SALSIFY | Guide

The Brand CIO's Guide to **Product Data Architecture**

Survive — and Thrive — By Future-Proofing
Your Retail Tech Stack for the Digital Shelf



What's **Inside**

03 Keep the Product Information Flowing

04 The Case for Investing in Your Product Data Now

10 A Comprehensive Framework for Building an Agile Architecture

17 Examples of Product Data Architectures That Work

27 The Time to Improve Your Product Data Infrastructure Is Now



Keep the Product Information **Flowing**

The speed, scale, and complexity needed to meet shoppers' demands today has put new pressures on IT departments. Your organization's survival depends on the efficient and effective flow of product information — it's what helps sell your product at every endpoint. But with hundreds of stakeholders, an ever-expanding set of data types, and constant change in the market, it can be daunting to figure out how to truly future-proof your product data architecture. And on top of it all, every dollar your IT department spends is challenged to show a strong return on investment (ROI).

Fortunately, an incremental path to success exists. This guide will help you chart the course to improving your product information systems in bite-sized chunks to deliver sales growth, reduce time to market, and improve operational efficiency.

Complete with detailed examples of stellar ecosystem architectures from national and global brands, here's an underlying framework for building, adapting, and scaling your tech stack to meet the high demands of internal stakeholders and customers alike.



The Case for Investing in **Your Product Data Now**

At every touch point, shoppers expect to discover a rich collection of product information, images, videos, product availability information, shipping details, pricing information, FAQs, ratings, and reviews. In fact, Google and Ipsos research found that 85% of consumers consider product information and pictures important when deciding which brand or retailer to purchase from.

That's why the quality and availability of your product data is critical to your business's success.

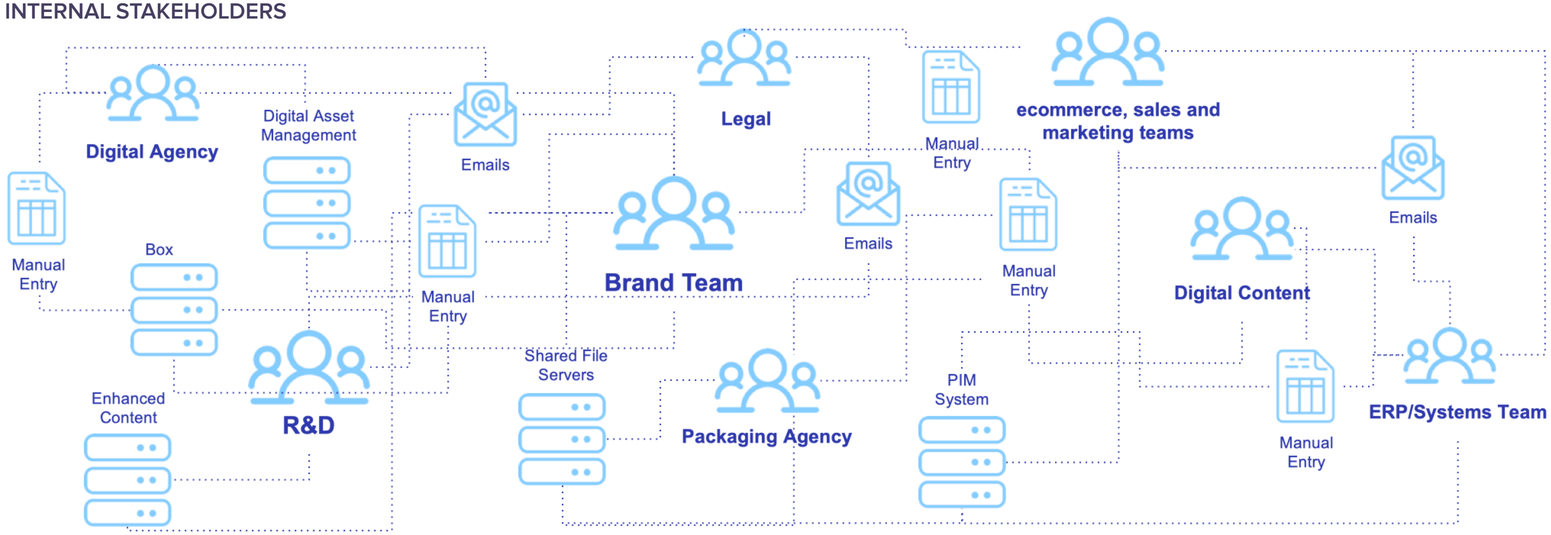
Your buyer's experience — and, ultimately, their decision to purchase your product — is only as good as the quality of your data. The systems that manage your product information and connect it with every critical area of your business are the lifeblood of a commerce operation today.

Internally, prioritizing stakeholders who might hinder a product's ability to sell can enable your business to deliver accurate and winning product data with the speed the market demands. To succeed in today's market, your data has to reach both internal stakeholders and a broad set of customer endpoints.

CUSTOMER ENDPOINTS



INTERNAL STAKEHOLDERS



BACK OFFICE



Navigating New Pressures **on Your System Architecture**

Giving business users the data governance and workflow automation they need to succeed is complex. Every channel you sell on requires multiple, consistent changes to product information throughout its life cycle. Shopping itself has also grown increasingly complex, with buyers expecting to find fast answers to their every product question on the channels they prefer.

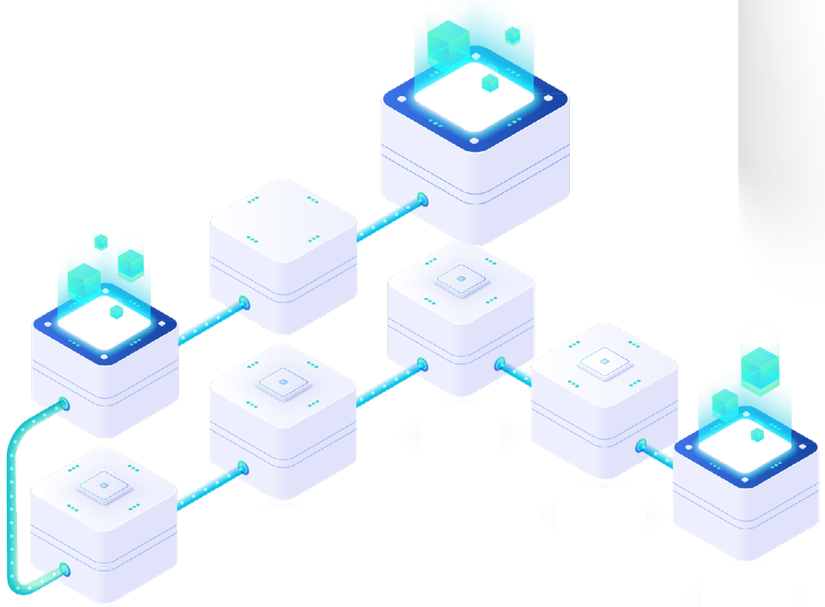
Among all of this complexity, three main things have recently changed that likely impact your data systems:

1. **SKUs require deeper data sets and rich media**. Customers today are asking business users for more images, better product renderings, and a wider range of product data points, such as ingredients, materials, and manufacturing details. With 45% of shoppers conducting online research for a purchase they plan to make in a physical store, according to Google and Ipsos, giving shoppers robust digital information is critical.
2. **Businesses must reach a broader set of endpoints.** The majority of buyers today want a truly omnichannel experience. The Harvard Business Review reports that 73% of shoppers use multiple touch points before even making a purchase — the average being about eight touch points, according to HubSpot.
3. **Algorithms are driving merchandising, advertising, and sales outcomes.** In today's digital-first world, retailers, distributors, search engines, and other customer endpoints all tend to change their merchandising strategies and data requirements based on algorithmic results. A few hours of an out-of-stock product listing, an unanswered negative review, or a spike in new search keywords can all impact the health of a sale. Connecting the systems that signal changes with your ad networks, sales endpoints, orders, and inventory will help your business users keep product data as up-to-date as possible — at the speed customers demand.

Navigating these new pressures means taking a flexible, agile approach to your product data architecture.

Fitting Product Data **Into Your Digital Transformation Plans**

Given the growth of digital commerce, many leading brands are making the shift to cloud-based platforms that act as both a system of record and a system of work for their product information.



SYSTEM **OF RECORD**

The authoritative system where entity data is created, captured, and maintained. If your system doesn't master retailer-specific fields, then it is, at best, only a system of reference. The real data that shoppers see is likely mastered elsewhere.

