of any organization. It should be viewed as an asset, just like any other asset in your organization. After all, it is your intellectual property, design knowledge, and business rules. Unfortunately, many customers don't look at it this way. Nor do they understand the many forms data can take as part of a more extensive Product Lifecycle Process. All too often, companies look at data in a tactical form. Therefore, it is usually the last thing to be considered in terms of how and where it fits into the overall business strategy and specific outcomes. Data comes in many forms and interacts throughout the process. The graph below represents specific data examples you need to consider in terms of your overall strategy:





To take a single, myopic view of data, or worse, not factor it into the equation at all, can have very poor consequences. I want to tie data back to the point solutions and silos we just discussed. Many of the Business Solutions we discussed above, to solve specific domain challenges within, are so focused on the data in its tactical form. What do I mean by that? When you look at what business systems (CRM/PDM/ERP) are good at, it is managing specific records. That's is usually the primary focus or intent. That's not a bad thing...just more of a fact.

But data records are not typically the problem within the business system or even the specific domain. The challenge often resides between the domains.

This is where a system like PLM can really help companies. It can help drive towards a single source of truth. Let the business systems do what they do well but leverage PLM to leverage a common data platform of data while also driving standards at an enterprise level, versus a domain level. It's not an either/or. It is an AND. And this is where true Digital Transformation can take place at a holistic level.

# LACK OF ENTERPRISE MATURITY

Reducing siloed solutions, breaking disparate data and standardizing processes can only be achieved when companies can improve on their organizational maturity. Without operational maturity, the vicious cycle of challenges will prevent you from creating best practices.

Here is an example: *We worked with a company recently that implemented an ERP solution hoping it would solve all of their problems. Don't get me wrong, they needed an ERP solution to replace the old "Green Screen", but their lack of CAD Standards caused poor design reuse practices, which caused poor data management, which created inconsistency in design. This, in turn, created lots of issues maintaining accurate Item/BOM Data, leading to manufacturing issues and an increase in change orders. Without a formal change process, data was not being managed well in any of the systems. Data needed to be manually entered multiple times, only causing more inaccuracies in ERP.*

You see, you can have the best intentions of a new ERP system, but that will not solve the example above.

It is difficult to gain maturity in any one area without a holistic approach to the problem. And you may need to prioritize some areas of the process before others are implemented. Theory of constraints says you are only as fast or accurate as your weakest link.

# Maturity

Maturity models have been around since the 1980s, based on the Capability Maturity Model developed by Carnegie Mellon University. A maturity model provides a mechanism for evaluating the state of business processes, capabilities, or assets, then prioritizing improvement investments. The model is usually a matrix of the processes and four to five maturity states, such as the following examples.

- Chaotic/Heroic: Doing whatever it takes to survive
- Repeatable: Stability based on informal procedures
- Defined: Standardized processes, metrics, and investments driving profitability
- Managed: Systematized processes based on strategic and tactical planning focused on sustainability
- Optimizing: Integrated business intelligence and master data management

It is important to note that a business will not be at the same level of maturity for every process, capability or asset analyzed. The variance in maturity levels is the driver for prioritization of projects: where should an investment be made that will return the greatest benefit to the organization.

## Readiness

Readiness is the current capacity of a company to successfully execute and adopt an enterprise-wide project. Measurements of readiness including the following.

- Commitment and stakeholder alignment
- Resource availability
- Executive sponsorship
- Objectives: defined, clear, measurable
- Governance structure
- Planned, sustainable investment



# GETTING STARTED

There is no magic answer to the challenges we have identified, nor silver bullet to the vision of Digital Transformation. But that should not prevent you from getting started or moving faster. The benefits of digital transformation, while different for everyone, are genuine. The cost of doing nothing is also real. **So, what are some things you should do to get started, modify, or maybe even move faster on?**

1. Vision - Create a 2-3 year vision
2. Leadership Commitment - Focus on a whole enterprise transformation roadmap/plan, versus a domain approach
3. Do you understand the enterprise challenge and can you map out the “to be” process
4. Understand where you are at an Enterprise Maturity Level
  - a. *Understand how your “vertical” data platform works today*
  - b. *Understand how your “horizontal” enterprise process works today*
5. Take an outcome-based approach to the problem versus a technology-based approach
6. Prioritize the roadmap based on outcomes, maturity, and value
7. Be practical. This is not a race...it’s a journey

# Here are a few questions to ponder:

- Does any part of this resonate with you?
- Have you identified problems or symptoms?
- Where are you in digital transformation today?
- What is your maturity level in the following areas?
  - *Product Design, Product Configuration, Product Data Management, Product Lifecycle, Product Collaboration (Internal/External), Product Data Analytics*
- What do you feel are your biggest priorities?
- Where are your biggest gaps?
- What will yield the biggest return?
- What happens if you don't change?



