



RADIUS SUPPLY CHAIN CONTROL TOWER

MAKING STRUCTURED
& UNSTRUCTURED
DOCUMENTS & DATA
ACTIONABLE

AN INNOVATIVE APPROACH
TO ENTERPRISE INFORMATION
ORGANIZATION & ALGORITHMS



BOARDWALKTECH

The Supply Chain Control Tower |

The Promise of Better Transparency & Visibility

Not many concepts over the past few years have generated as much interest within the supply chain community as a control tower and the promise that with better transparency and visibility into today's chaotic, uncertain, and risky supply chain environments, control towers can benefit modern manufacturers and retailers by helping them navigate through the uncertainty.

In today's world, the supply chain has radically transformed, becoming far more digitized, global, decentralized and networked, where companies have a more siloed supply chain data than ever before – vital information that can enable real-time insights and improve operational performance.

When traditional enterprise management systems like ERP, MRP and PDM were invented, most companies were vertically integrated. Quite logically then, these systems were designed for functional management within a single enterprise.

However today, because of outsourcing, most information that helps to determine a company's success and drives profitability resides or is generated outside of its four walls, an area that conventional planning and ERP systems – which are based on centralized conventional SQL technologies - are simply ill-equipped to manage. The result is that each trading partner is forced to use its own planning system and create its own planning and operational data.

A Deloitte Global CPO Study found that just 6% of respondents had full transparency of their entire supply chain, while 65% had either no or highly limited visibility.

This means critical information that would be of use to the entire supply chain, such as upstream consumer demand, is siloed and effectively invisible. Since traditional database technology never addressed the need for a common, universal data environment that could work across all planning functions, it certainly cannot address the expanded scope of data seen in today's modern supply chain. If you want to realize the promise of a supply chain control tower and gain better transparency and visibility, it's time for a change in the way you manage enterprise information.

The average global manufacturer has roughly 150 systems in place, resulting in the same systems integration, coordination, and visibility problems that companies are facing outside their four walls.



FROM REALITY TO DOCUMENTS TO DATA

An organization in its purest form is reflected by its professionals, their intent, their knowledge, and their recorded documents. The document is a representation of what is true – whether it be the description of a product, an invoice, a shipment notice, a purchase order, or other business artifact.

Today's modern computing environment is operating on data that has been transformed multiple times on its journey from a document representing reality, to the codification of the information in that document and automation of the business processes around it.

Further, there is massive investment in new big data infrastructure to handle the compounding growth of data both structured and unstructured – with the focus on the transformation of the data to structured forms for query and analysis, or data science.

We got here through an evolution that started from early computing with files and limited memory and storage. The combination of advances in computing power and the drive towards software abstraction layers led to the relational era along with data modeling and semantic representation of the real world with data structures. Although the industry has evolved significantly with other database methods, the fundamental idea of representing the real world through transformation to structured formats persists. But what if we could start today with the advances we have now? Would we do it the same way? We suggest not. And we are here to explain why not – and to suggest a compelling alternative.

WHAT'S WRONG WITH THE STATUS QUO?

Let's explore each of these:

- 01** Data Distortion and Corruption
- 02** Loss of history
- 03** Rise of Unstructured Data
- 04** Document relationships are lost
- 05** Transformed data coverage has limited outcomes
- 06** Data Lakes are having high failure rates
- 07** Machine Learning may be operating on limited data sets - with limited effectiveness



Areas of Distortion & Corruption Ignored

01

Organizations regularly invest in database-driven systems with the intent to transform, scale, or automate existing manual document-based processes. These transformation efforts lead to the corruption of the aforementioned terms, due to limitations of the technology, short project times, modeling expertise, and lack of domain knowledge.