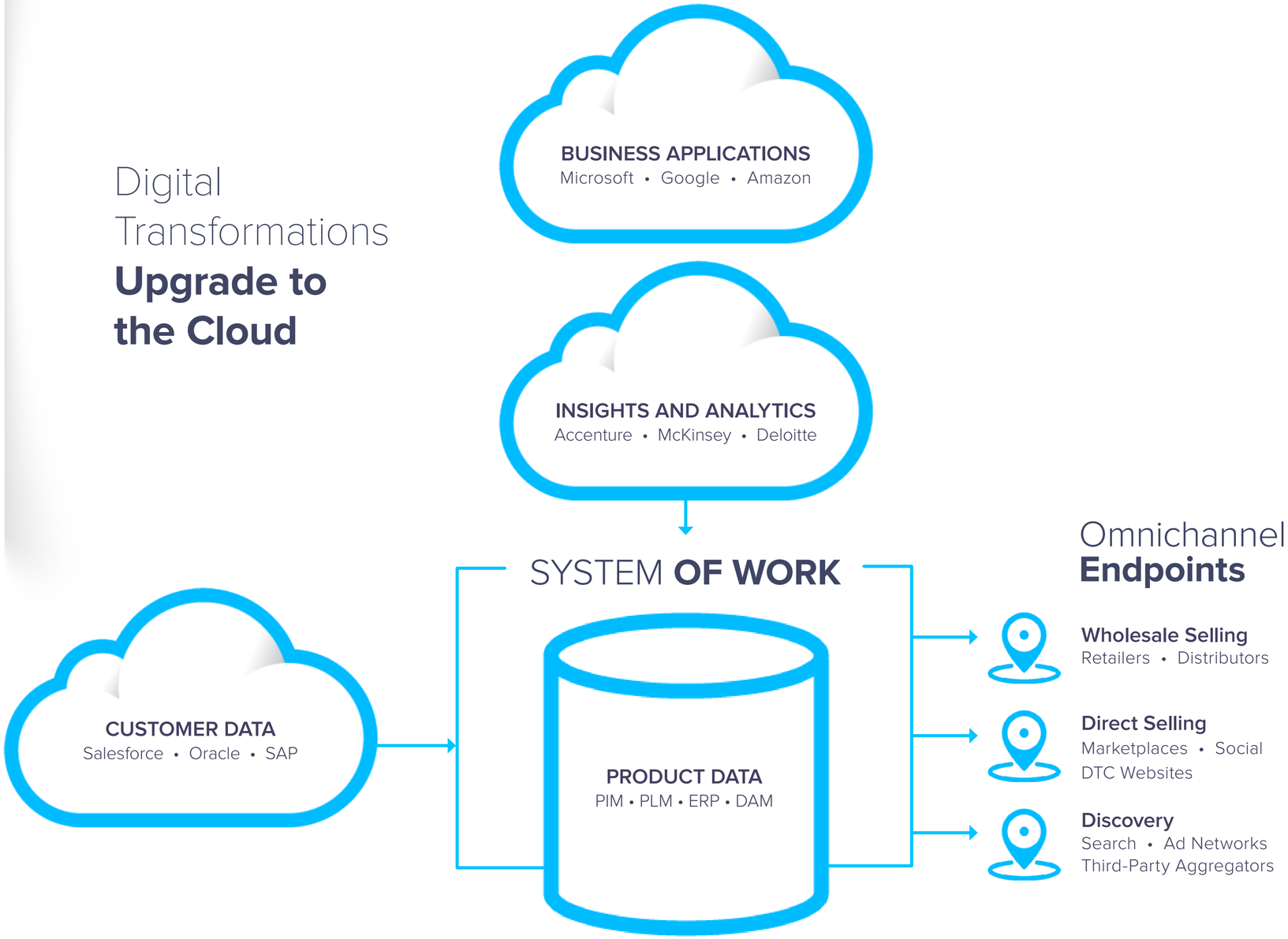
SYSTEM **OF WORK**

A system of record that also provides strong functional support to facilitate content management directly within the system. If a system of work is successful, stakeholders are able to use it for every use case.

Large-scale digital transformation projects have led businesses to invest in cloud-based infrastructure solutions for their storage, customer relationship management (CRM) data, employee communications, intranet tools, and software-as-a-service (SaaS) platforms. In fact, a Statista report found that 90% of enterprises with more than 5,000 employees have already adopted one or more cloud technologies.

Including product data in your cloud-based digital transformation plans is essential to adapting to changes in market requirements and consumer purchasing demands. An API-first, extensible, microservices-based architecture provides you with the interoperability, agility, and scalability required to handle the realities of a fast-changing digital shelf.

Fortunately, this change doesn't need to happen overnight or in one large project. You can tackle the change incrementally — and deliver wins at every stage.



The High Cost of **Maintaining the Status Quo**

In today's commerce environment, buyers have countless ways to discover, compare, and purchase a product — and product delays and mistakes garner harsher consequences. Time delays do more than lose revenue. They can also impact a product's findability for months. Data errors, on the other hand, can lead to costly returns, legal fees, damaging negative reviews, or product miscategorization that can impact a product's performance long after the issue is corrected.

Each piece of customer or internal stakeholder feedback you hear signals associated risks and potential costs.

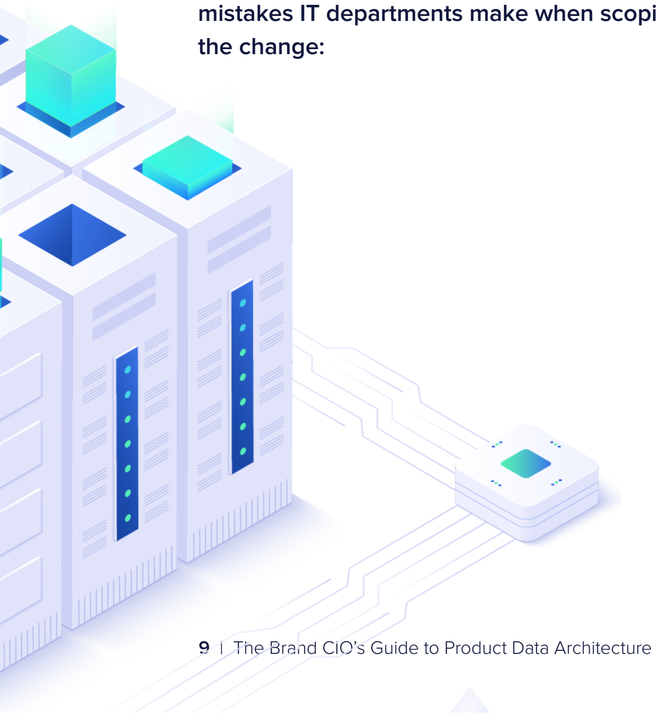
Improving your product information system architecture can directly boost sales growth, get products to market faster, and increase your operating efficiency — all of which can deliver a clear ROI.

What You Might Hear	What It Signals	What It Could Cost Your Business
An endpoint connection is too slow or not yet established.	There's no connection from your system of record to an efficient syndication method for a retailer, distributor, or other endpoint.	• Lost revenue per day for every product that isn't on the market. • Lagging visibility in your product category or market.
Data is incomplete, missing, or stored outside the system of record.	The system of record is not accessible or sufficient for your full set of stakeholders.	• Product returns. • Unhappy customers. • Market delays, which lead to lost sales.
Retailer requirements change faster than business users can keep up.	There's no automation or system of work in place to process retailer updates. Your business users may also be unable to augment data models to meet new market needs.	• Delays in time to market. • Poor visibility and search rank on important pages. • Lost sales.
We need to fix our product shipping capabilities, or we want to start selling directly.	There's no connection between inventory data and sales endpoints.	• Product returns. • Out-of-stock penalties from retailers. • Missing market opportunities in direct or social selling.

The Cost of **Scoping Errors**

Brands all over the world are facing the pressures of modernizing their product data architecture to realize these benefits, though few have an internal infrastructure built for change. Where do you focus your energy, money, and resources? And what kinds of pitfalls should you watch out for along the way?

Here's how to avoid some of the most common mistakes IT departments make when scoping the change:



1. **Don't move on your digital transformation plans before understanding all of your data pathways.** According to McKinsey, about 75% of enterprise resource planning (ERP) transformation projects fail to stay on schedule or within budget. IT teams will often spend a lot of time scoping a data model for a new ERP without mapping the full data needs throughout the entire supply chain. Before committing to an upfront ERP investment, ensure you have a clear understanding of how people are using data throughout your supply chain — and invest in a system that will account for your inventory tracking, retailer connections, and other go-to-market use cases for data.

2. **Don't implement a product information management (PIM) system without a flexible, comprehensive syndication strategy.** There's one simple reason why analysts like Forrester include syndication in their assessments of PIM vendors: Your product information is most impactful to your business when it's in market, helping you sell the product. Requirements for syndication technology will vary across your endpoints, so before committing to a PIM, ensure you have flexible pathways set up for sending your data to current and future endpoints.

3. **Don't lock into an inflexible data model.** In a world where new trends — like non-GMO foods, ethically sourced clothing, or quarantine-friendly toys — can come from a viral video or a news event, your business needs to be agile to stay competitive. Static data modeling doesn't cut it anymore, so you'll want to invest in a system that allows you to implement data governance that protects non-negotiable data and empowers business users to adapt market-facing data quickly.

4. **Don't silo your front- and back-end departments.** Separating your front- and back-end departments can disrupt your operations. After all, inventory management can play a strategic role in your marketing and sales strategies, and consumers often use product availability data to make their purchasing decisions. By integrating your front- and back-end systems, you can empower your teams to provide real-time data to retailer customers, avoid promoting out-of-stock inventory, quickly overcome supply chain issues on customer-facing channels, and test direct selling channels.

These common mistakes reveal two main takeaways that every business should keep in mind when modernizing their product data architecture:

- **Scale across your business.** Rather than focusing on one area of your business, start by scoping your data requirements across your full supply chain.
- **Expect change.** Anticipate that your data needs and endpoint requirements will change over time, and choose partners that are flexible enough to change with your business.

Tackling system upgrades incrementally can help you solve problems as they occur, but it's always a good idea to plan ahead for the ripple effect any changes might have on your overall business.

A Comprehensive Framework **for Building an Agile Architecture**

To meet your customers' demands, empower internal stakeholders, and enable future flexibility, you need a centralized system of work. Integrating this agile system with others across your organization can help you effectively manage, transform, and govern all your data.