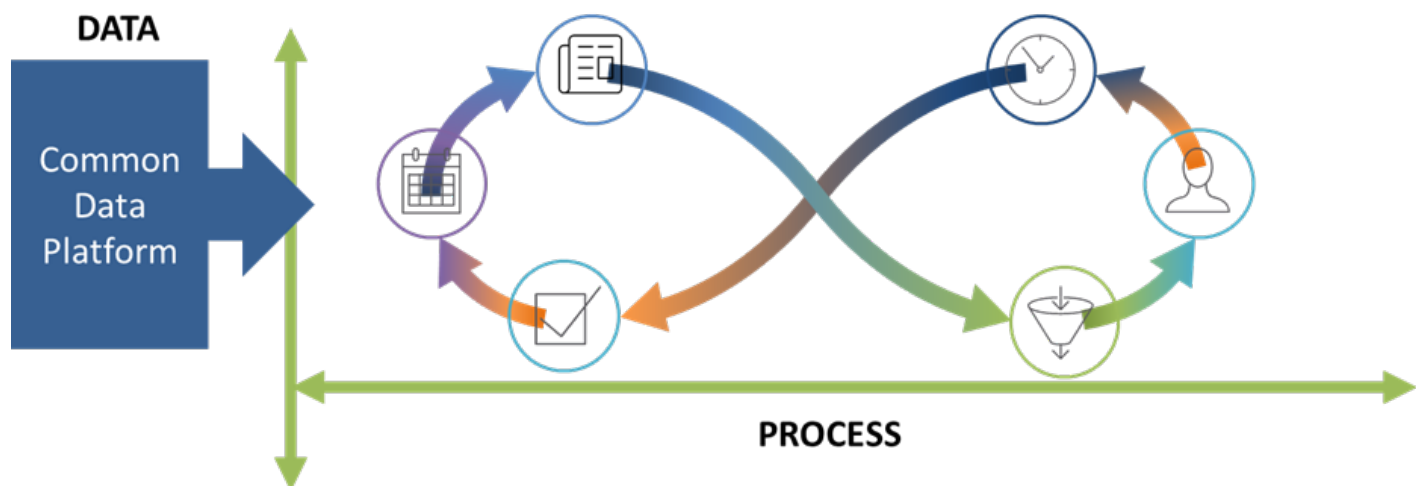
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D3 has an online discovery tool to help assess different departments to objectively discover gaps.

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## What would the perfect world look like for you and your specific needs?

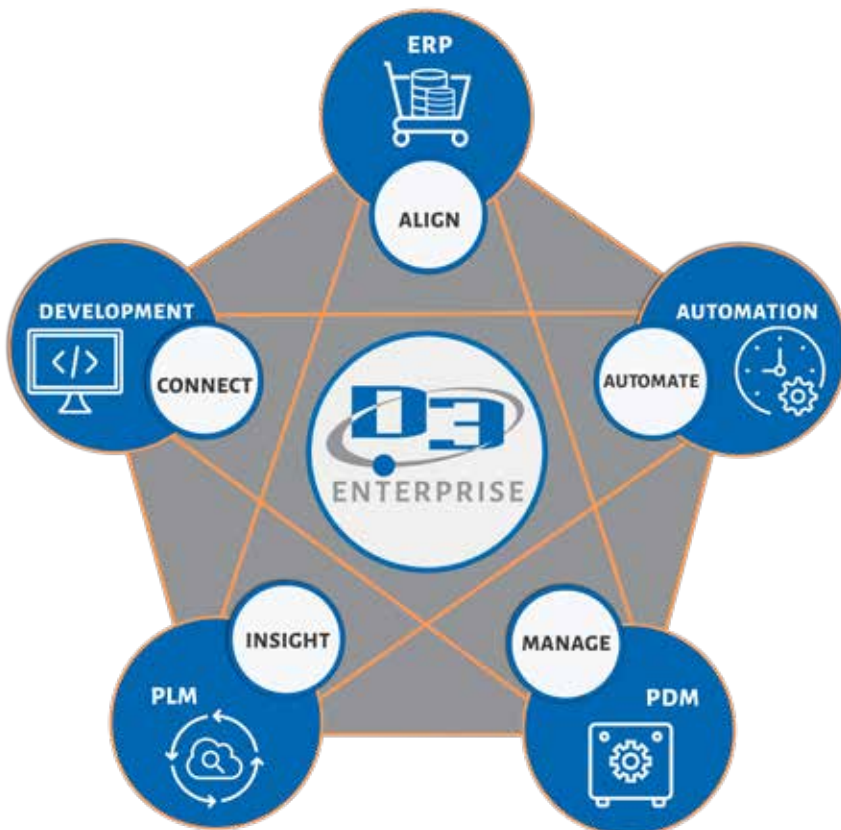
Think of an enterprise where your data is integrated vertically in the form of a common data platform, and horizontally, where you are building standard operating procedures across your entire organization.



**D3 Technologies** is a consulting firm focusing on the “lifeblood” challenges that manufacturers face every day, specifically as it relates to their product data and the lifecycle in which the data flows.

We utilize our LEAN Enterprise Model as a comprehensive way to align to your objectives, understand your business and architect a strategy, along with practical roadmaps that help you bridge the chasm that plague most companies.

**D3 Technologies’ core competencies cover all aspects of your product development lifecycle.**



**Automate** sales configuration and design automation

**Manage** product and supporting data

Standardize processes while providing critical **insights** of the business

**Connect** data across multiple sources

**Align** data across your domain business applications (ERP)





## TECHNOLOGIES

Thanks for reading! If you have any questions you can visit us at [TeamD3.com](http://TeamD3.com) or call 877.731.7171.

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