Progress®

The Marriage of Structured and Unstructured Data

Progress Data Platform

Drew Wanczowski

PUG Challenge Boston

September 2024

How Important Is Data?

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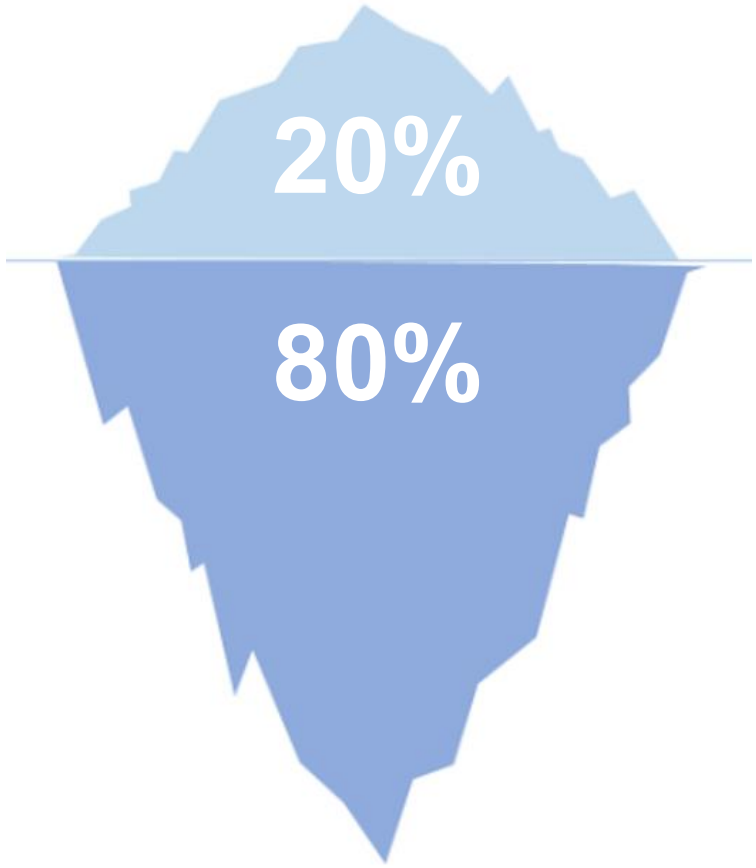
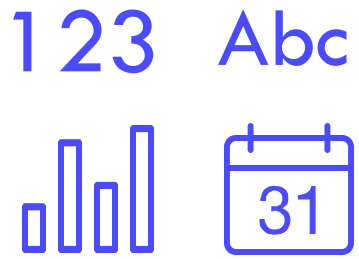
Inventory
Customer
Risk
AI
Budget
Compliance
Market Trends
Value
Logistics
Feedback
Security
Sales
Human Resource

Structured vs. Unstructured Data



Numbers, Strings, Dates, etc. that can be represented in tables



All kinds of content that cannot be represented in tables like pdfs, emails, social media posts, etc.

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Complex Data Challenges

- Data Silos
- Storage and Scalability
- Systems Integration
- Knowledge Extraction
- Quality and Consistency
- Privacy and Security
- Compliance and Regulations
- Speed and Latency

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Majority of data initiatives fail to deliver their intended value

2024

Gartner estimates that 80% of data and analytics initiatives will fail to deliver their expected business value.

Source: Gartner - March 2024 - https://www.gartner.com/document/5248663

2019

Through 2022, only 20% of analytic insights will deliver business outcomes

Source: Gartner January 2019 - https://blogs.gartner.com/andrew_white/2019/01/03/our-top-data-and-analytics-predicts-for-2019/

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Even organizations who adopted modern data architectures struggle

2024

Through 2025, 80% of early adopters of data mesh will fail to meet their planned SLAs around data engineering productivity, augmentation and federated governance.

By 2026, more than 80% of all data products created through the mesh approach will fail to survive beyond their first iteration due to lack of clarity on data product maintenance, and sharing of data products across domains.

Source: Gartner - March 2024 - Gartner March 2024 https://www.gartner.com/document/5244763

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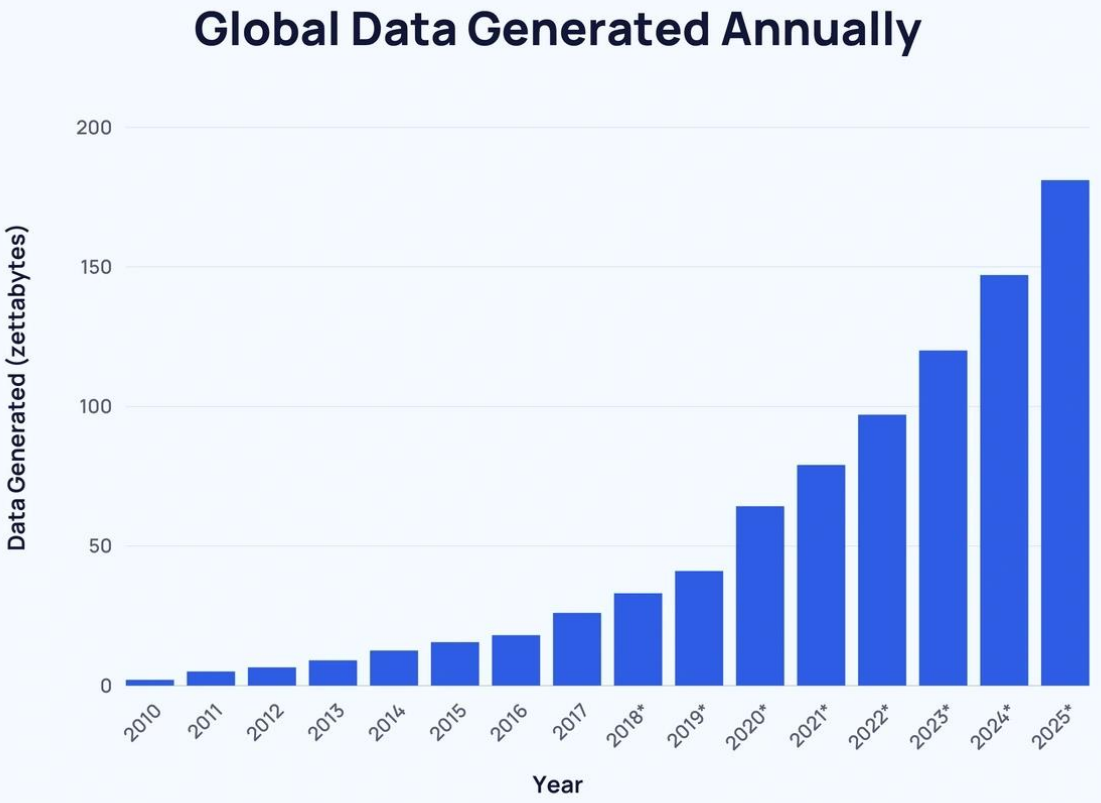
How much data are we talking about?