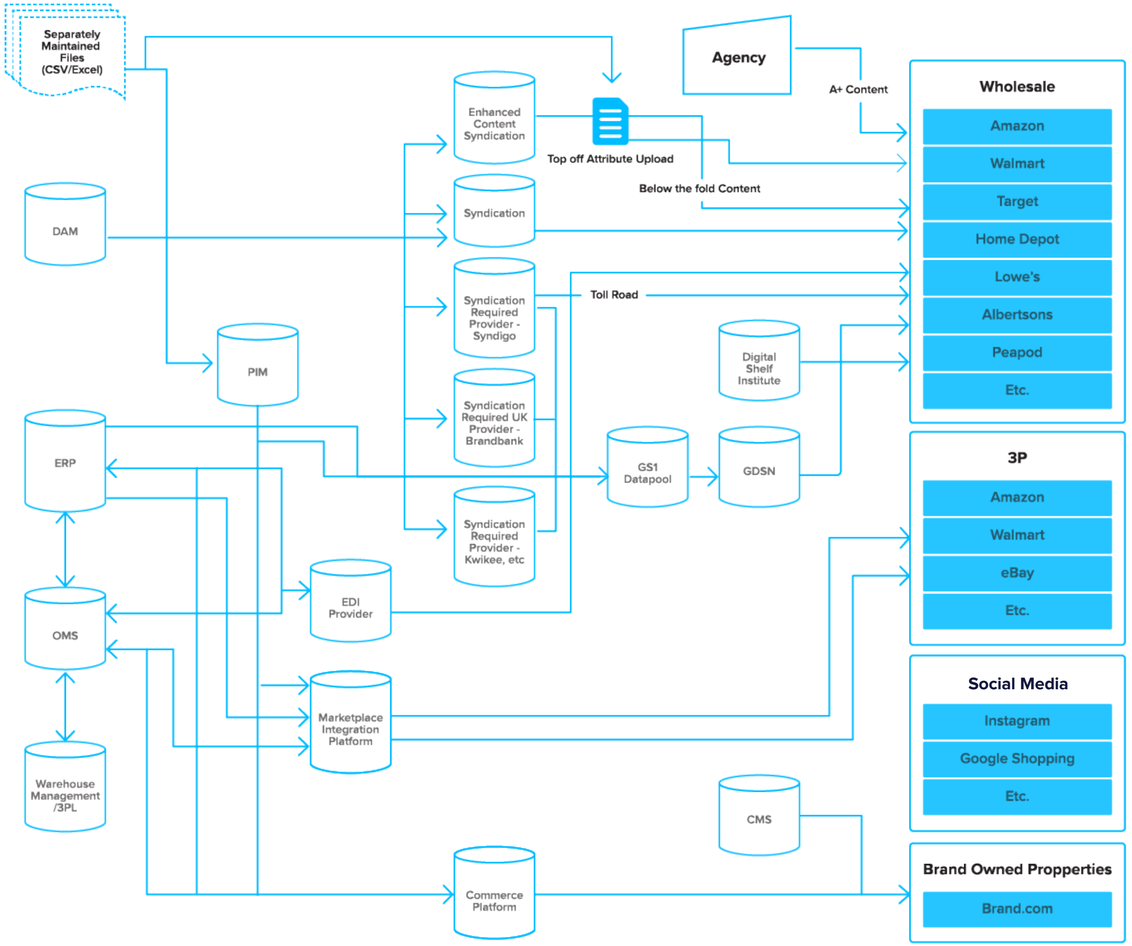


How do you get this kind of connected, agile system? Through a modern architecture built on API-first, extensible, and microservices-based technology.

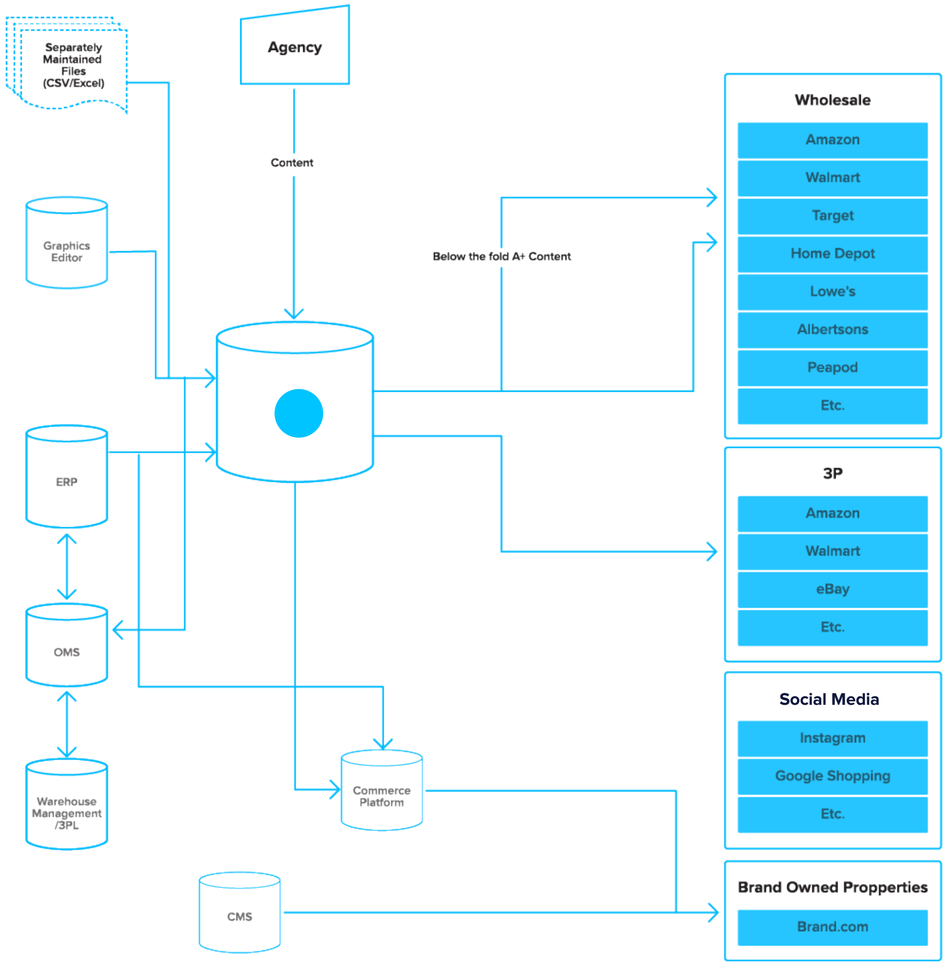
When searching for the right technology, look for systems that are:

- **Flexible in their data modeling,** with complete customizable data models that don't require downtime between attribute additions, changes, or updates;
- **Natively multichannel,** able to manage multiple versions of the truth for each of your retailers and endpoints;
- **Cloud-based,** offering global scalability and security;
- **Event-driven** to enable users to react to product changes as they happen; and
- **Extensible** so it connects to a partner network through easy-to-integrate APIs and workflow hooks.

Brand Ecosystem
Without Centralized Platform



Brand Ecosystem
With Centralized Platform



While the eventual goal is to get your entire organization connected to a centralized system of product data, the best way to make progress is by tackling change in bite-sized chunks.

Make headway toward the right system architecture by mapping your full set of stakeholders and prioritizing one or two use cases to start. This allows you to deliver incremental business value over the course of the project.

Use the framework to map your existing systems:



MARKET PERSPECTIVE

Browse & Consider

Buy (Order, Purchase)

- Retailer/Distributor/In-Store
- Marketplace/Social Selling
- B2B Selling
- Retailer/Distributor/Online
- D2C, Brand Operated Experiences

Receive

Analytics

INTERNAL PERSPECTIVE

Activation

- GDSN/Data Pool
- PXM/Syndication
- Digital Catalogs
- Workflows
- Enhanced Content
- CaaS

Data Management

- MDM
- PIM
- DAM
- Digital Shelf/OMS
- Merchandising
- CRM

Product | Digital Assets/ Media | Salses & Invewntoey | Customer

DATA INTEGRATION LAYER

Transactional

- PLM
- ERP
- WMS
- Logisticics

Enterprise Management

- Internal & External User Mgmt.
- Cloud Infrasturcture
- Knowledge
- Compliance

To build a truly agile product data architecture, ask yourself critical questions about your sales endpoints, data sources, and anticipated optimization needs. Here's what to consider for each:

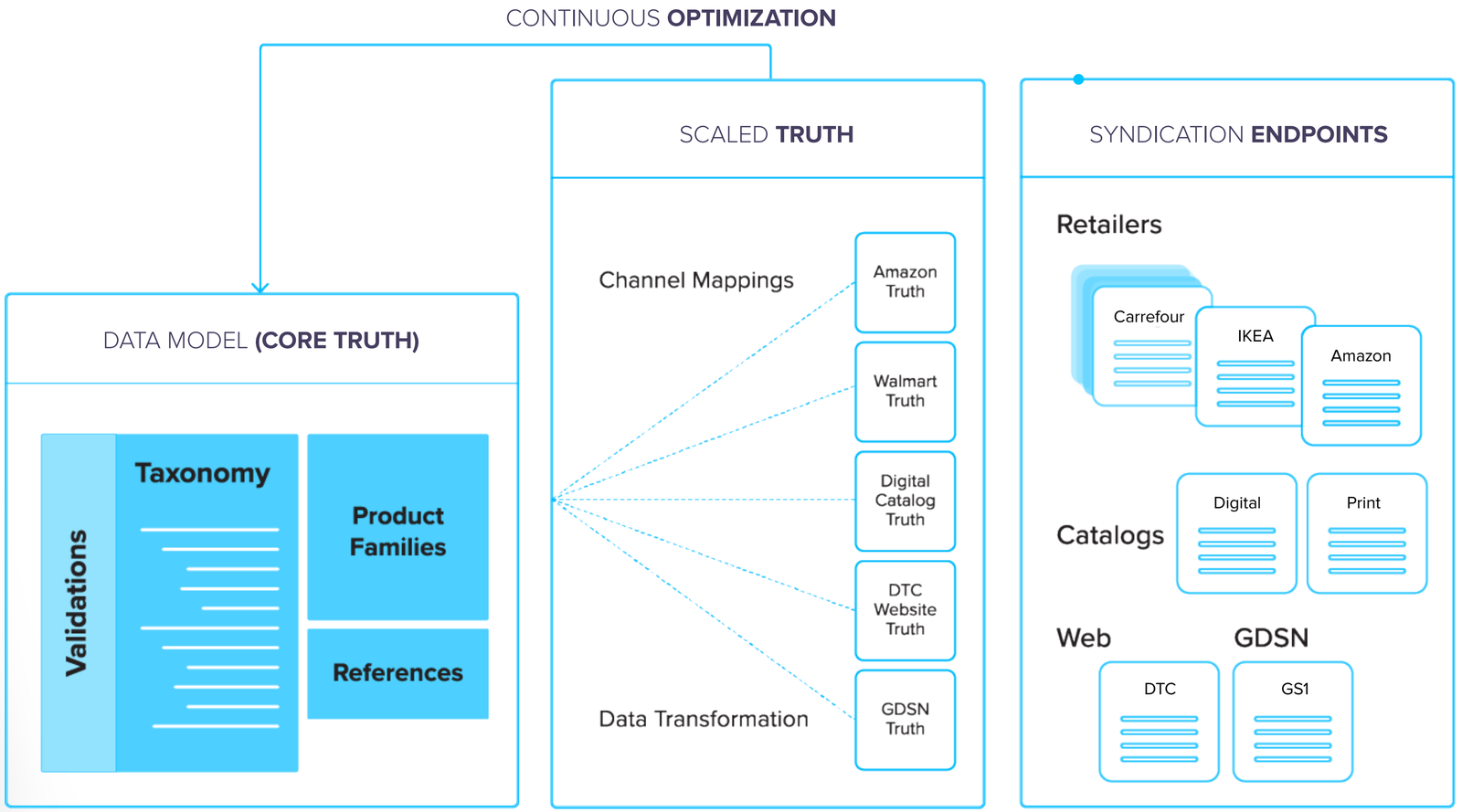
1. Endpoints: Where Should Your Product Data Live?

