productops

WHITE PAPER

Data-Driven Decision-Making

Where data culture, platform and storytelling intersect.

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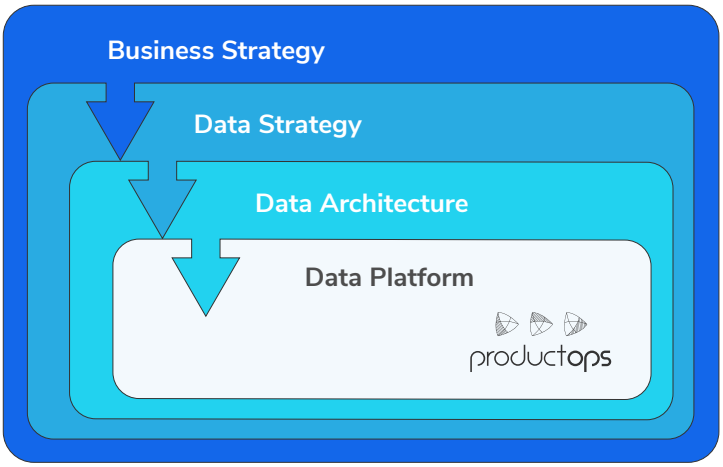
DDDM: where data culture, platform and storytelling intersect.

The Strategy

What does a holistic DDDM strategy look like? Any venture has two fundamental and equally important strategic components: the business strategy and the underlying data strategy that supports it. These strategies are underpinned by technology in the form of a data architecture and the data platform. Although business strategy encompasses and informs the data strategy, here we will focus on the data strategy: its main components, how it's shaped by the business strategy, and then of course the underlying technology.

Diagram 1: From Data Strategy to Platform Implementation



Business strategy encompasses and informs data strategy. The data strategy then drives the architecture which defines the platform.

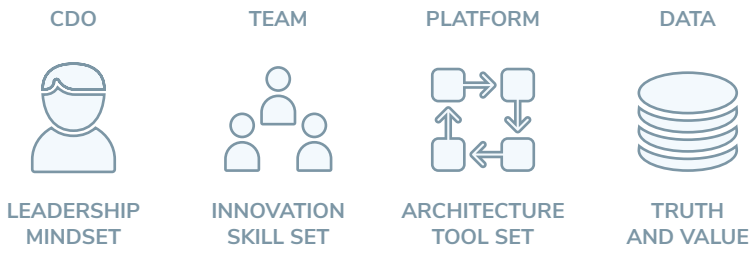
As a Chief Data Officer, your responsibility is not only to support current strategic initiatives and their requirements but also to continually test and iterate upon those initiatives. Meaningful tests require trustable and secure data sources that can provide immediate insights and quick decision-making. Your data strategy is crucial to making this happen.

There are four components of a holistic and culturally driven DDDM strategy. First, there's the leadership component: the C-suite champions DDDM, experimentation, and governance. That drives the second component, the team.

You need the right people, with the right mindset and skill sets. Which drives the third factor, the tools. Your tools are obviously crucial, and your data platform is the backbone on which these tools are built and utilized. Which brings us to the final component—the data. Yes, surprisingly, the data finishes last. You've no doubt collected it; that's typically the easiest part. But without the other three components, it's no more valuable than 99% of the photos on your phone. Which, let's be honest, no one cares about—not even you.

In other words, without proper management of the data you're collecting, the insights you want cannot be trusted and you might make decisions based on false or misleading assumptions. In some cases, that can be devastating.

Diagram 2: The 4 Components of Your Data Strategy



The four pillars of your data strategy. You drive a culture of innovation through experimentation around data. The team is continuously improving skill sets and building better tools and experiences. The platform handles data storage, flow and access. The right data is being selected, is secured, and is a single source of truth.

Leadership and the Power of Momentum

The biggest challenge our clients face is cultural. You may have experienced this. Changing the mindset, and thus the day-to-day behavior, of an entire organization can seem nearly impossible. But, by strategically defining quick wins we can build momentum and move past initial roadblocks such as habitual but inefficient process and general complacency. We work with CDOs to create an objective approach to data-related goals, team building, and navigating the organizational change required for a successful transformation.

The Team and the Data Story

Data storytelling is the key skill set the team will need to develop. This is a shift to a collective mindset, and several roles must be filled to make this happen. Not only should the team be equipped and encouraged to hone their skills in data science, data literacy, and of course data visualization, they should also gain a deep understanding of the stories data can tell. We've moved way beyond simply making sense of data and displaying charts and graphs. AI, ML, NLP, and incredibly high expectations of immediate access to data all play a part in today's data storytelling, and the team must be continually learning.