Top Data Created Stats

- Approximately **402.74 million terabytes** of data are created each day
- Around **147 zettabytes** of data will be generated this year
- Around **181 zettabytes** of data will be generated in 2025
- Videos account for **over half** of internet data traffic
- The US has **over 2,700** data centers



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Operationalizing Unstructured Data by breaking down organizational data silos while upholding reliability, security, availability, performance and maintainability at a manageable cost is extremely difficult.

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Success is the ability to find answers hidden in the vast ocean of data

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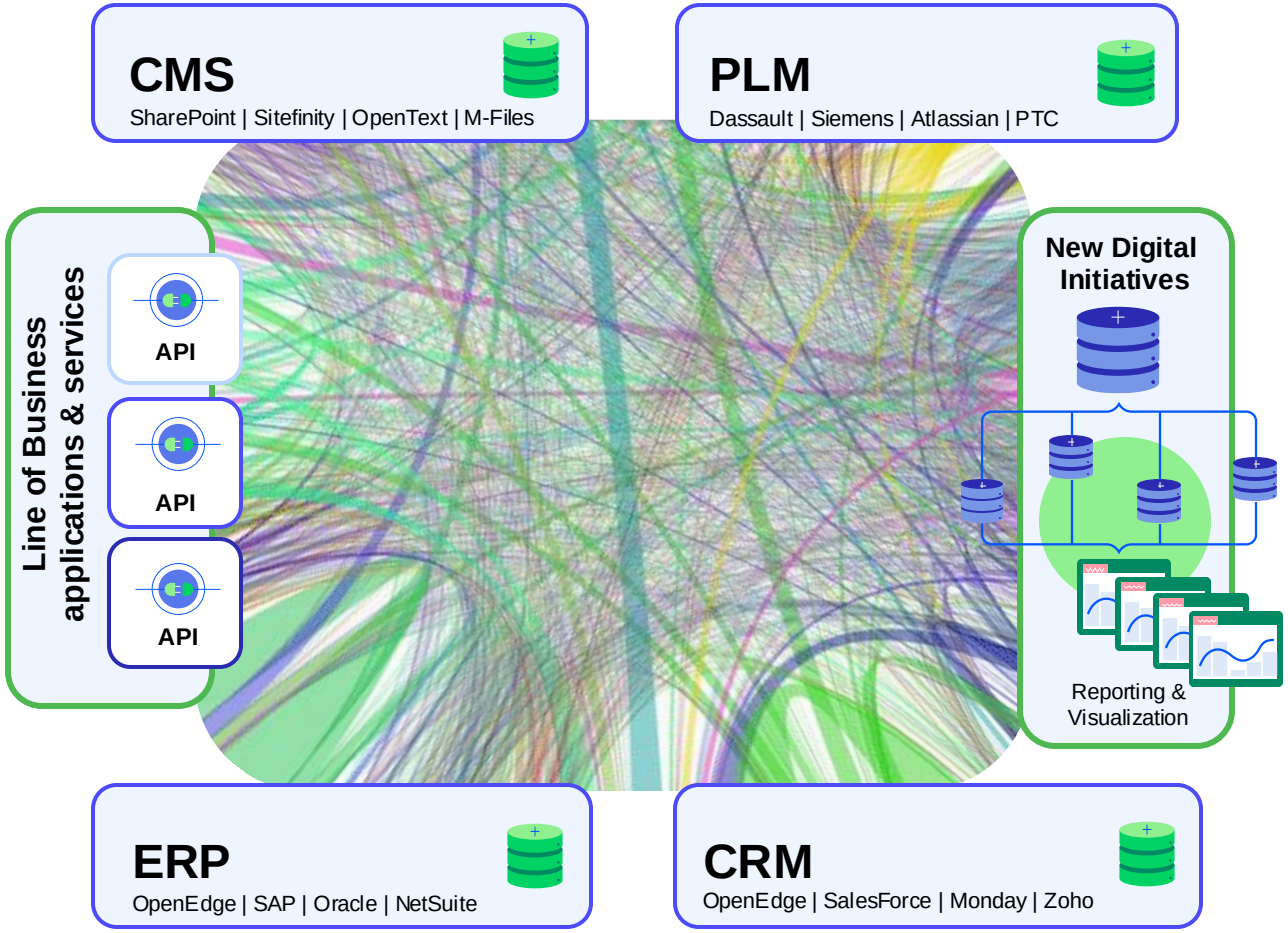
Change the Way You Work with Data