Consider your brand's retailer customer and direct buyer needs. Each channel partner has different requirements for product information, such as attributes, enhanced content (like videos), and different data point values. Unique product data allows sales channels to differentiate the shopping experience for the end buyer. Your business teams may also want the ability to differentiate what they send to each endpoint for strategic selling, promotions, or market changes.

Adopting a system of record that allows for multichannel versions allows you to maintain your data governance while still addressing these internal stakeholder and customer needs.

When you choose a platform that can manage multiple product values for syndication, data governance doesn't go away — but it does become more agile. While customer endpoints don't get free access, they get the best content served to them, and you maintain full oversight. And with more transparency around data flows, internal stakeholders see fewer requests and errors.

Data Model **Powers Syndication**



When selecting a platform, look for these functionalities:

- **Layered permissions:** Does the platform give internal stakeholders who are currently bringing in IT product data a way to govern access?
- **Endpoint transformations and syndication:** Are teams equipped to efficiently deliver accurate and consistent product data to all endpoints?
- **Platform extensibility:** Can systems integrators build on top of existing or future cloud-based applications?
- **Feedback loops:** Do you have the ability to enrich the overall data by adapting to changes in consumer preferences or destination requirements?

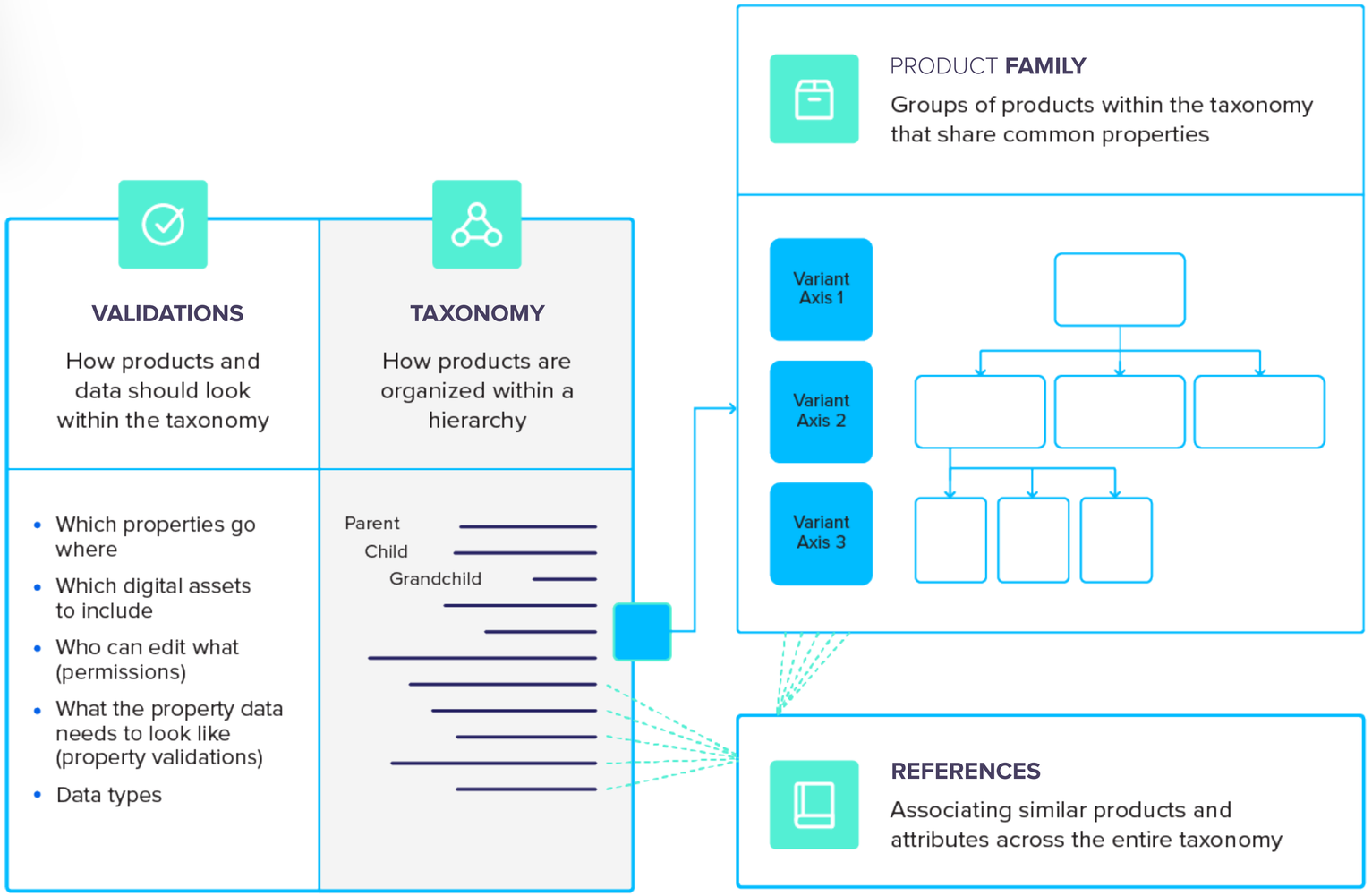
2. Data Sources: What's the Current State of Your Product Information?

Take an honest inventory of all your product information sources across your organization today. It's common for companies to use a variety of systems, such as master data management (MDM), ERP, or PIM systems, as well as less visible sources like spreadsheets or file transfer protocol (FTP) sites.

Here's how to make the most of your data model:

- Choose one system to centralize all product information that enables you to apply your core data model.
- Establish a strong approach to data governance by building out access and auditing workflows. This will help you ensure you're producing high-quality data.
- Adopt "internal" and "external" data quality reports. An internal data quality report often measures accuracy, completeness, and adherence to your core data model. Applying to each of your endpoints, an external data report examines adherence to endpoint requirements and the effectiveness of your product content in the market.

Data Model **Overview**



3. Stakeholders: How Will Your Organization Use Product Data?

Take time to consider who will be using your product data and how. Here's a breakdown of common stakeholders and their accompanying product data use cases:

Your exact set of use cases may differ from the above. To get a pulse on your specific use cases and scope the most important workflows for your product data architecture, assess who needs access to product information and why. Be sure you choose technology with workflows that enable stakeholders to work directly in the system with clear roles and responsibilities.

Use Case	Stakeholders
Find and access product information.	Sales, marketing, legal, ecommerce, and customer service teams.
Bring content to market by publishing to retailers, websites, catalogs, and more	Ecommerce, marketing, brand, and sales teams.
Sync packaging data with trade partners through a global data synchronization network (GDSN).	IT and trade teams.
Track orders and inventory.	Direct-to-consumer, supply chain, warehouse, sales, and customer success teams.
Boost ecommerce performance by improving product detail pages.	Ecommerce analysts and leaders.
Bring new products to market.	Product development, product marketing, and design teams.
Issue recalls or address customer issues.	Legal and customer service teams.

4. Optimization: What Kind of Enhancements Do You Anticipate Needing in the Future?

Depending on your organization's maturity, it might take several years to centralize your data, establish the right governance, connect your endpoints, and train every stakeholder team.

Your brand's success depends on your ability to power the best possible product experience along the product life cycle and customer journey. So, to truly stay ahead of the digital curve, you'll need to continually optimize as you implement new solutions.

Look for opportunities to streamline processes and enhance product content by connecting overlapping systems, leveraging automation wherever possible, and integrating artificial intelligence (AI) so your team can act on insights for a product while it's still in market.



Examples of **Product Data Architectures That Work**

Understanding how other companies structure their product data architecture can help you determine which model might be best for your organization.

Here are examples of brands that vary by industry, company size, and business model:

Each of these examples call attention to the sources of data the company began with and the endpoints they needed to serve. They each benefited from implementing one central source of product information — capable of managing, enriching, delivering, and optimizing their data with governance and workflows.

When implementing the model that works for your business, remember to start small: Pick one sales channel and focus on solving the data issues, thereby creating better connections and workflows. Doing so empowers you to see progress before taking on a long-term project.