The Platform

Managing software solutions for a large organization means navigating a complex web of technical, cultural and political requirements that are rarely served well by a single off-the-shelf solution. In order to collect, manage, and extract maximum value from your data, your data platform must be the exception. It must meet all requirements securely and with stability, scalability, and flexibility. It is the backbone of your organization. It should play nice with other operational tools such as IoT and CRMs that are highly specific, while providing the security and intelligence you need. The high-risk trade-offs between building a technology yourself and buying from a third-party vendor are well understood but bear repeating.

Do I Build?

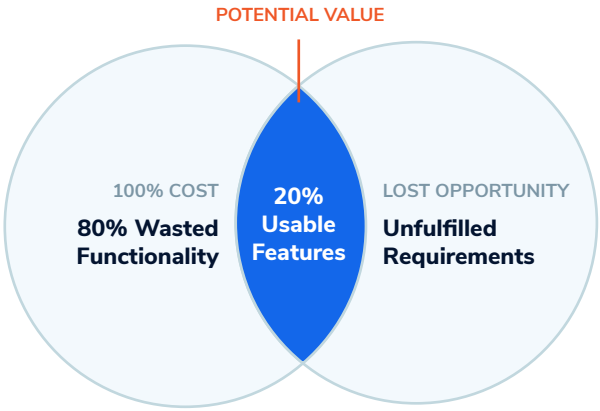
If you believe your team has the capacity, capability, motivation, and management resources to build in-house, you must still examine lost opportunity cost to the organization and political risk to those involved. Why do they have capacity? How many organizations today have the luxury of a software development team sitting on the bench waiting for the next project? Your team, as experienced as they may be, has probably never built a data platform. What is that risk to your organization?

Do I Buy?

Buying off the shelf can be a great solution for highly specific applications, and may be a better solution than building your own data platform internally, but the risks are different. The attraction, theoretically, is that you get productive right out of the box with well-understood and acceptable (again, theoretically) compromises in functionality. Even if vendors have a clear understanding of your defined needs, no product will map to those needs 100%. So what do you give up, and how do you measure the value and impact of the omissions? Conversely,

what exists in the product that you will pay for and never use? Even more challenging, how will unforeseen future requirements be addressed? And all of this assumes that the internal team responsible for making this happen has been kept apprised of, and involved in, the purchase decision. Remember: Throwing a product over the wall is not an integration strategy.

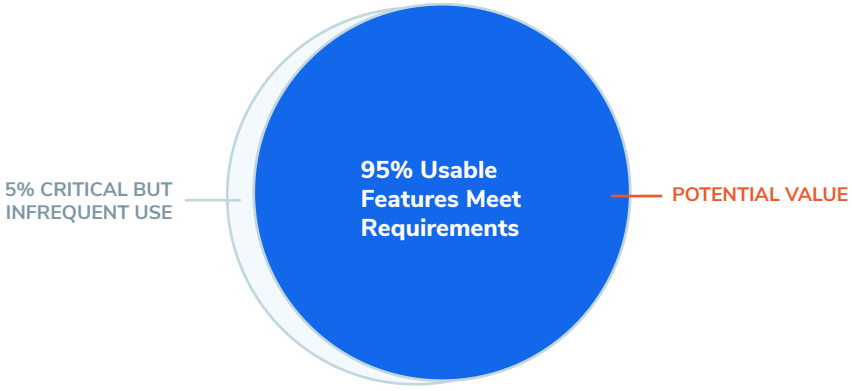
Diagram 3: Off-the-Shelf Product Integration



More complex business needs mean that it's more difficult to extract maximum value from "off-the-shelf" software. Research shows that roughly 80% of features in the average software product are rarely or never used. Customers are often faced with unmet or unmatched requirements, leading to lost opportunity and lack of control.*

**Pendo.io Feature Adoption Report - Feb 2019*

Diagram 4: Custom Software Solution



A "purpose-built" solution is better for more complex business needs. Requirements can be better met and much of the complexity can be removed from the human interaction to provide maximum efficiency, flexibility, security, and accountability.

There's a Third Way to Implement a Data Platform

Any solution requiring an investment as complex and potentially impactful as a data platform should be born out of a clear business objective and the resulting data strategy. In other words, a custom platform built on the billions of dollars invested in AWS that integrates seamlessly with off-the-shelf solutions.

Imagine the best of both worlds. First, a core set of functionalities created out of the experience and research gained over a decade of delivering actionable insight from corporate data. Second, an agile development resource unencumbered by legacy attitudes and enterprise imperatives. A resource that can quickly build the essential custom add-ons to fit your stated needs 100%, and who will be there with you (and your internal team) to implement the solution and continue developing functionality as the future unfolds.