Application Centric Approach

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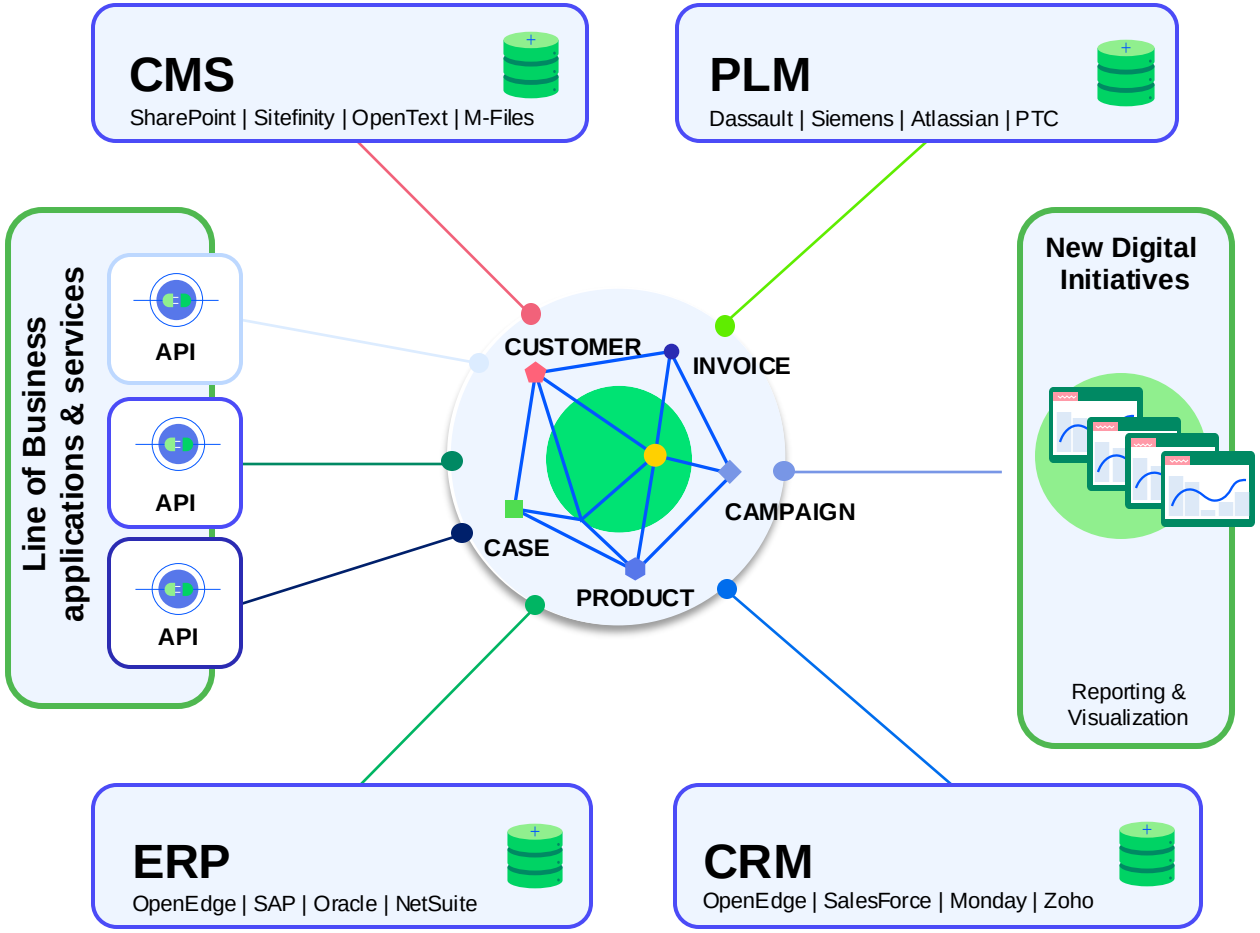
Change the Way You Work with Data



Agile Data Centric Approach

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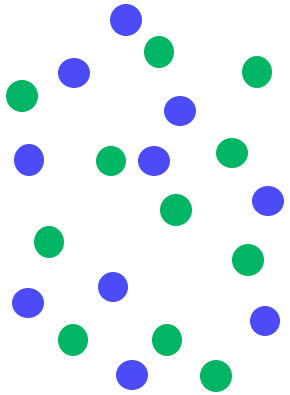
Enrich Data to Achieve Wisdom

