



# Reckoning Product Lifecycle (PLM) Non-Transactional Integrations

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Recently, Capgemini published a point of view titled, [\*Executive Insights on Application Landscape Management Report 2016\*](#), discussing the importance of effective application landscape management and its potential to be a major driver of profitability and market differentiation.

Here are a few key takeaways from the report:

1. Stability of systems, especially of core systems is essential for growth.
2. Rigor in operations, productivity improvements, and ongoing costs reductions are needed to avoid negative attention from business.
3. Automation is a repetitive task.
4. IT services should be meaningful to businesses and easy to order and change.
5. Integrated business-IT teams are useful to improving the efficiency and effectiveness of key business processes and production IT environments.
6. Application enhancement and development releases need to be agile from a business perspective.
7. Companies need to walk-the-talk on project delivery commitments.

Applications are becoming more internally complex and user friendly. Next-generation applications are more inclined towards users configuring and using and less of IT management. Additionally, analytics and integrations are becoming more intelligent. How is this affecting engineers within your organization? The day-to-day need for an engineer may result in complex integrations of combining data from multiple different systems. At the backend, solutions should help manage applications more effectively from the CIO level.

As a solution engineer, it's important to know how to effectively leverage application landscape management to improve the customer experience. Here are a few reasons that solution engineers are interested in improving non-transactional integrations:

- Customers expect more from the business
- Increasing need to drive customer loyalty
- Increasing importance of tracking and measurement
- Demand for an improved one-on-one experience for customers
- Ever-increasing prevalence of mobile technology

Internally, product development systems needs to interact with various applications or data sources, and data has to flow across different channels to get to the end point. At times the data becomes stale and at other times the data is inaccurate—which is important since data is the key to the success of product development. This paper will take a dive into non-transactional data and its integrations with product data systems.

Non-transactional interactions occur frequently in the modern organizational landscape. For example, personnel associated with product development may need information from different systems and different sources—both internal and external. Some potential use cases include personnel who:

- Are assigned to a project in a project management system, but may or may not be part of the product lifecycle management system.
- Are scheduled to do the task within a schedule management system, but may or may not be part of the project management system.
- Need access to existing parts within different sub-organizations, including sourcing, planning, engineering, manufacturing, installation and distribution, services, etc.
- Need access to parts from external catalogs like Grainger, etc.
- Need information around earlier revision of parts and products deployed at customer sites.
- Need access to specifications around the product.

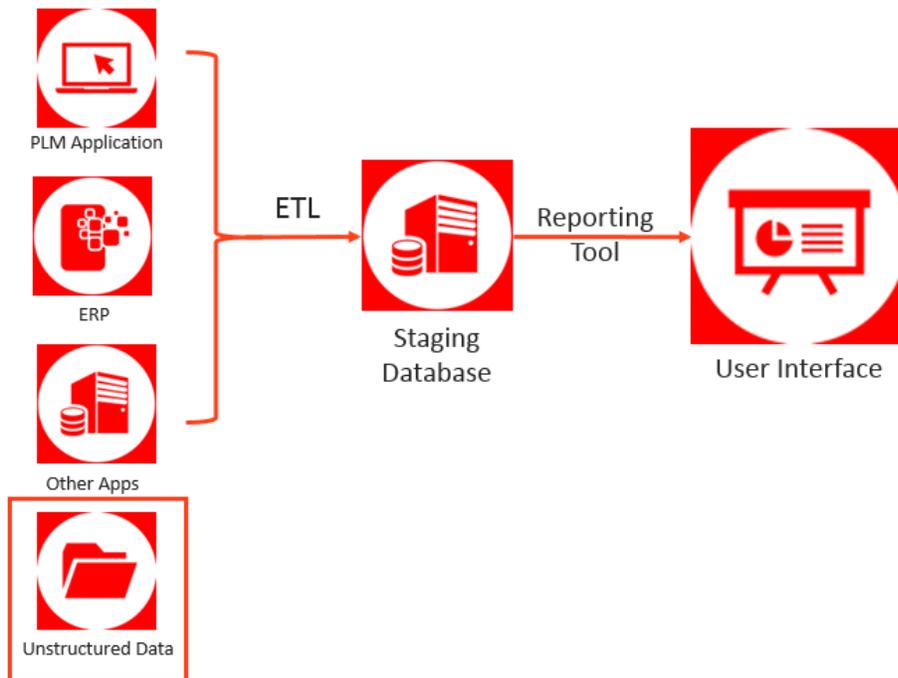
- Need information on any new material or part from R&D.
- Need information from external publications on specific part changes and new developments.
- Need a place to save information that would be helpful in an application.

### EXISTING PRACTICES FOR DATA INTEGRATION

When examining ways to better manage non-transactional interactions, it is important to determine the existing roadblocks to integration.

- Are there too many silos within the organization?
- Do departments have the information needed to complete tasks?
- Is there a better way to facilitate information transfer between departments?