The third way is also the efficient, economical way—modestly priced core functionality within a platform that leverages many previous implementations. Custom work, along with both initial and subsequent enhancements, delivered within the scope and budget of an agreed upon statement of Statement of Work.

Diagram 5: productOps Data Platform

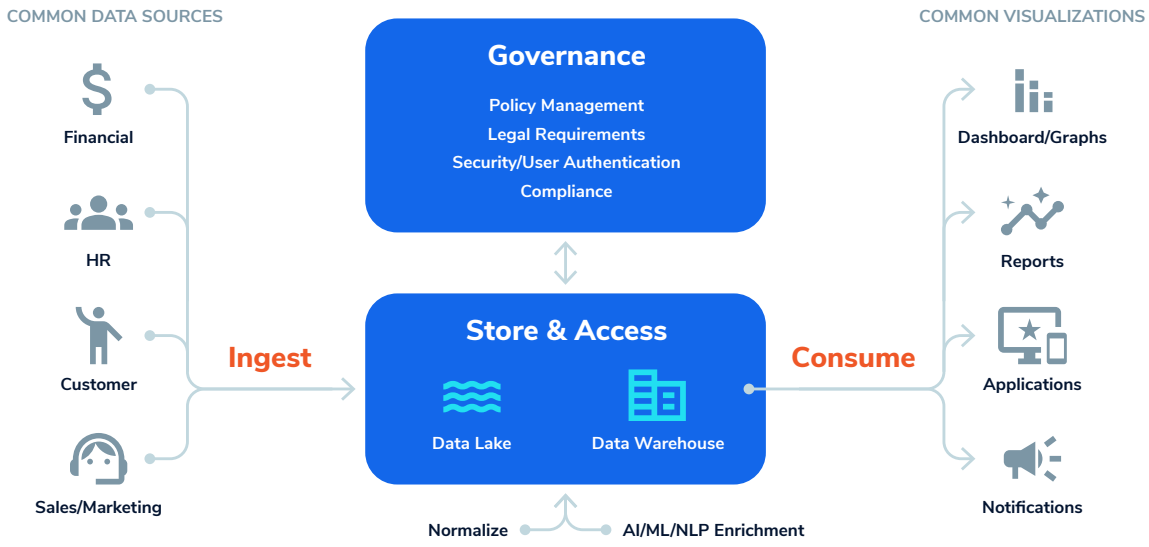
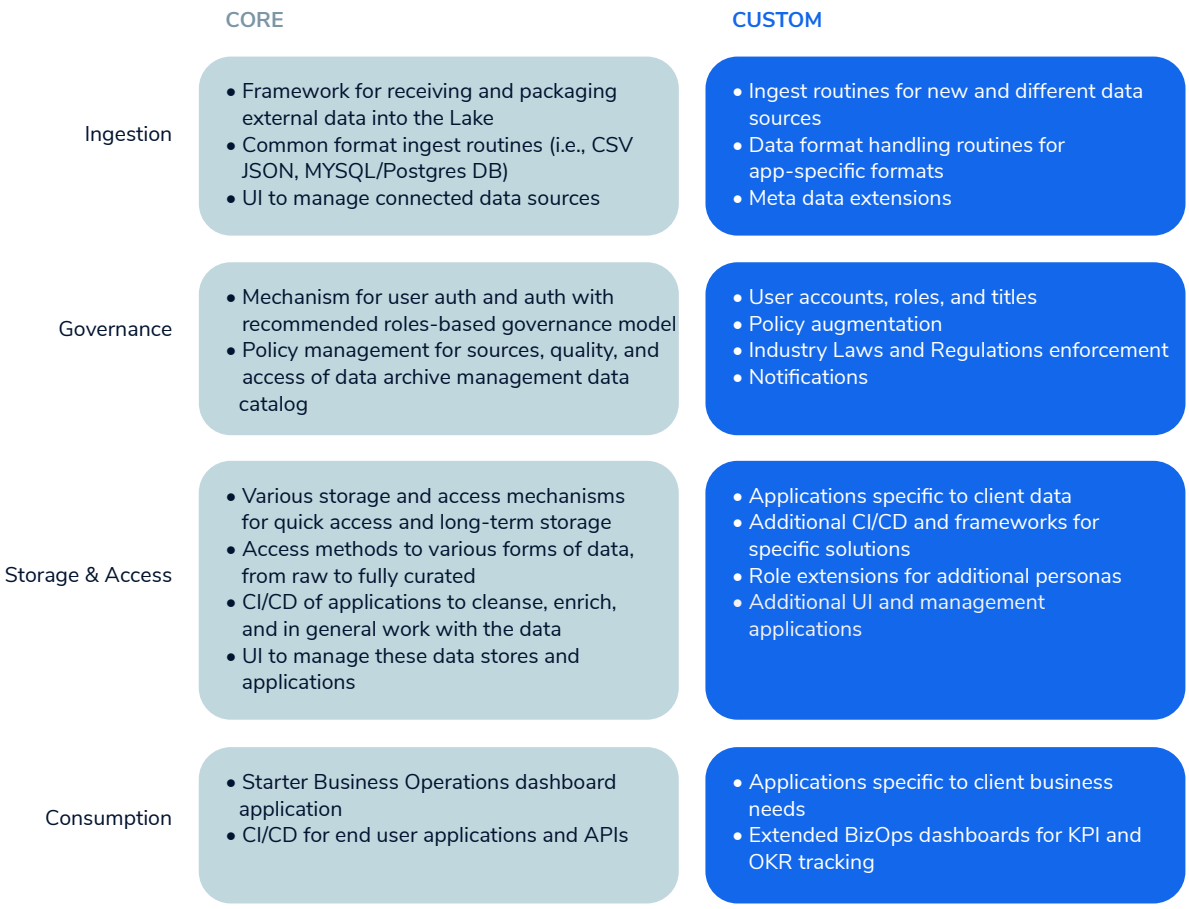