During the transformation effort, these terms are changed, corrupted, and copied multiple times from:

1. Document terms to Database Column names or Table names
2. Database names to SQL Queries and Result sets
3. Result sets to Classes, Attributes, and Objects
4. Objects to APIs
5. APIs to BI systems, Data warehouses, ML engines



ERP systems evolved from financial systems or manufacturing systems to resource planning systems. In the process, so have their schemas. Schemas represent a patchwork of data model changes either by evolution or acquisition. There is no single universal, well-thought-out schema that fully reflects an organization's data.

It's not just an issue of how to model the data that's troubling. When an archive of documents is replaced by a system, the system rarely if ever captures a baseline of the past state of the organization. At go-live, the system simply compromises by locking in the initial values, resulting in loss of document history. Decision-makers are then at risk of repeating their mistakes.

Once the system is deployed, the organization creates/receives new documents. Due to the limitations of database technology, when new updates are absorbed, the old values are overwritten or multiple versions of the document are created, but not the data within the documents. Disconnected archive logs are sometimes stored but are generally unusable to the business. As the systems do not capture the full document or data history, learnings from these systems are neither complete nor trustworthy. This explains neatly why all business professionals today can only do searches that turn up millions of hits for a given phrase. Whereas what's really needed is the ability to do research—how is what I am searching for related to other curated data and, very importantly, how has it changed over time.