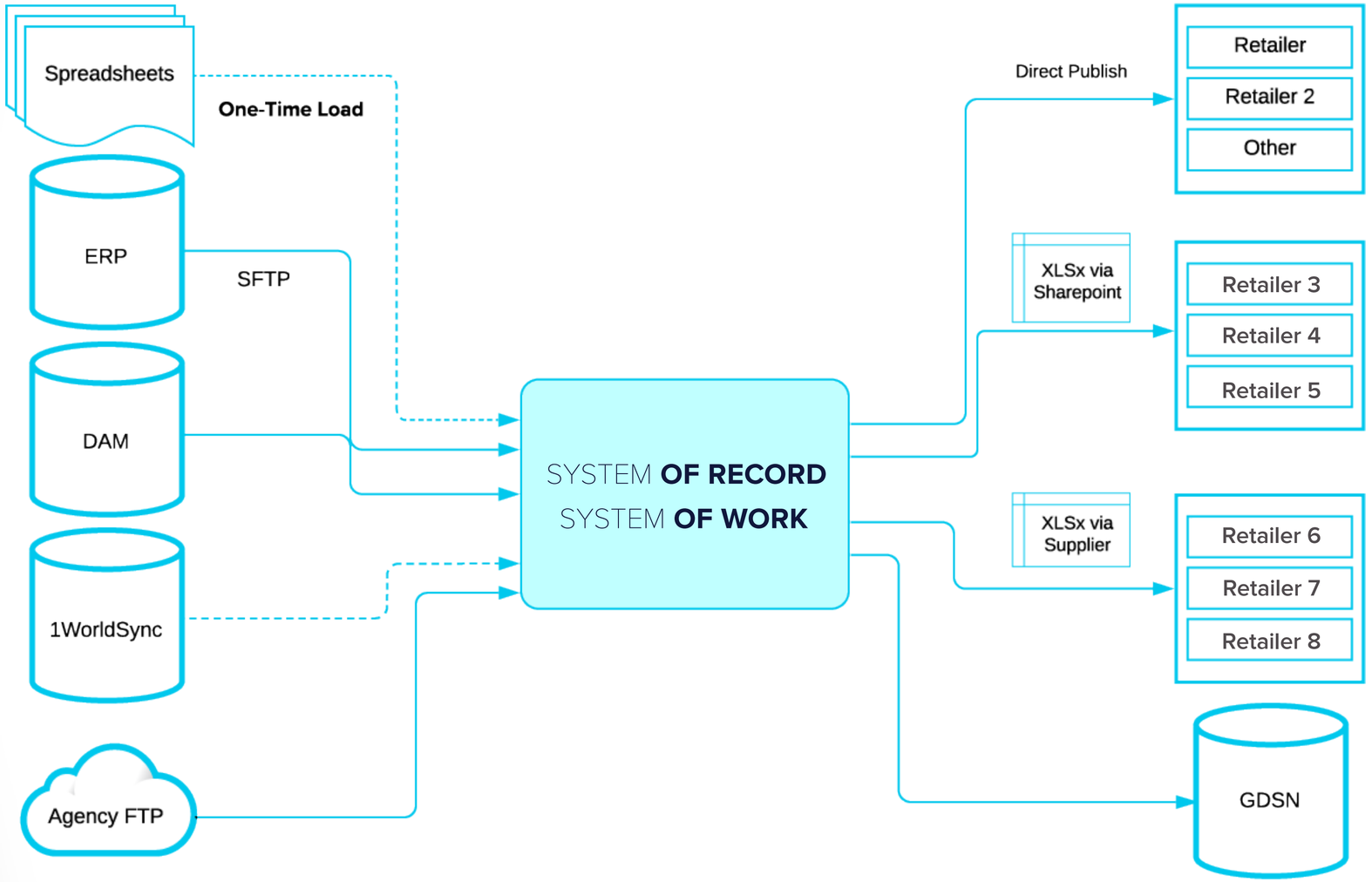
- A national retail-focused, consumer packaged goods (CPG) organization
- A national omnichannel CPG organization
- A national furniture organization with a retail footprint and a direct-to-consumer (DTC) site
- A national business-to-business (B2B) industrial manufacturer with distributors
- A national omnichannel clothing brand with social selling
- A global omnichannel do-it-yourself (DIY) hardware organization
- A global retail-focused personal care organization with brand awareness sites
- A national B2B industrial medical supply company with targeted sales

A National **Retail-Focused CPG Organization**

Operating in one country and reliant on retailers, this food and beverage manufacturer has an ERP and a digital asset management (DAM) system. Throughout the organization, some data still lives in spreadsheets, and some agencies provide images and product information over a shared cloud drive. Many of their required attributes are up to date and supplied through 1WorldSync because of a legacy relationship.

The company's goal is to go live and stay up to date across the full set of product SKUs for key retailers, many of whom have required syndication processes and platforms. They also need to be able to send product information over a GDSN to reach all of their long-tail retailers.

This manufacturer's setup is straightforward, constrained by their retailers' processes and requirements. Over time, though, eliminating their spreadsheets and 1WorldSync feed could enable them to simplify their data sources and reduce opportunities for error. By centralizing product information into a single source that allows for collaboration and optimization, this architecture allows marketing, sales, and ecommerce team members to stay aligned with the best available product information. This will ensure that everything that gets sent to customers is accurate, consistent, and complete.



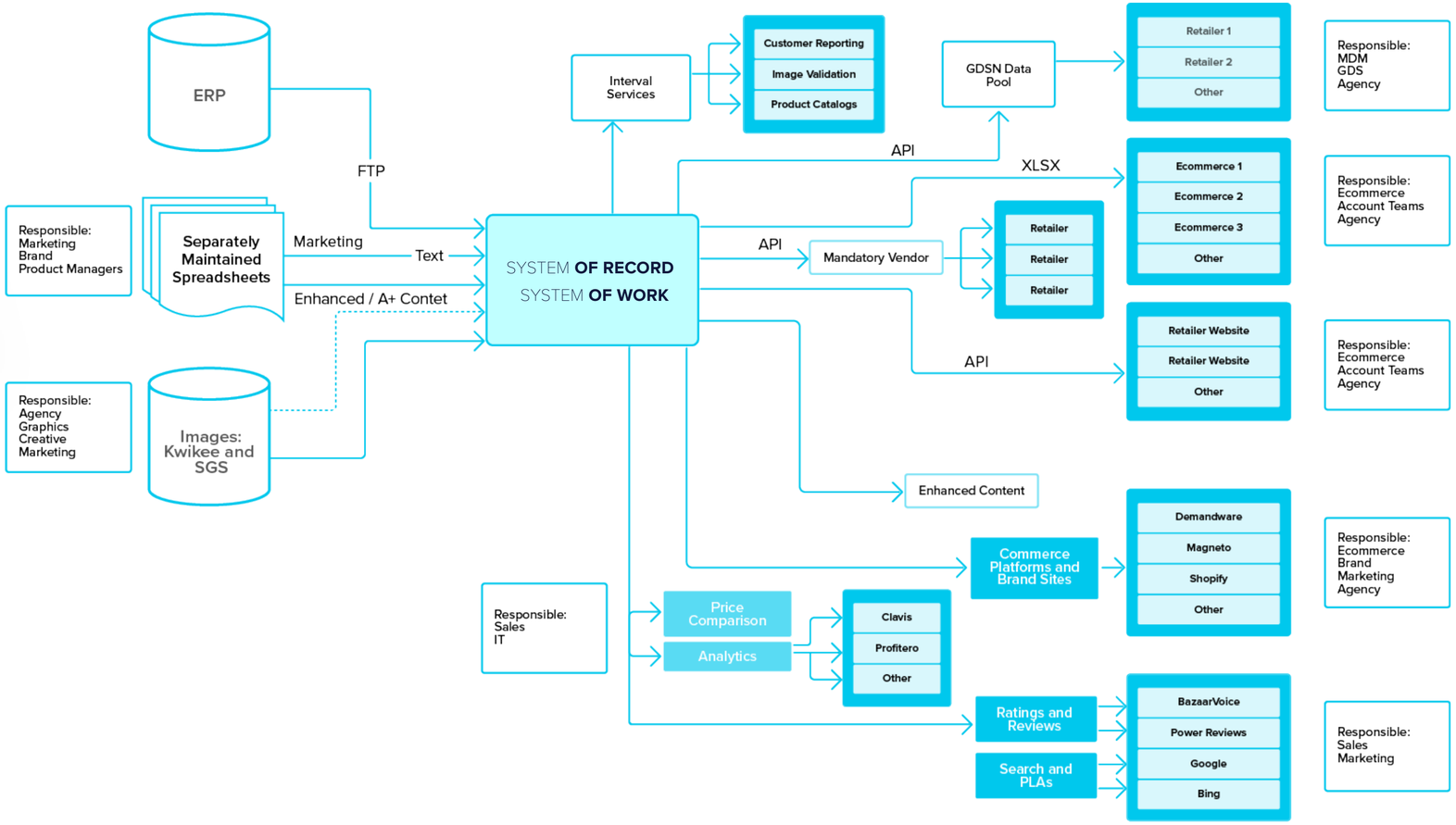
A National **Omnichannel CPG Organization**

This CPG organization has a sophisticated omnichannel system that gives internal stakeholders access to product images, custom reporting, and sales collateral. They have an established ERP for pricing data, but most marketing data lives in spreadsheets, and their creative agencies use a separate DAM for content.

The sales team uses software to analyze and adapt content based on pricing comparisons, consumer reviews, and search changes. By feeding these insights into their central source of information, the team is able to make and automate any needed adjustments.

In addition to selling on key retailers and listing products in their GDSN data pool, the company also sells several product lines directly, which requires integrating data with several ecommerce platforms. Lastly, the company sends data directly to product listing sites that consumers commonly use, such as Google. This allows the brand to ensure that the listing a consumer sees initially matches the information they'll see at the point of sale.

This architecture centralizes product information, allows the company to meet changing retailer requirements, and gives them the ability to build their own branded websites. The company's workflow focuses on getting product imagery to internal stakeholders and point-of-sale endpoints — and it creates a feedback loop that enables sales and marketing to collaborate and respond to fluctuations in pricing, search terms, and customer reviews..