Data

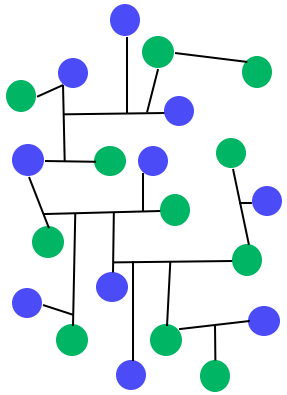
Raw Facts

Information



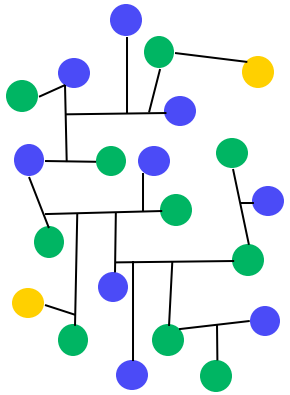
Add Context

Knowledge



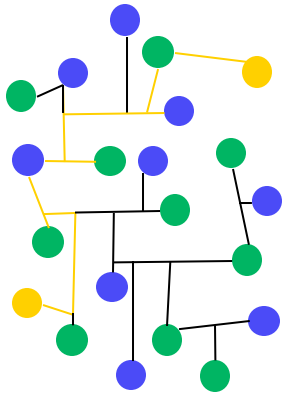
Identify Patterns

Insight



Reveal Deep Relationships

Wisdom



Empower Decisions

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Our Solution

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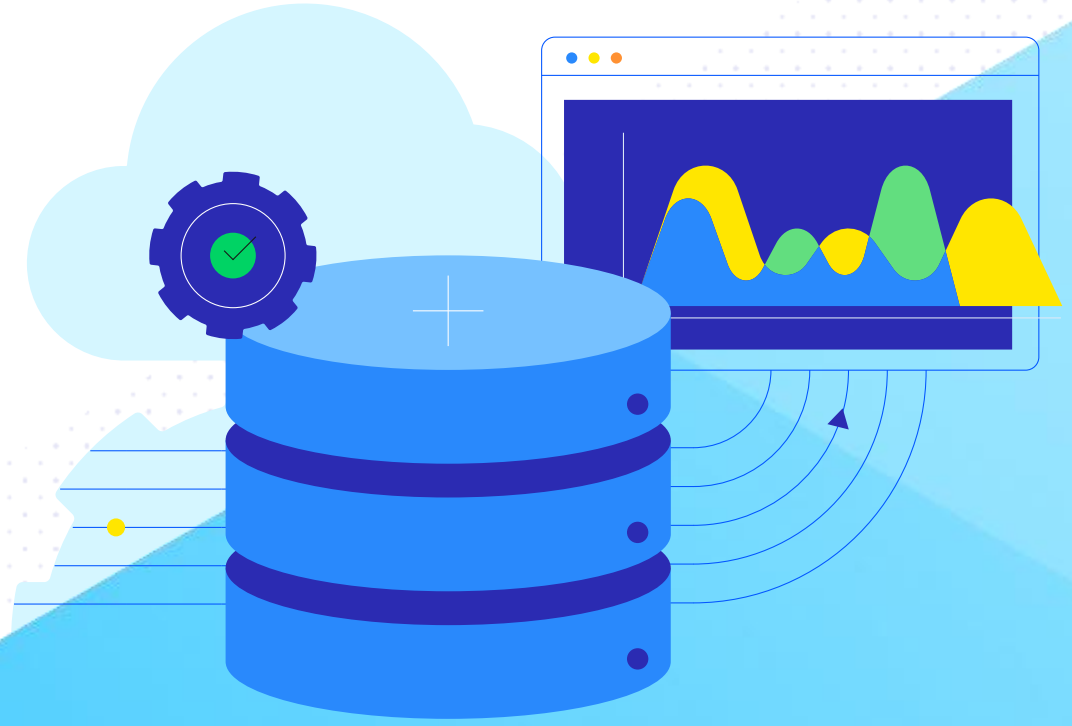
Progress® MarkLogic®

MarkLogic helps organizations unlock value from complex data by operationalizing their digital assets

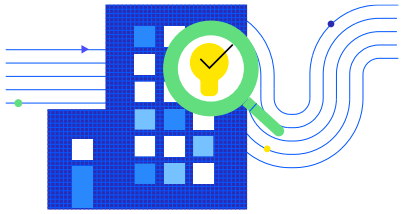


Introducing MarkLogic

Multi-Model Database
Manage document, graph, relational, geospatial, semantic and bitemporal data as a single whole

Application Server

Government Grade Security



High-Performance Search Engine
Run complex queries across all your data and get accurate, sub-second results

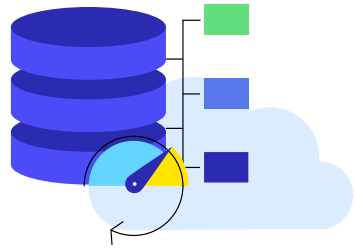
100% ACID Compliant

Semantic Graph Capability

Integration Hub
Integrate and curate your data with agile modeling, smart mastering and semantic enrichment

Highly Available

Highly Scalable



Developer Tools
Build applications faster with industry-standard APIs and languages, a unified query interface and a UI development toolkit

Auditing and Compliance

Flexible Deployment

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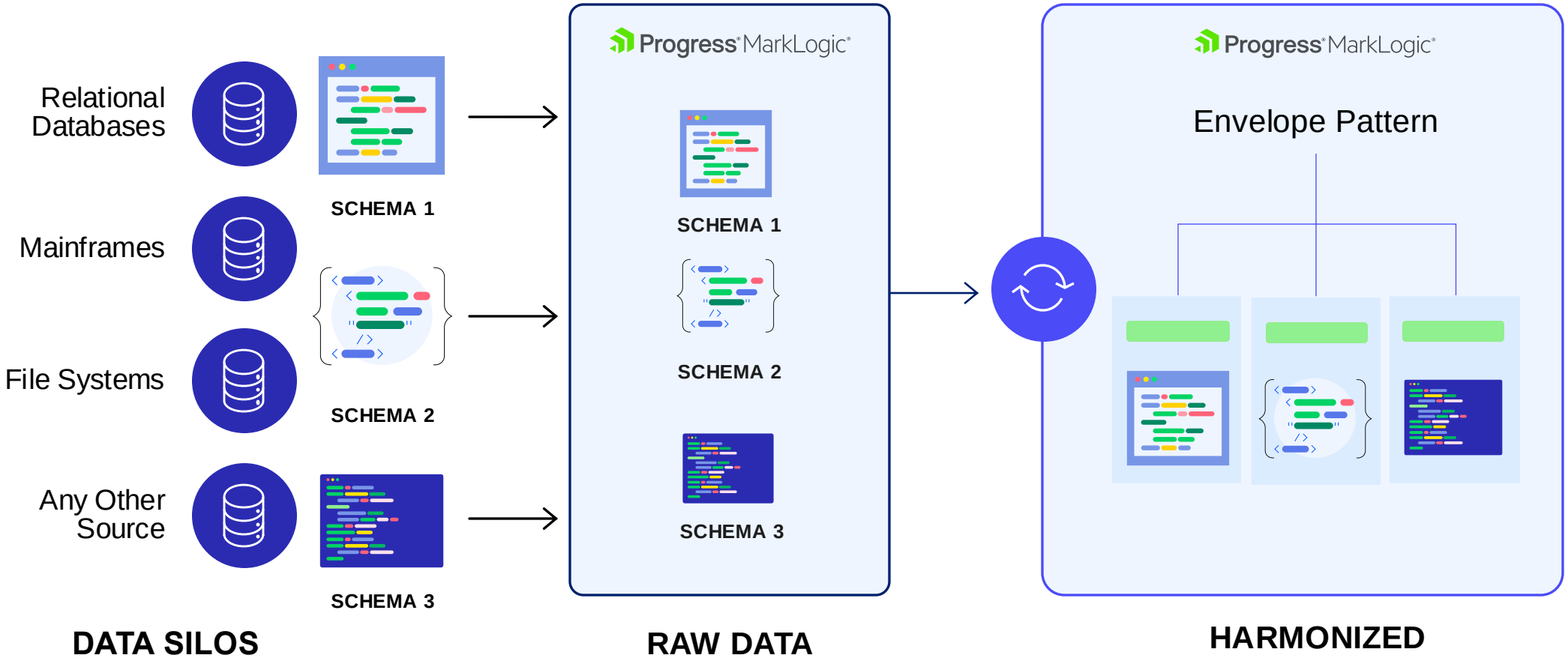
MarkLogic Workflow