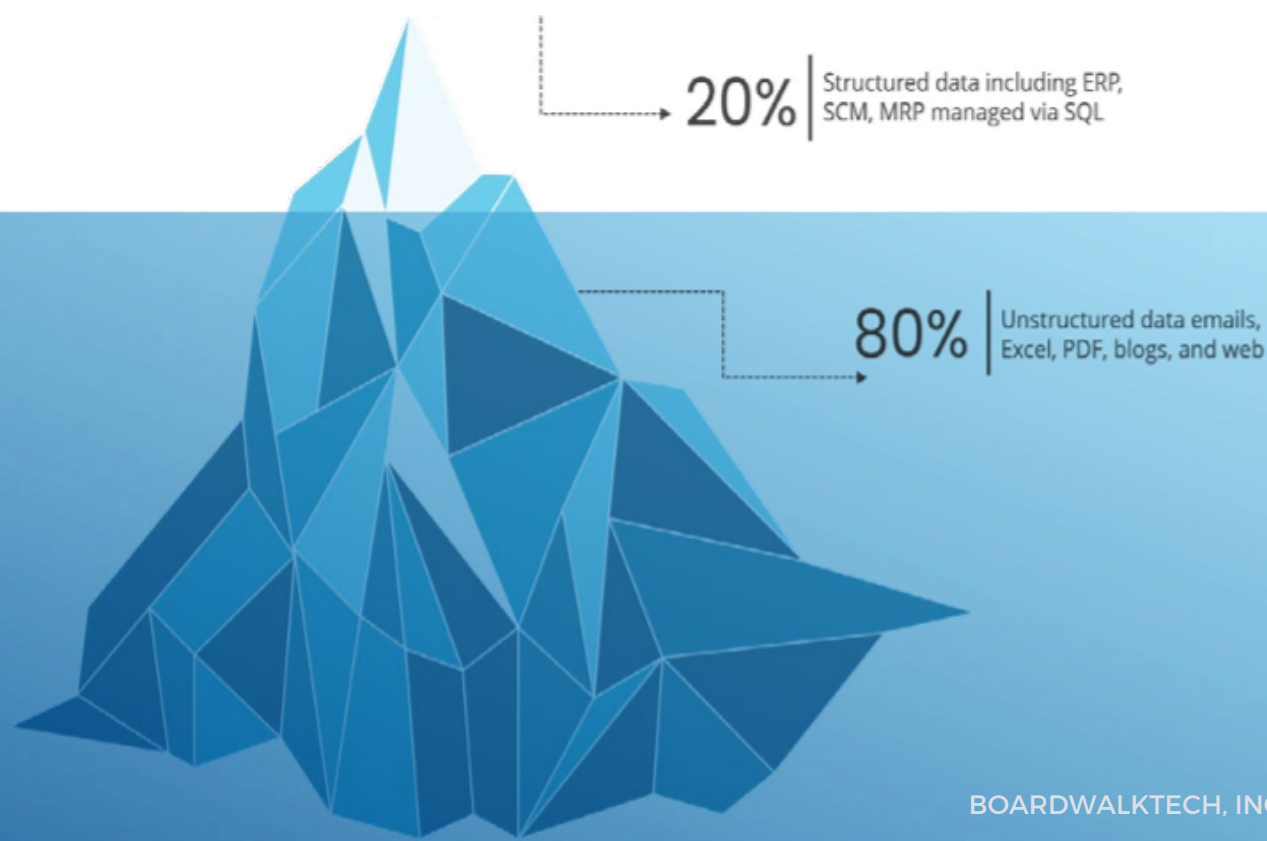
The Rise of Unstructured Data

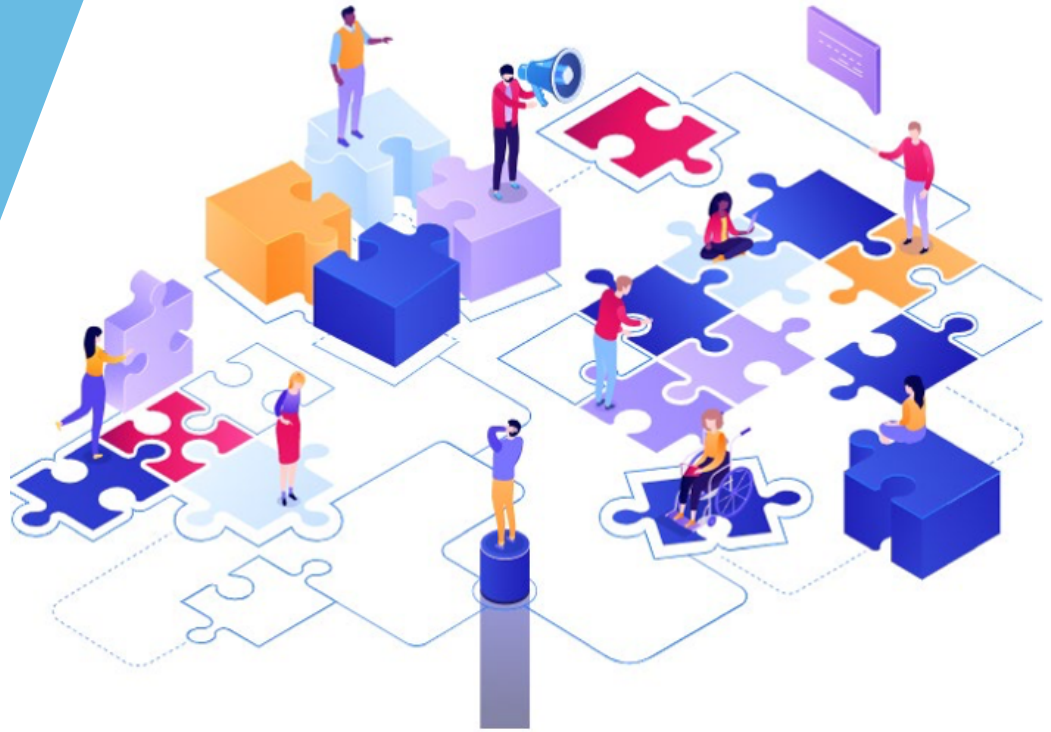
03

Organizations are experiencing an explosive growth of unstructured documents. This growth is driven by the ability of the business to easily express their intent in a document. With only about 20% of transactional schema-oriented documents converted to a database schema, the systems ignore about 80% of the organizational knowledge locked up in unstructured form. The remaining proportion of documents, such as emails, Excel files, PDFs, blogs, and web content, features many terms that are not actionable within traditional enterprise information management systems.