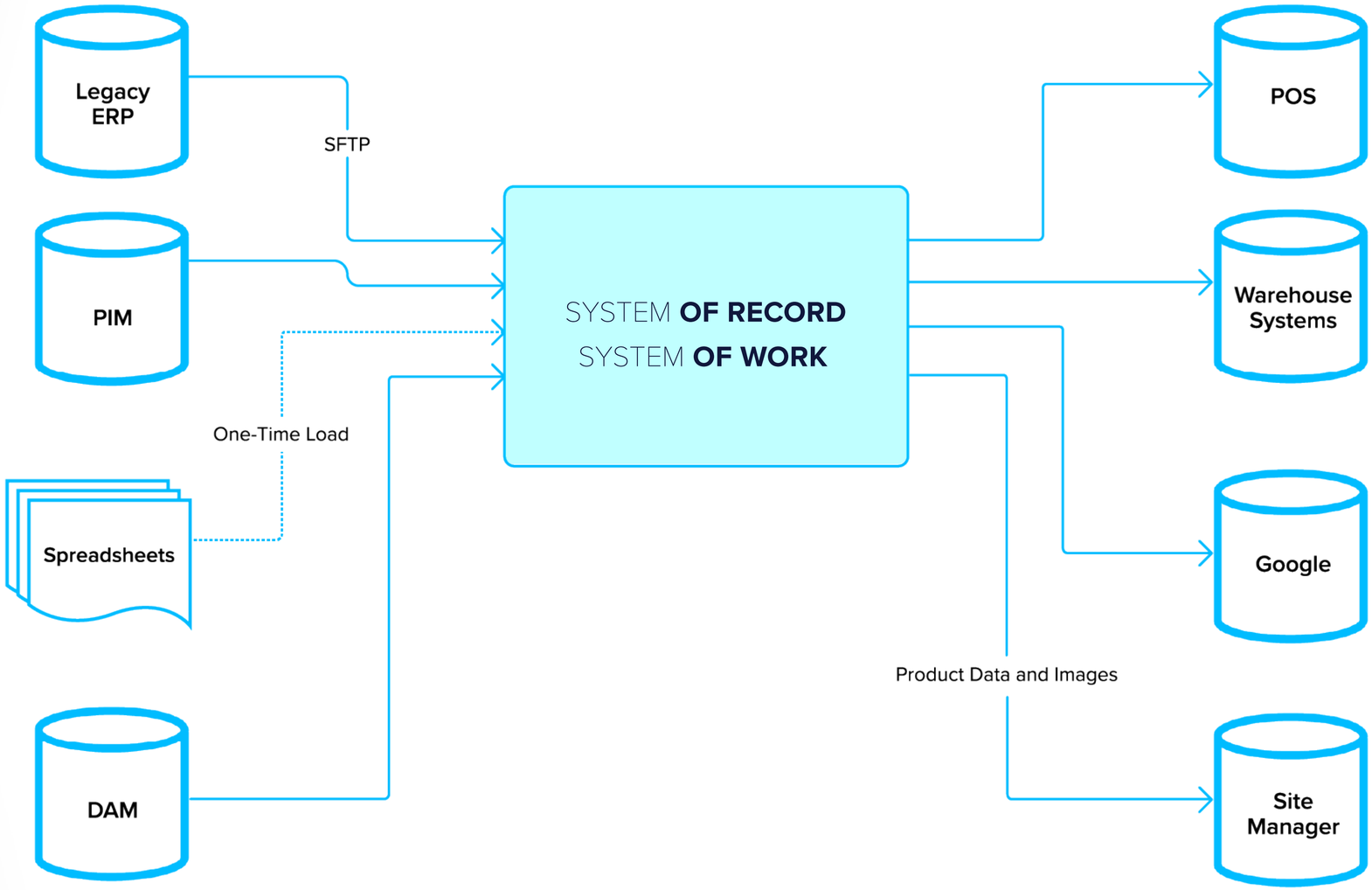


A National **Furniture Organziztion With a Retail Footprint and a D2C Site**

This furniture brand has a solid brick-and-mortar and ecommerce retail footprint. To house the majority of the data updates they produce, the brand uses a legacy ERP. They store some of their item data in a PIM, however, and their marketing data lives in spreadsheets, which are used throughout the company. They manage digital assets in a separate, custom DAM that allows internal stakeholders to directly request changes.

The company has a direct feed to both Google and its ecommerce platform, and they feed product data into a point-of-sale (POS) system. This helps them manage pricing, returns, and other transactions in their brick-and-mortar location. They also send product data to their warehouse system to ensure that inventory and shipping are handled correctly.

This company's architecture centralizes and optimizes product data and images before they're sent to the necessary sales channels. Through this basic setup, the brand is able to eliminate the use of spreadsheets and add new sales channels as new use cases pop up. In the future, this organization may need to add additional retail channels, options to export data to social media, or new direct selling platforms.



A National **B2B Industrial Manufacturer With Distributors**

With an enormous catalog of detailed parts, this company is an industrial manufacturer that relies on distributors for the majority of its sales.

In addition to an ERP, this company uses an MDM to house product family details. It leverages an electronic data processing (EDP) system to automatically process its product variants, and it has an internal FTP that allows individual product teams to import new SKU details. Like many organizations, the company began by using spreadsheets to hold marketing information. These spreadsheets could be imported into the system to help centralize data into a single source of truth.

To get its product data out to its long list of distributors of varying sizes and with different endpoints, the company uses two different methods. For large distributors with consistent requirements or detailed FTPs, the company creates a feed of template exports that allow distributors to meet those business requirements. For long-tail distributors who often order directly from the company's Salesforce system, the brand publishes a unique set of digital product catalogs that they can customize by product line, product representative, or other variables. This provides them with an automated, controlled way to display a full set of relevant SKUs to the right buyers.

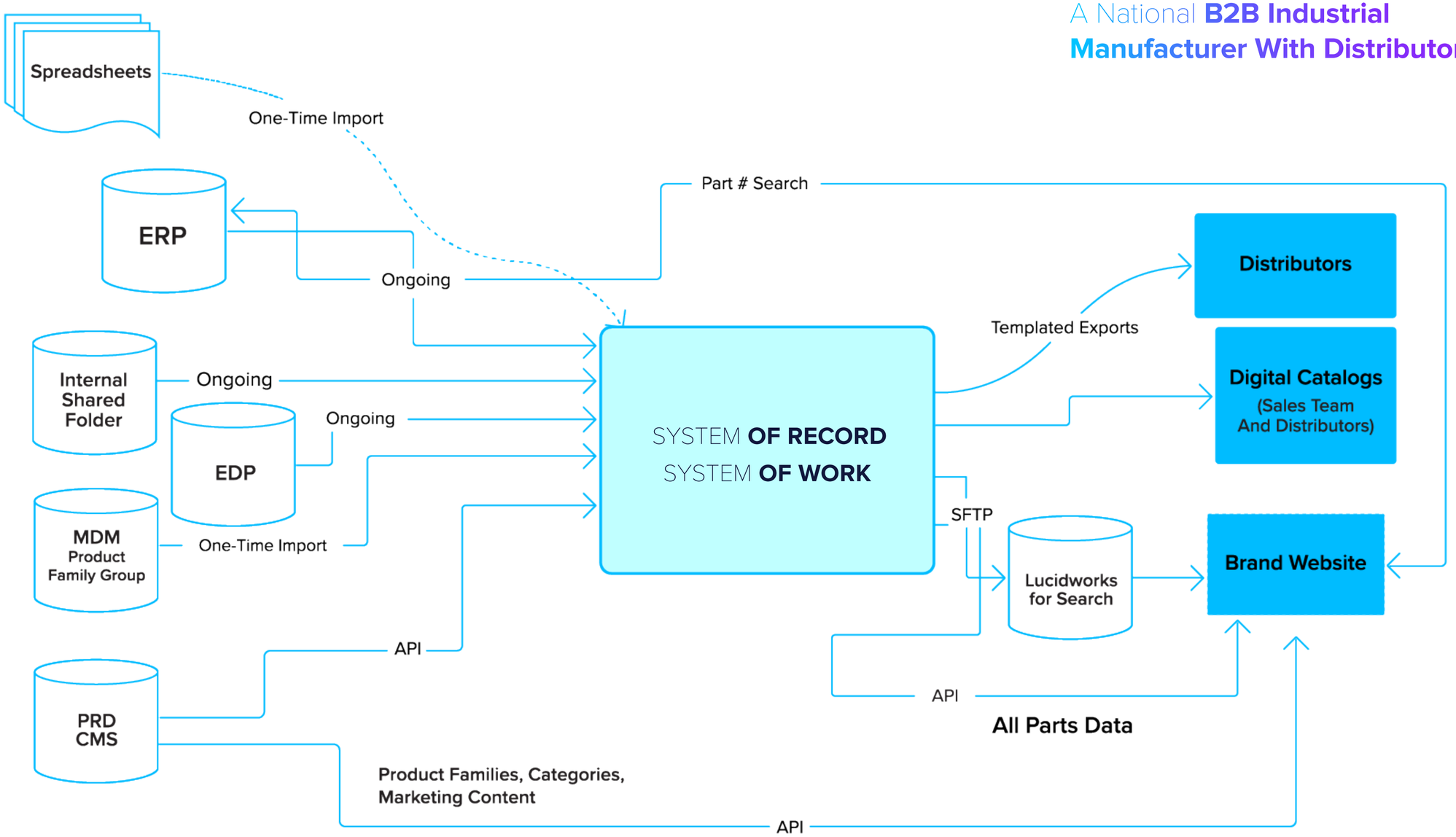
This company also has a brand site, which uses enhanced search functionality and a high-quality customer management system (CMS) to ensure that any buyer can find the breadth of products online, quickly locate what they're looking for, and get a consistent experience across all SKUs.

This architecture is an excellent example for any brand with a detailed or technical product catalog. To cater to the needs of distributors and buyers seeking specificity and product details, the company has built a workflow that allows teams to efficiently process in-depth items, manage complex product hierarchies, and focus on search optimization.