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Progress® Semaphore™

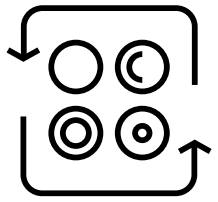
Create and manage metadata to transform data into meaningful, actionable knowledge

Introducing Semaphore

MODEL

Create and harmonize business concepts, relationships and meaning using standards-based knowledge models.

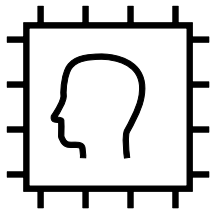
Build and manage semantic data models.



CLASSIFY

Enrich text, extract data and apply meaning to hidden information—giving you context.

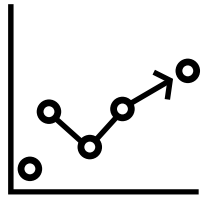
Enrich. Extract. Harmonize.



INTEGRATE

Unite information across the business for key business insights. Connect to existing systems and use visualization tools.

Apply semantics to existing applications.



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Classification Capabilities

Entity Identification

Flexible, multi-lingual identification of semantic entities (people, places, noun, phrases, etc.), part-of-speech tagging and linguistics

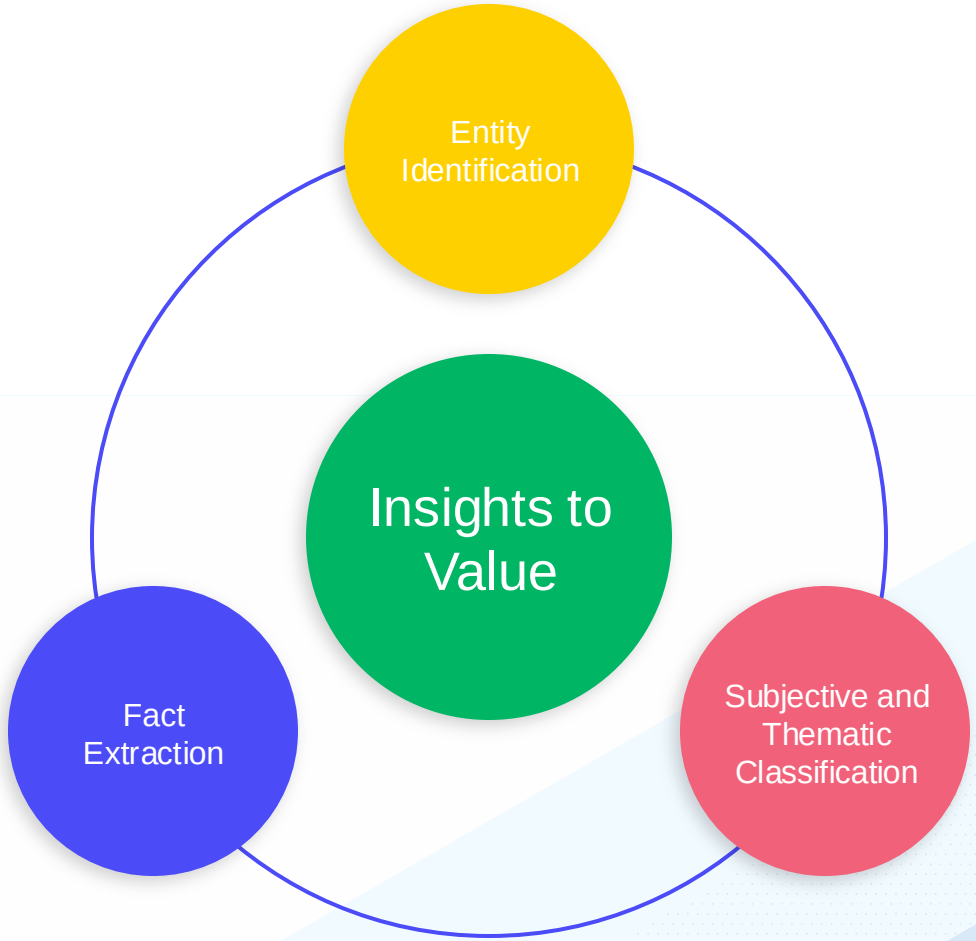
Subjective and Thematic Classification

Accurate and transparent classification based on a domain model - taxonomy, thesaurus or ontology

Fact Extraction

Ability to extract entities and relationships in context, for example:

- Organizations involved in merger discussions
- Currency amount involved in the deal
- Issues associated with a product
- Entities/people and clauses of a contract
- Addresses and Social Security numbers associated with a person



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Initial information was received from the reporter on Aug 14th, 2014. This is a report of a serious adverse event from a reporter regarding a 73 year-old white female subject who experienced a 5 minute blackout on Aug-10 while taking 50mg Fulnite prior to bed for mild Insomnia and 10 milligrams Nasen before breakfast for the treatment of migraines.