Even for common document types, the organization receives a variety of documents that reflect the nuances of the partner organization, its size, and its business models. Most database schemas are a compromise or the lowest common denominator across all documents. The result is a loss of fidelity for critical document information. As these systems do not reflect the full breadth of the document pool, learnings from these systems are also neither complete nor trustworthy. This combined lack of history and coverage results in information blind spots for the business. This also means any control tower effort is going to be very limited in what it can actually leverage for better transparency and visibility.

According to Datamation, Unstructured data makes up 80%+ of enterprise data, and it is growing at the rate of 55%+ per year





Relationships Reimagined, Lost, & Hardened

04

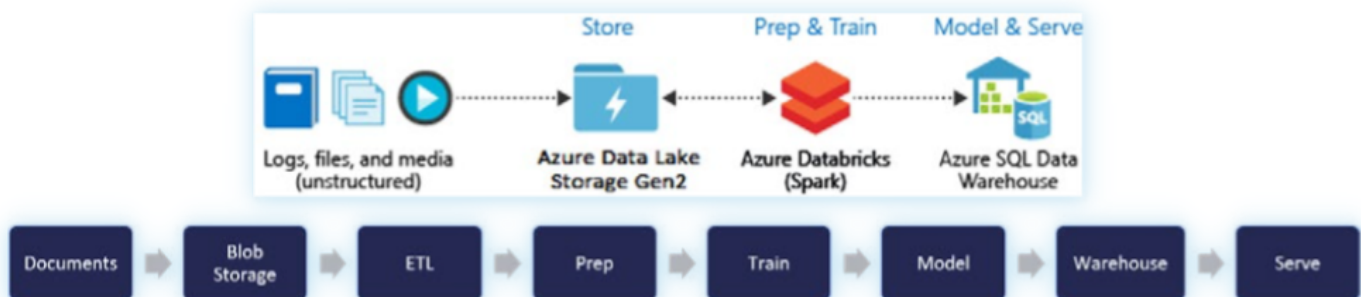
As every document and its related documents are reimagined in the database, so too are the relationships among these documents. Like natural terms, document relationships are also corrupted when they are copied, digested, and partially reflected in every system layer.

Business information, as it flows into the organization, comes in ripples. Due to the rigidness of these systems and their modeled/hardened relationships, the systems do not accept the information in its incomplete form. This situation forces executives to create documents to store partial data, resulting in the alienation of the executive from the business.

05 Limited Outcomes Based On Partial Data

The traditional approach for control towers working with conventional enterprise information management systems calls for programming and ETL-based conversion of unstructured data to a data warehouse before it is usable by a reporting or machine learning environment. This approach is:

- Expensive
- Covers a limited set of data
- Transforms only a partial data set
- Needs schema modeling
- Supports only predefined queries limited by the schema



The Data Lake Challenge

06

To get around this historical limitation of “have to get to SQL”, there has been a major push to use data lakes to capture all structured and unstructured data. But the data lake quickly turns into a data swamp that collects unusable data in its raw state, quickly becoming old forgotten data, leaving the business user to navigate this unmanageable data set. This forces IT to invest in significant transformation costs to convert this information into a structured form for reporting and querying.

Let us take a step back and evaluate this idea of building a lake of data from an end user's perspective. The business user with a specific role is interested in their function, their assets, their people, their partners/customers, their events, their documents, their peers, and their connected processes. This turns out to be a few assets, a few customers, hundreds of purchase orders or shipments, and a few events. As data lakes accumulate massive amounts of data, the ability for the user to get their view of what's important in a timely way becomes increasingly difficult.



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Machine Learning

Most data analysts spend only 20 percent of their time on actual data analysis and 80 percent of their time doing tasks of little business benefit like finding, cleaning, and modelling data

Where We Are Today...

So, where does this leave us with traditional database information systems that interpret the business environment?