Currently, generic solutions exist within the industry that help answer these very questions and assist with the extraction, transformation, and loading of data (ETL). These existing solutions allow you to connect to any application that you can write code on, extract the necessary information, transform as needed, and combine the data from multiple connections into one database. This data is then used to build reports for the end user to review. This implementation is depicted in the following diagram:



There are, however, a few potential downfalls to this approach. Note, for example, the missing connection in the diagram to the bottom left folder icon. A few other notable downfalls include:

- Business logic separation between the ETL & reporting tool
- Usage of multiple applications and tools with additional infrastructure management and high maintenance costs
- Practice applies to only structured data
- Absence of context specific processing for reporting
- Absence of integration with unstructured data

- Absence of data security

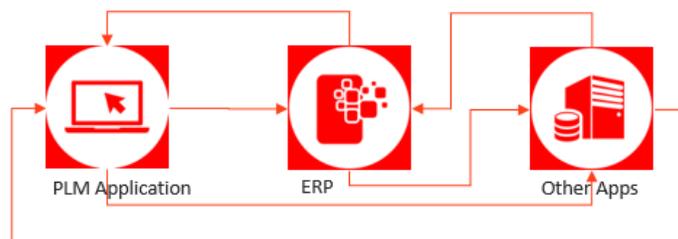
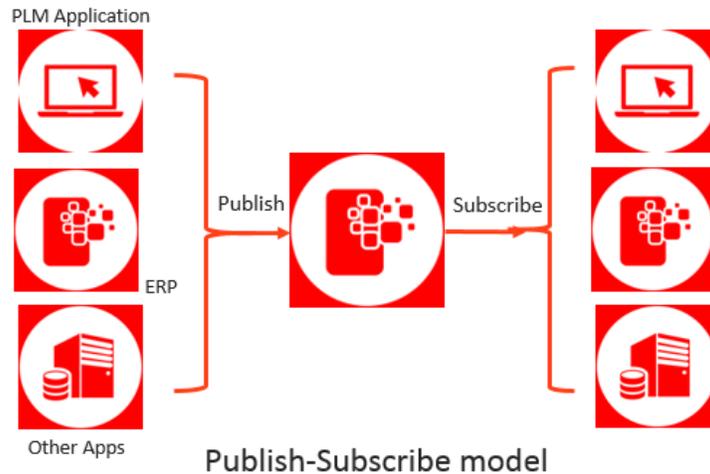
Two of the most notable downfalls to the above data ETL practice are the:

1. Inability to make sense or connection out of the unstructured data. Unstructured data is increasing day by day as companies look to tap data not only from internal but also external sources. Most of the data are in the files or in the cheat sheets. The inability to work with unstructured data means that large chunks of useful information is being ignored simply because the system does not know how to handle it. In order to make critical decisions, users need to have all relevant information available at their fingertips, not just the data that is easy to work with.
2. Lack of data security. Security is important as the organization grows and work with different partners it becomes critical to provide the right information to the right user at the right time to make the right decision. The lack of data security means that users could potentially access data which they are not authorized to view. This data could include things like trade secrets, sales and customer information, future products, etc. Allowing unauthorized users to view this information could give competitors a significant advantage over the company owning the data.

A second common practice for ETL deals with integration. The following diagram shows two ways the data is passed across different applications, and highlights where most of the enterprise architecture effort is exerted.

In the first practice shown, the Publish-Subscribe Model, any number of systems will publish data for any number of systems to subscribe to. The subscribing systems pick and choose which publishing systems to accept data from based on what the end users' interest. The published data is then collected, integrated, and displayed to the user by a separate reporting or search solution.

In the second practice shown, one or more systems are directly integrated together to share data. Each individual system needs a custom connection to each other system in the solution so that all data can be shared and used. Again, a separate reporting or search solution will be used to integrate and display the data to the user.



Direct integrations

As a result, the organization experiences the following downfalls:

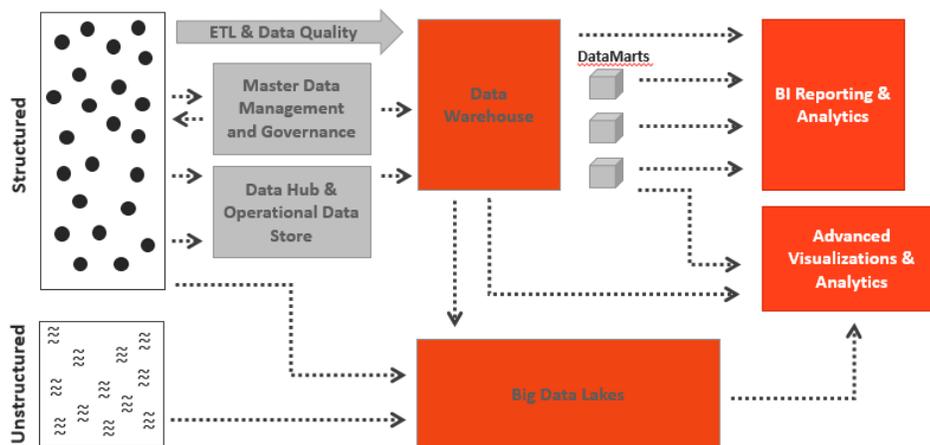
- Duplication of non-transactional data
- Multiple integration technologies
- Difficult and costly to maintain
- Advantage of pushing both structured and un-structured data
- Dependence on separate reporting or search solutions for end user reports
- Absence of integration with un-structured data
- Data Security lost in translation

Again, the biggest downfalls here are the inability to work with unstructured data and the lack of data security.