RAW TEXT

Progress® Semaphore™

SEMAPHORE PLATFORM

Patient Age:	73
Sex:	Female
Ethnicity:	Caucasian
Treatment:	Eszopiclone - DB00402 (Insomnia)
Dosage:	50mg nightly
Treatment:	Zolpiden - DB00425 (Migraine)
Dosage:	10mg daily
Adverse Event:	Syncope
Date of Event:	2014-08-10

HIGH FIDELITY, HIGH VERACITY DATA

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Leveraging Artificial Intelligence the Right Way

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Generative AI / LLM Concerns

Hallucinations

Generative AI confidently state / provide incorrect data 15% to 20% of the time.

Data Biases

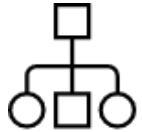
Possibility of producing results that reflect biases encoded in the training data.

Understanding

Lack of human reasoning and understanding, leading to stereotypical and incorrect answers.

Data Cutoffs

Data cutoffs and missing information on recent events and developments.



Explainability

Lack of reasoning and reference to the answers they provide.

Robustness

Robustness against bad inputs and struggle with specific tasks.

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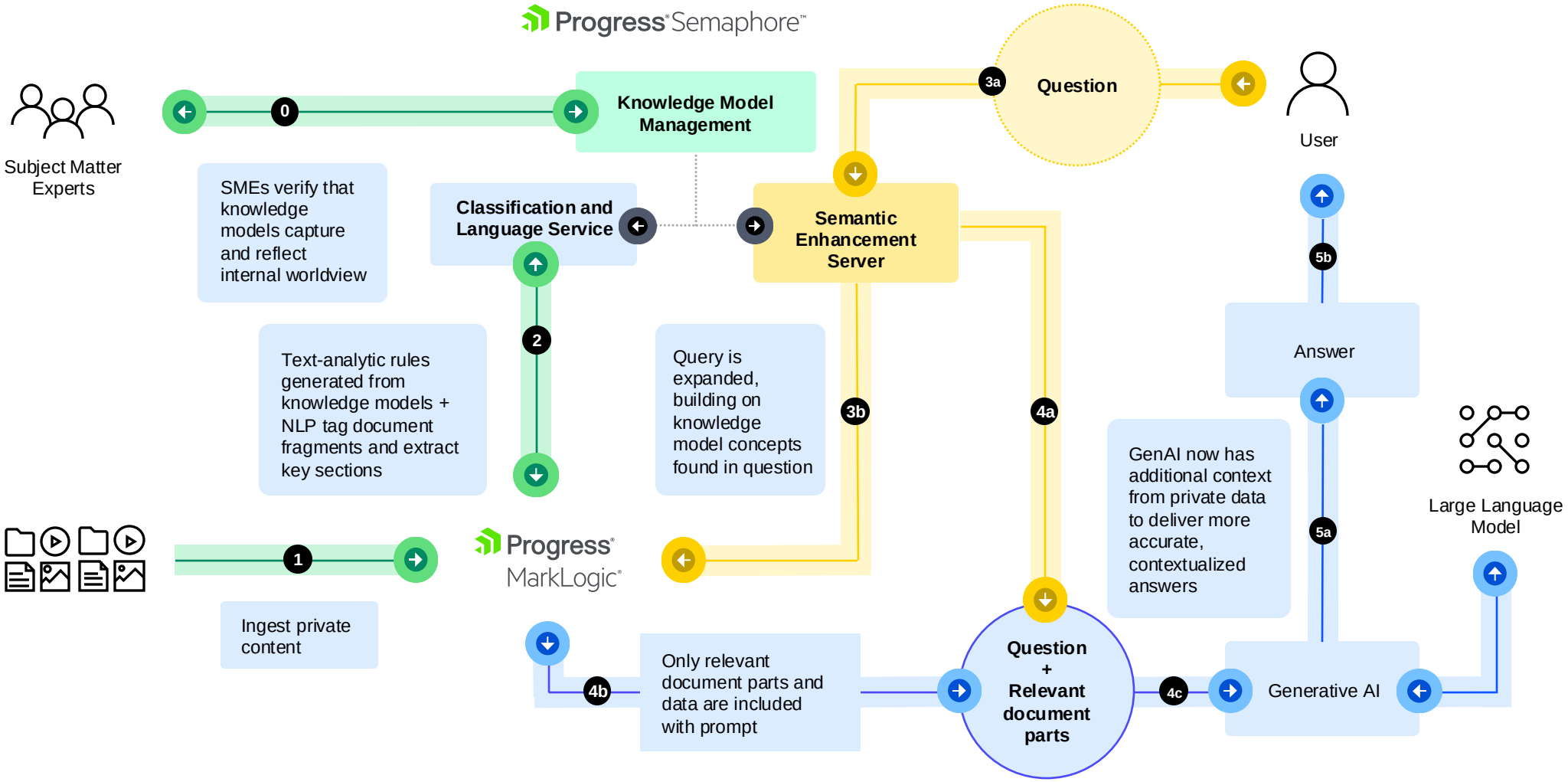
Retrieval Augmented Generation (RAG)



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Complex, unstructured data needs more than a standard general-purpose BI tool to tell the complete story.