- 1. The SQL models/Data Warehouses/Data Marts reflect a partial view of the real world**
- 2. The Objects Models (Java Layer) and Methods represent a partial logic and algorithms in the real world**

And as the real world becomes dependent on these information systems:

- 3. The rigid information systems cannot keep up and the business drops the system and goes back to documents and manual processes**
- 4. The business becomes bound by the system and the business starts to make decisions driven by the constraints of the system**

A Compelling Alternative

What if we could use what we know now to rethink the approach? And take advantage of the advances in computing, and the learnings of the last 30 years. How do we stand at the edge of the businesses looking out at the products, people, partners, documents, emails, chats, reviews, customers, trucks, ships, and internet-driven computing infrastructure, and envision a new way to represent and manage our businesses? We need a new way to organize and manage information; one that maintains a closer tie to the original information in documents, emails, conversations, and business knowledge. And this new approach must work with what we have today - while delivering the benefits of transformation, scale, and automation.



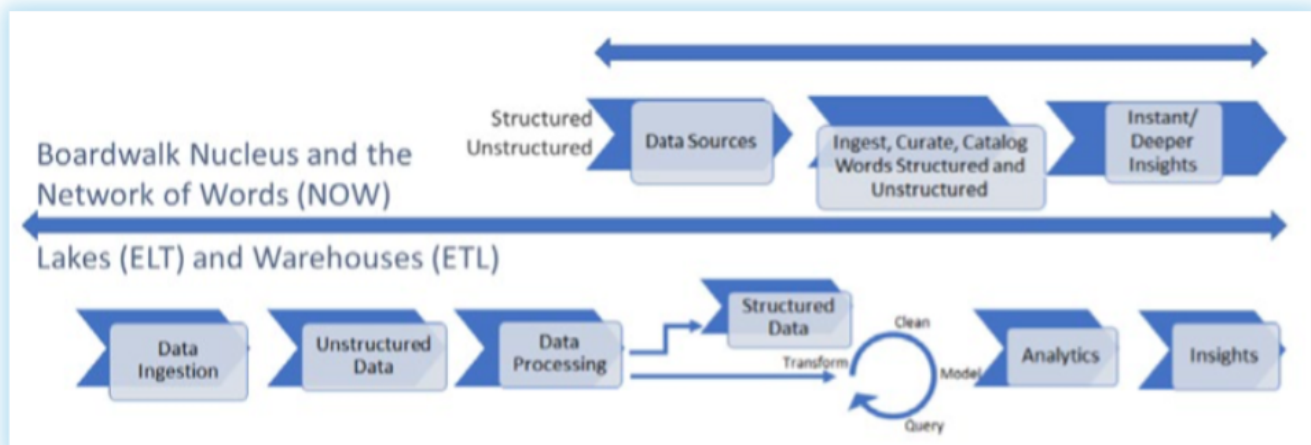
Introducing Network of Words (NOW)

“Words not Data”

The Network of Words (NOW) is patent pending technology that absorbs structured and unstructured elements to chart courses and derive insights that were previously not available to the enterprise either at all or not in a timely manner. It is a completely new way to represent, research, and correlate enterprise information. It seamlessly collects, correlates, and curates a data store of words that are sourced from structured and unstructured forms, e.g., SQL tables, bills of materials, documents, images, videos, emails, call logs and many others.

NOW brings powerful new capabilities to your enterprise information management efforts,

- Reads the content directly
- Interprets the headers, structure, and words, preserving the document context
- Correlates structured and unstructured data
- Cuts transformation time and reduces data loss
- Cuts custom SQL query writing
- Expands the search based on proximity and time enabling research
- Enables searching for a sentence across documents and databases



50% ↔ 80%

These powerful new capabilities result in a 50-80% reduction in the time to insight by eliminating legacy data alignment and transformation challenges while at the same time delivering on the promise of expanding the visibility of the enterprise into all relevant domains accessed by business professionals.