To solve the problems presented by the previous approaches, many organizations are turning to a big data solution.

When dealing with big data, there is a need for multiple toolsets that enable the organization to see the data in the needed form. In this approach, structured data is extracted using a standard ETL tool and sent to a data warehouse—ensuring the data quality remains intact during the translation. Data within the warehouse is used by multiple data analytics tools for reporting and visualization. Additionally, the unstructured data is pulled and added to big data lakes and consumed via other tools.

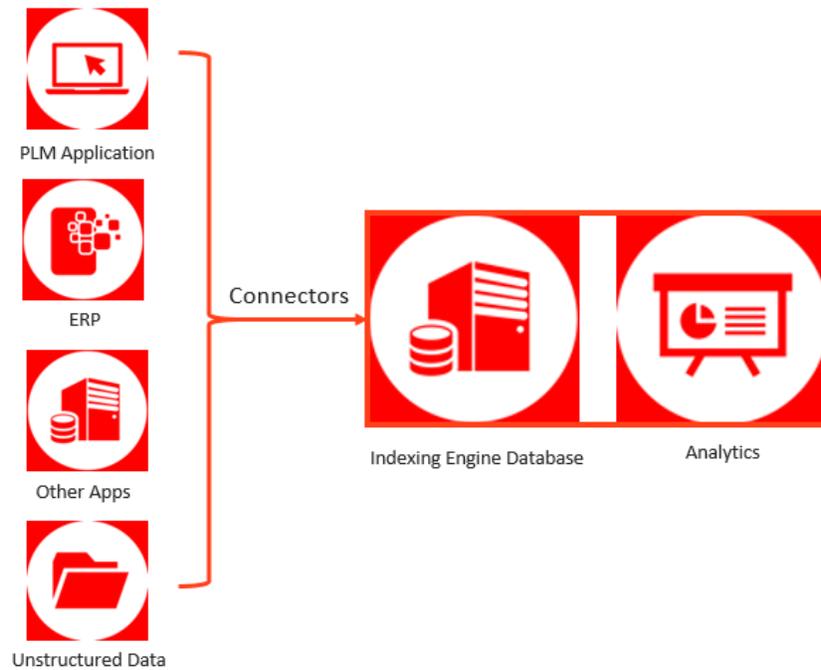
The problem with this approach is that there are too many integration points involved—increasing the risk of compromising the accuracy and timeliness of the data.



This solution manages to solve most of the issues with the previous solutions, but introduces additional complexity in doing so. Multiple tools are required for collecting, housing, and viewing all of the data, each with separate integration points between them. This is difficult and costly to maintain. Additionally, with the added complexity, even minor issues can cause major problems with the reliability and responsiveness of the solution as a whole. A new approach is needed that fulfills the roles of all of these separate tools in a single solution which abstracts this complexity away from the end users.

### AN IMPROVED METHOD FOR DATA INTEGRATION

Unleashing the power of product data intelligence can help simplify the solution’s architecture while providing more complete and reliable data. This is accomplished by indexing data from any and all systems, including both structured and unstructured data in near-real-time into a single dashboard, which is easily used and customized. This simplified architecture is depicted below:



This solution allows the organization to:

- Reduce duplication of data
- Logic in one application, lower maintenance costs
- Mashup builder helps build analytics UI
- Multiple OOTB connectors available
- Simple UI for building custom connectors
- Security rules respected for each application
- Solution pluggable within Product management applications and available as a standalone application
- Semantic processing enabled
- Making sense out of un-structured data and connection to structured data
- Middleware costs eliminated
- Near real time processing
- Original application data remains as-is
- Assist with data analysis & cleansing
- Near term wins followed by long term

This approach addresses the prevalent issues present in the previous solution, especially when it comes to working with unstructured and structured data, and enforcing security rules across all applications. Additionally, combining the ETL and reporting tools into one single application simplifies the solution and, most importantly reduces maintenance costs.



Product data intelligence using Dassault Systemes EXALEAD products may be an effective way to manage non-transactional information. EXALEAD is a stable product and may be configured to be managed by business and not core IT. This solution brings in the efficiencies of the performance, scalability, and effective analytics to the users and thus reducing the overall IT pains and maintenance. The analytics dashboard may be configured to specific data leveraging the core strength of search-based analytics, making it more user friendly. The ease of implementation and configuration serves as the cherry on top.