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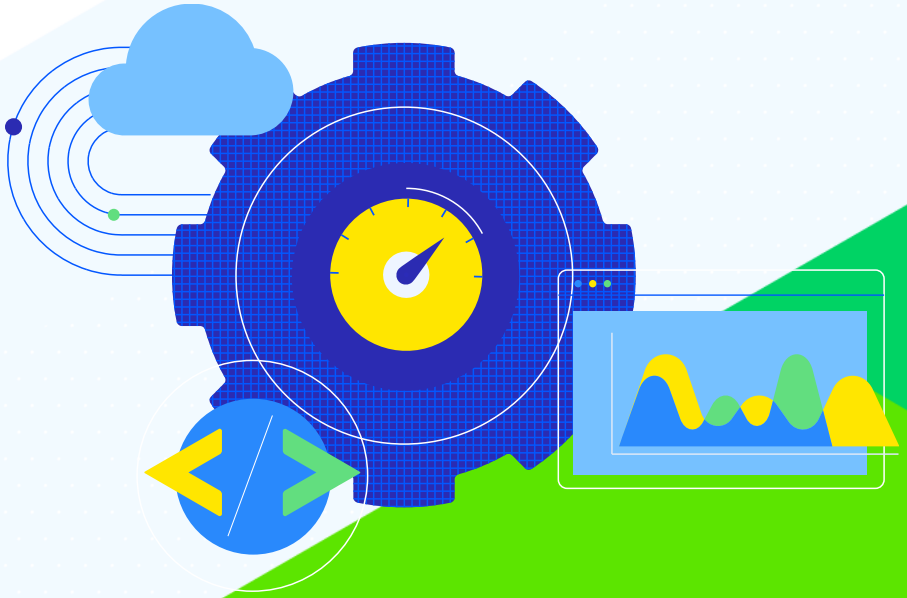
Progress MarkLogic FastTrack

A React UI toolkit for building high performance, search-driven applications to visually explore connected data in MarkLogic—fast.



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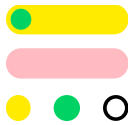
What's Inside MarkLogic FastTrack

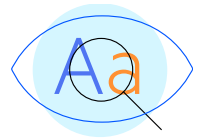


Customizable UI Components

Ready to use with out-of-the-box functionality

Visualization Techniques for Any Data

Graph, geo map, timeline, grid, charts and text



Full-Text Search

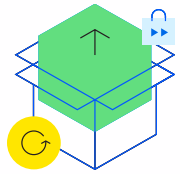
To search across all MarkLogic-stored data

Custom Facets and Dynamic Filters

To navigate and explore large data in detail

Data Access Layer

No ETL or API integration required to connect to MarkLogic Server



Sample Apps

A blueprint for how to build with the toolkit

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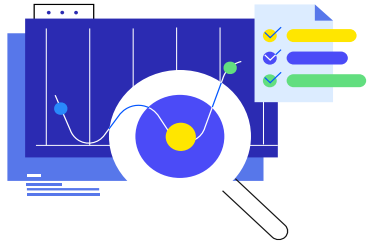
Sharpen Organizational Intelligence

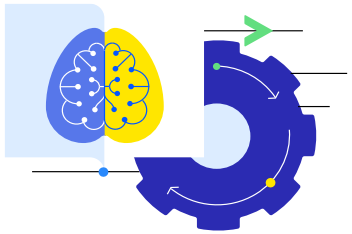
See All Your Data in Context

No lost meaning.
No complex tool integrations.
No make-shift solutions.



Discover Unknowns

Go deep or go wide into your data to gain better understanding and situational awareness, past and present.



Illuminate the Direction

Bring intelligence where it's needed to answer sophisticated questions and enable rapid progress on new initiatives.

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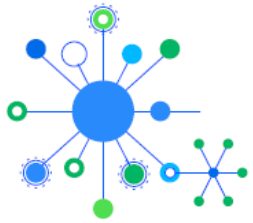
Visual Narratives to Explore & Explain

Powerful Search

Search by meaning and get relevant results in an instant. Custom filters and semantic SPARQL queries let you navigate large interconnected data.

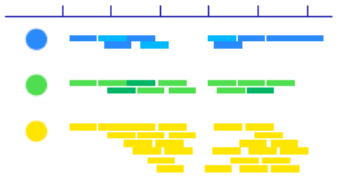


Networks and Connections

See relationships between people, things and meaning to discover dependencies and causes. Drill up and down the data and zero in on specific points.

Maps and Geo Trends

Visualize data in relation to real-world locations and draw polygons to trace origin, track activity, compare distribution or analyze the impact of a policy change.



Timelines and Events

Trace back events and see connected data change over time. Add an interactive timeline dimension to help users understand complex event sequences.

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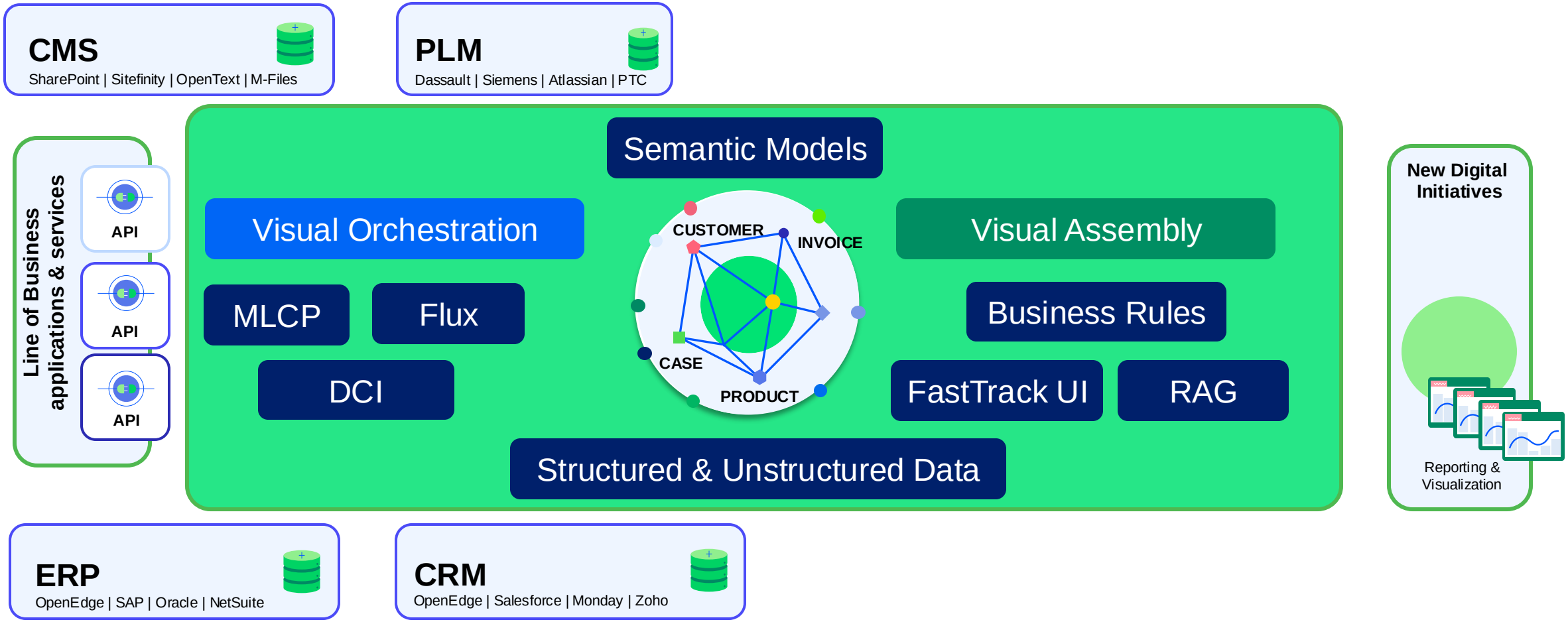
Progress Data Platform