Diagram **On The Next Page >**



A National **B2B Industrial Manufacturer With Distributors**

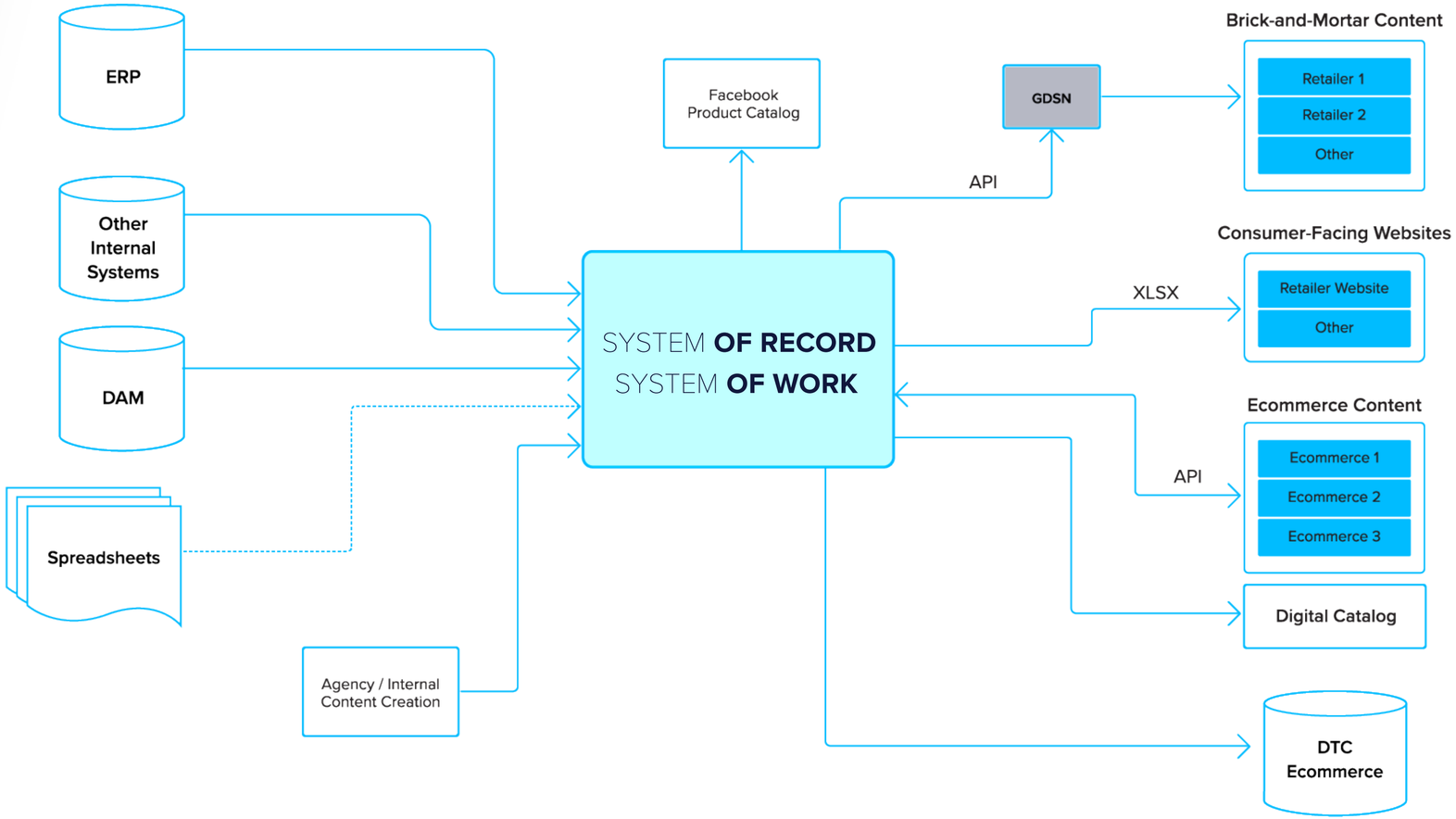


A National **Omnichannel Clothing Brand With Social Selling**

With a standard ERP, a DAM, and an extremely diverse set of sales endpoints, this clothing brand needed a way to manage rogue spreadsheets and maintain a direct connection with their content creation agency. In the future, they might add an internal POS or a warehouse management system (WMS) to manage inventory, log store promotional details, and help avoid running out of stock.

The company sells direct-to-consumer online, through marketplace ecommerce sites such as Amazon and Facebook. Using a custom product catalog for their social media channels allows them to test and learn a subset of inventory. Additionally, the company uses a GDSN data pool connection to send approved global trade item numbers (GTINs) to multiple major brick-and-mortar retailers. They also use a direct API to send GTINs to several key ecommerce channels.

Lastly, the brand maintains a network of distributors, keeping them furnished with product information via customized digital catalogs that are gated so each distributor has access to only their inventory's product lines and pricing.

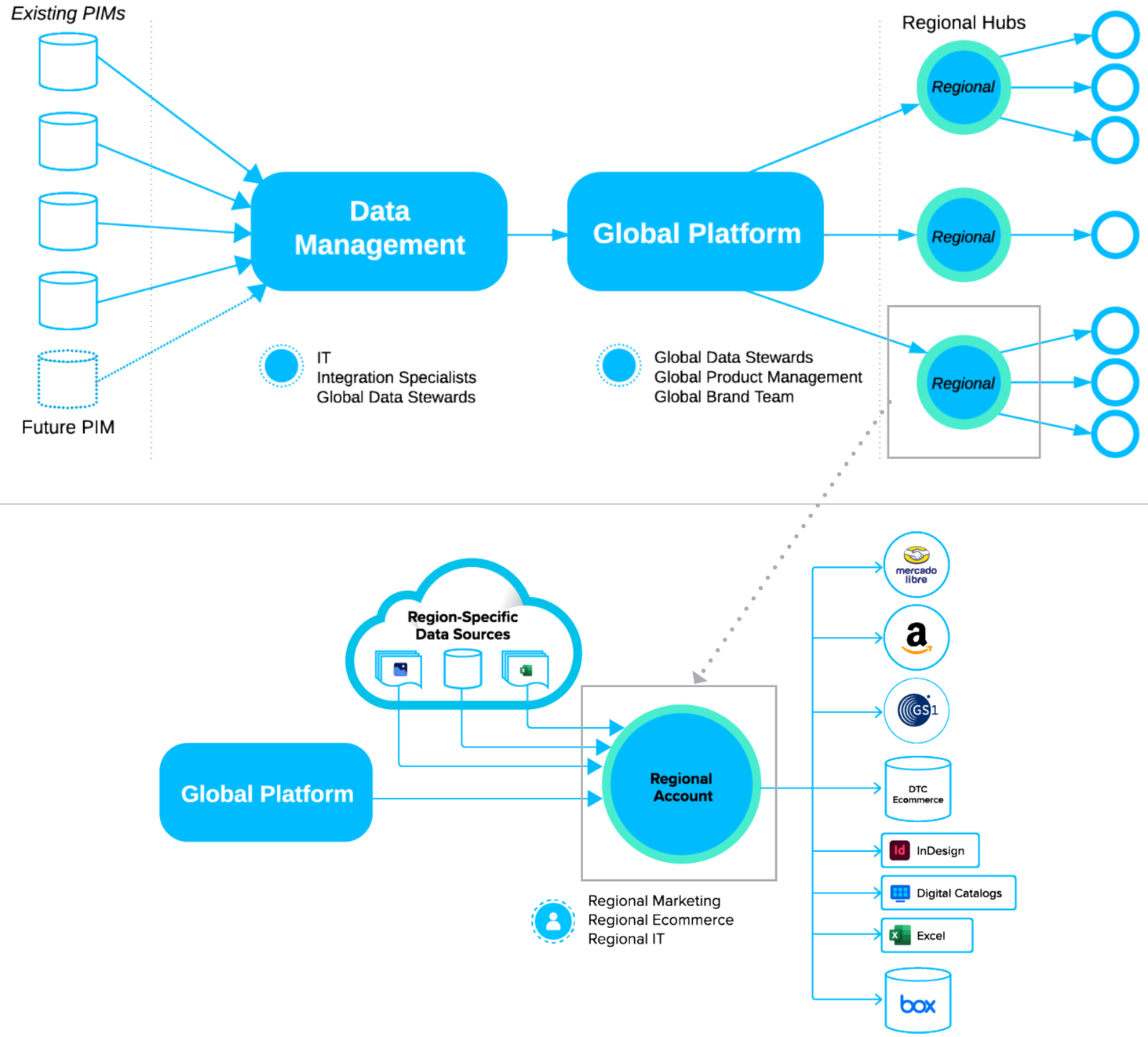


This architecture demonstrates how to effectively manage a diverse set of sales channels — both traditional and new — and build on incremental success. This company has several manual syndication strategies, such as using Excel exports and FTPs for marketplace listings. By exporting from a centralized source of truth, however, the business is able to evaluate each channel's speed to market, efficiency, and profitability to evaluate where they should invest in automation next.

A Global **Omnichannel DIY Hardware Organization**

This global hardware brand has a strong omnichannel presence with both retail and marketplace strategies in place. They have several PIMs that house data based on product line and manufacturer, enabling them to centralize all product data. From there, they can send the data onto a system to enhance each SKU with branded content. Each region has their own separate instance so they can translate the data and include any necessary regional details. Throughout the data transformation process, there are governance rules in place, so only the specific regional hubs can access and edit most technical specifications, such as materials or size.

This brand's setup allows them to provide each of their regions with the most up-to-date and high-quality product resources. It also gives each team the freedom to make adjustments for their local markets, sellers, and customers. Building this type of architecture enables IT to duplicate best practices from region to region, as well as allocate resources based on activity and level of sophistication in each market.