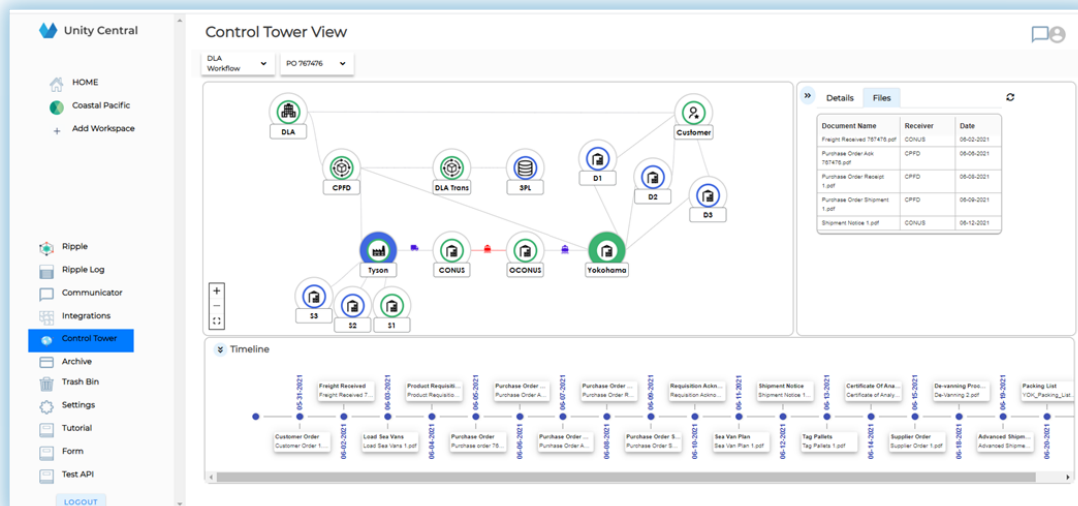
Boardwalk Radius Control Tower



Boardwalktech's first application delivered on NOW is the Boardwalk Radius Control which has 3 key components:

1. A Control Tower that correlates structured and unstructured information to give immediate visibility into the supply chain
2. An ability to create ad-hoc collaboration for rapid alignment
3. Purpose-driven multi-party-enterprise collaborations for well-defined workflows

What if we allow the business user to focus on their view of the enterprise and connect them to other views as needed?

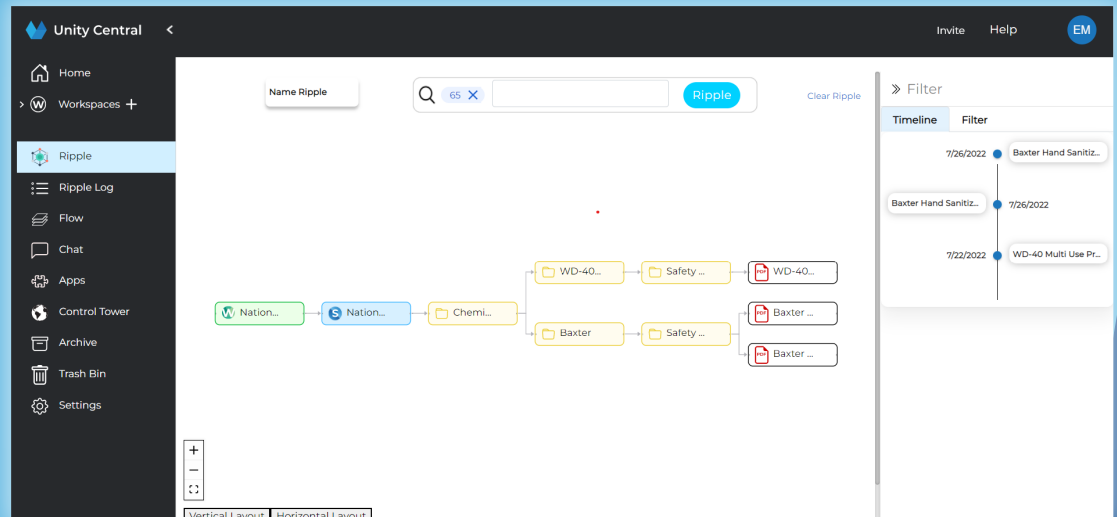


Shipment notices, inventory data, forecasts, and open orders are all presented visually with the provenance of all changes captured. Thus providing comprehensive Control Tower capabilities.