Diagram 6: Core vs. Custom Components and Features



The Data

Data collection is in some ways the easiest part. It's by no means easy, but once sources are defined and devices are in place, the data rolls in. We typically find that it's been collected in various formats, siloed, duplicated, munched, and often just abandoned. Clearly defining and communicating data priorities is critical for new collection and setting up new stores. Locating existing sources and stores is the first step—and in many cases a difficult one, as we often find no one person in the organization is aware of all data stores or their contents.

Data Collection and Ingest

As companies grow, sources, people and teams are added, new tools are implemented, requirements change, and even more data sources are created. Strategically aligning data collection needs is critical to knowing what to collect and how to store it. What legacy data is of strategic or tactical importance, and should it be archived or easily accessible? For example, if we are collecting data from industrial generators to analyze failure so that we can address quality issues or predict future failures on already manufactured components, we may be collecting terabytes of data every week. Team A may only need data from 6 of 100 sensors to analyze failure of a certain part. Team B may need real-time data to monitor performance in an emergency situation where power is critical to first responders. Knowing these priorities informs collection and accessibility.

Normalization and Enrichment

Providing quality data to your teams requires that you first clean, aggregate, and enrich your data. The first step is to harmonize disparate data types and store them in a manner that is widely accessible (i.e., a data lake). Harmonizing, enriching, and managing the data in a data warehouse on a flexible platform allows for governance, and will support current and future business requirements. For example, you may have incomplete data generated from a legacy sales database that's not useful in its current state because the mailing addresses are incomplete. The addition of external data sources such as Dun & Bradstreet or postal code references could not only reconcile the data but also enhance future data collection. A simple data enhancement like this could enable you to send updated warranty information to customers.

Governance

Value is created through trusted insights based on policies that manage sources, access, and data quality. Part of establishing a successful data strategy is mitigating risk. It's critically important to balance oversight and accessibility. Integrity and security are paramount, but if teams cannot easily access data it will hinder innovation. Data is collected to create value and that value is realized when your teams can access and visualize data. Risk mitigation means countering access with data handling requirements. GDPR, ITAR, Security Information and Event Management (SIEM), and User and Entity Behavior Analytics (UEBA) are all part of a well-governed platform.

Data Consumption

Everyone wants valuable insights, and dashboards are the first thing that generally comes to mind. With advances in ML and AI, enhanced UIs, and incredibly talented people, we have moved far beyond the point of looking at dashboards and making decisions in boardrooms. Charts and graphs are still valuable, but data scientists can now gather information and tell accurate, detailed stories through mechanisms like analysis of real-time data streams.

Using self-service tools created on top of the platform, nontechnical users can interact directly with data and create their own visualizations. This means the company is more efficient and the right decisions are more often being made.

Conclusion

Many firms jump into building or buying data-related solutions believing that the software will repair fundamental issues and solve business challenges. In reality, the software should be the backbone of a holistic strategy that includes building a data-driven culture around DDDM.

Without a strategy and roadmap that includes definitive and trustable data sources, ETL, and governance, the insights derived cannot be trusted.

A great data strategy partner will have mastery of the entire data life cycle, and a great implementation partner will understand that strategy as if it were their own. Finding both under one roof is rare, yet incredibly valuable—it allows you to focus your teams on core business functions while implementing a DDDM strategy that will generate cultural and behavioral change, leading to greater success.

About productOps

productOps is a consulting firm that delivers its strategic insight as a software 'product', and has been designing, building and implementing data platforms since before anyone thought to call them that. We can be reached at dataqueries@productops.com

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