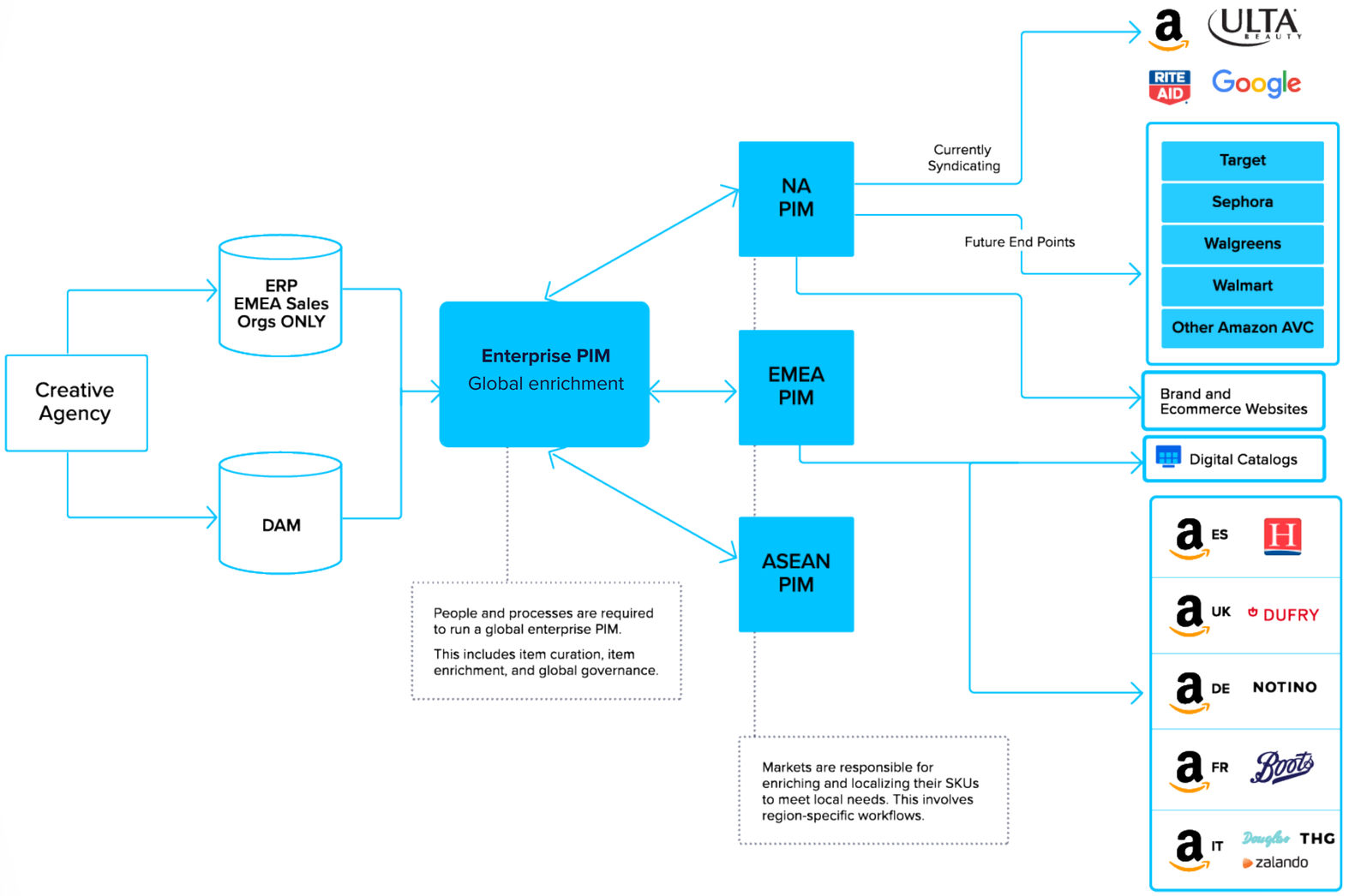


A Global **Retail-Focused Personal Care Organization With Brand Awareness Sites**

This global personal care brand has an omnichannel presence with brand sites, retailers in three different regions, and some B2B product sales. Working with a creative agency, they store product information in an ERP and creative assets in a DAM. Then, they centralize all product information to a single global PIM for item curation, product enrichment, and global governance. They send all relevant product data to regional PIMs, allowing each market the ability to enrich and localize their information.

The company is expanding its footprint in each region. In North America, for example, they're actively selling through brick-and-mortar, ecommerce, and online marketplaces, with plans to expand to more retailers and eventually launch a DTC channel. Its retailer footprint in Europe, the Middle East, and Africa (EMEA) is currently well established in six European countries. The company uses self-service online product catalogs for their long-tail distributors in that region.

Through this setup, the brand is able to build regional workflows that suit the needs of their local markets, while providing everyone access to the most up-to-date and high-quality product data. The architecture allows IT to grow each region and allocate resources based on the current state and future goals of each market.



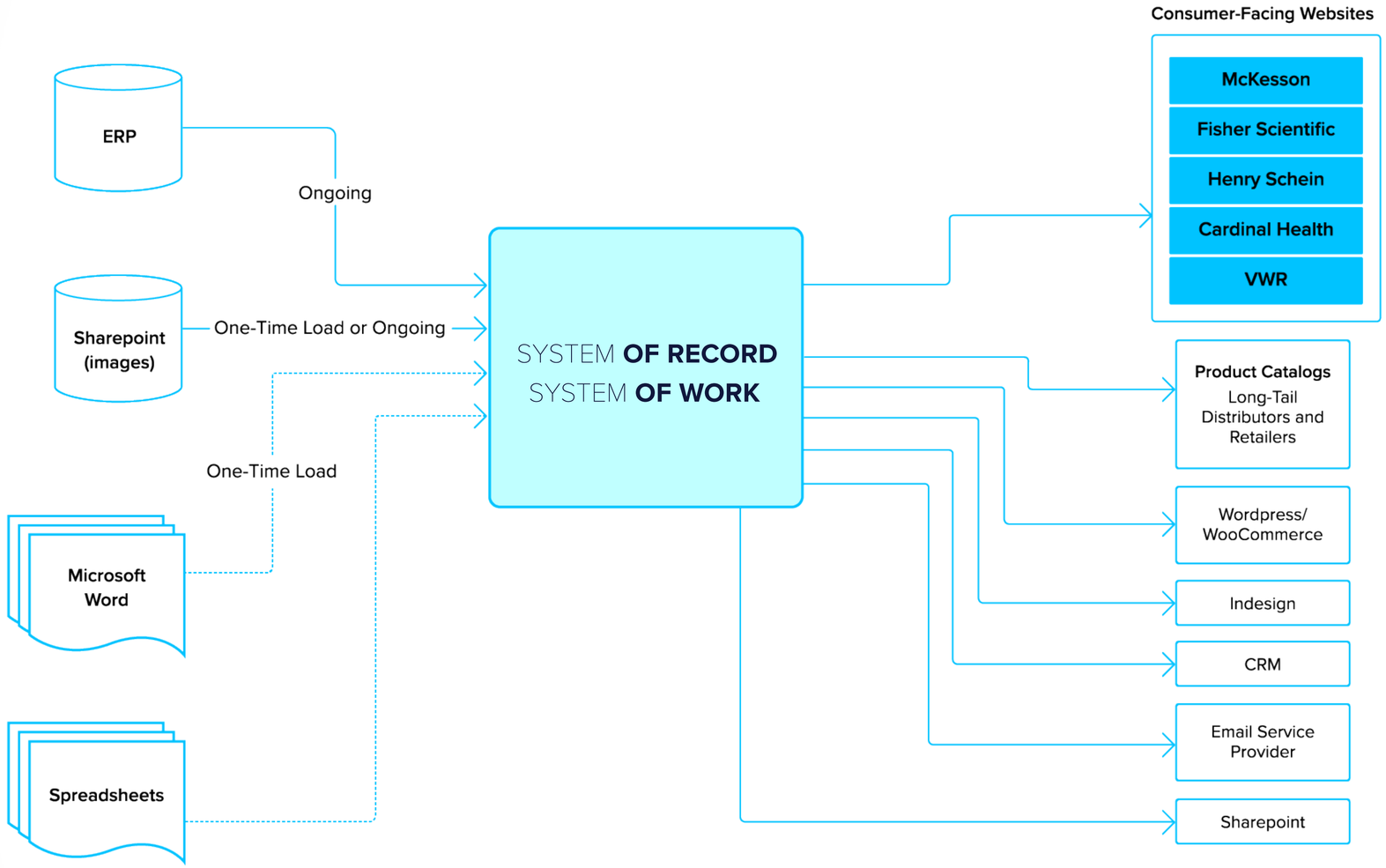
A National **B2B Industrial Medical Supply Organization With Targeted Sales**

This industrial medical supply manufacturer sells through several B2B suppliers and distributors. While they have an established ERP and a shared storage system for digital assets, they still house some data in documents and spreadsheets throughout the organization. They add these files to their system to create a single source of truth.

The company serves their specific set of B2B buyers through FTP exports and their long-tail retailers through a self-service digital catalog. They also have an ecommerce platform that hosts a brand site and a product catalog. To better reach customer segments with detailed product information and updates, the company exports product data to a variety of internal tools, including:

- Design software for print catalogs;
- A CRM for managing buying history and supply recommendations; and
- An email marketing platform to support outreach campaigns and customer communications.

This architecture works well for a traditional company that needs to maintain consistency in product information when selling to a targeted audience.





The Time to Improve Your Product Data Infrastructure **is Now**

Legacy MDM, ERP, and PIM systems weren't built for the realities of today's ecommerce landscape. Buyers are now shopping across multiple touch points, so companies need systems that empower their business users to leverage consistent, up-to-date product data.

Fortunately, today's technology allows market leaders to automate and optimize nearly every stage of their customer life cycle. You can build this functionality incrementally by investing in a centralized platform and assessing your customer needs, internal stakeholders, and existing data. Every step you take to improve your product information systems can help your business grow sales, reduce time to market, and gain operational efficiencies.

For more information on how to make the most of your digital shelf, request a guided demo of the Salsify Commerce Experience Management (CommerceXM) Platform.

SALSIFY

Request Demo