MAKING ENTERPRISE INFORMATION ACTIONABLE

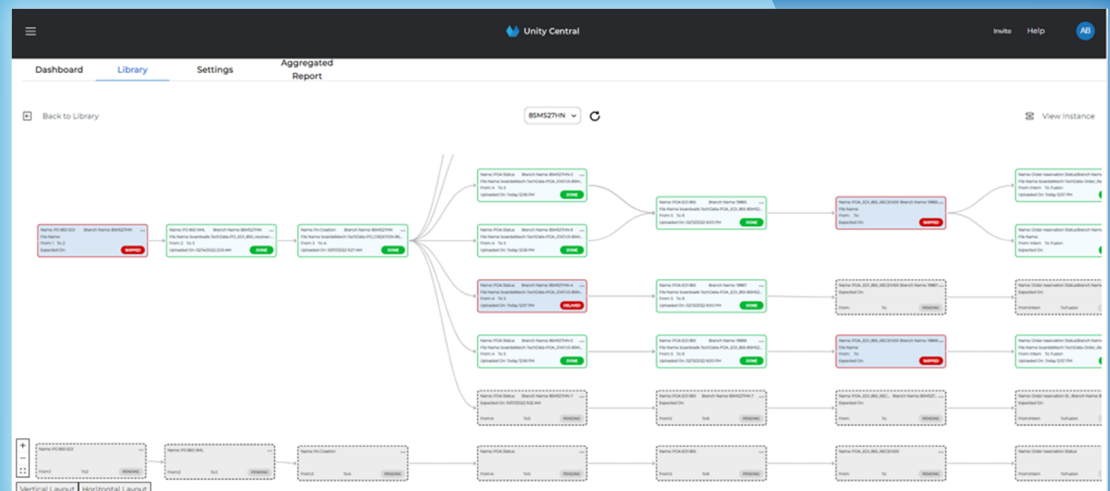
ACTIVE SUPPLY CHAIN INSIGHTS

With a focus on making data actionable, the Boardwalk Radius Control Tower surfaces all active supply chain insights that need to be addressed across multiple business dimensions.



TAKE ACTION

All information is directly actionable within the Radius Control Data where workflows can be managed as documents -- including branching and merging outcomes.



WHAT'S IT MEAN TO MY BUSINESS?
















The opportunity to improve key operating metrics:

- 1 Actionable Real Time Visibility
- 2 Compliance and Auditability
- 3 High Data Accuracy and Lower Risk
- 4 Improved Customer Satisfaction Metrics
- 5 Reduction in Effort, Cost and Time
- 6 Rapid Collaboration and Alignment

BETTER INSIGHT, 50-80% FASTER

Some of the key realized advantages of Radius Control Tower include:

1. Slashes time to insight by >50% over batch data lake approach
2. Reduces loss of information fidelity by capturing the actual information rather than its translation – a challenge for control towers in general

	Control Tower (SQL)	Data Lake	Radius Control Tower
Unstructured Data Support			
Time-based Data Level Relationships			
Curated and Correlated Research			
Native Document Support Without SQL Transformation			
Directly Make Control Tower Insights Actionable/Collaborative			

The actionable visibility possible with Radius enables a faster, optimized supply chain and a faster supply chain delivers right to the bottom line – along with improved customer outcomes.

To discover how Boardwalk Radius Control Tower's rapid operational insights will enhance your enterprise information management strategy, reserve time with one of our operational specialists today.

For more information, visit our [website](#)

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