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Experience and Achievements

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Recognized Industry Leader

Progress Semaphore
Ranked #1 in the **Metadata Management Data Quadrant from Software Reviews** for 4 straight years.

Vendor Capability Satisfaction

	SATISFACTION	AVERAGE
BUSINESS VALUE CREATED	92%	79%
VENDOR SUPPORT	92%	80%
PRODUCT STRATEGY AND RATE OF IMPROVEMENT	89%	74%

Product Feature Satisfaction

	SATISFACTION	AVERAGE
METADATA DESIGN	92%	81%
EASE OF CUSTOMIZATION	91%	72%
APIS AND INTEGRATION	90%	78%

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Notable player in multi-modal Database

- Progress MarkLogic won the **2024 Data Breakthrough award for NoSQL Solution of the Year**
- MarkLogic featured as one of the vendors in **Forrester's "The Translytical Data Platforms Landscape, Q2 2024"**
- MarkLogic is listed as a Sample vendor for Data Hub Strategy in Gartner's **"Hype Cycle for Data and Analytics Governance, 2024"** ,**"Hype Cycle for Data Management"** and "**Hype Cycle for ERP, 2024"**
- Progress MarkLogic featured as a **Visionary** in Cloud Database Management Systems by Gartner in 2022.

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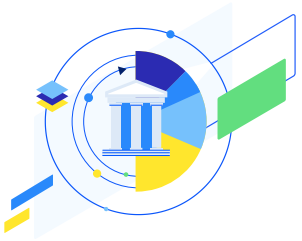
Deployable Across Industries

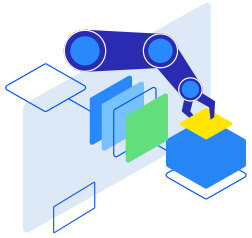
Energy & Utilities

Financial Services



Government

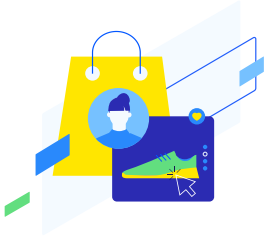
Healthcare



Manufacturing

Life Sciences

Media and Publishing



Retail

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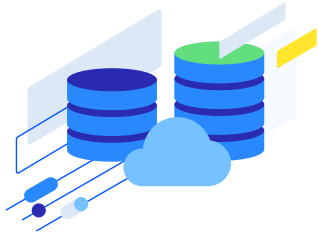
Business Needs We Support

Analytics

Customer experience

Intelligent search



Information governance

Process automation

Regulatory compliance

Data protection

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Demonstrations

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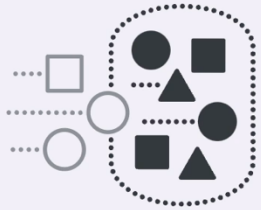
Welcome to MarkLogic Data Hub Central

MarkLogic Data Hub Central makes it easy to manage your data. You can load, curate, and manage your data, or explore and export your data — all within Hub Central.



Load

Create and configure steps that define how data should be loaded.

- Documentation
- Video Tutorial

Model

Define the entity models that describe and standardize your data.

- Documentation
- Video Tutorial

Curate

Create and configure steps that curate and refine your data.

- Documentation
- Video Tutorial

Explore

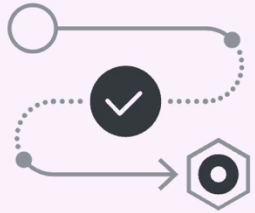
Search, filter, review, and export your data.

- Documentation
- Video Tutorial

Run

Create flows, add your existing steps to flows, and run them.

- Documentation
- Video Tutorial



Progress

Sign Out

- Dashboard
- Products
- Reference Calls

Shipped

926

Pending Shipping

1

Not Shipped (Ordered)

3024

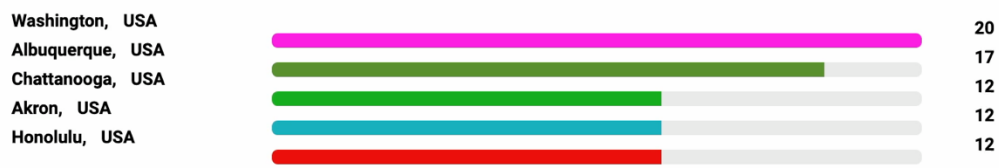
Reference Calls

15

Total Sales

$24,697,095.08

Top 10 Cities



Top 10 Products by Revenue

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Shipping

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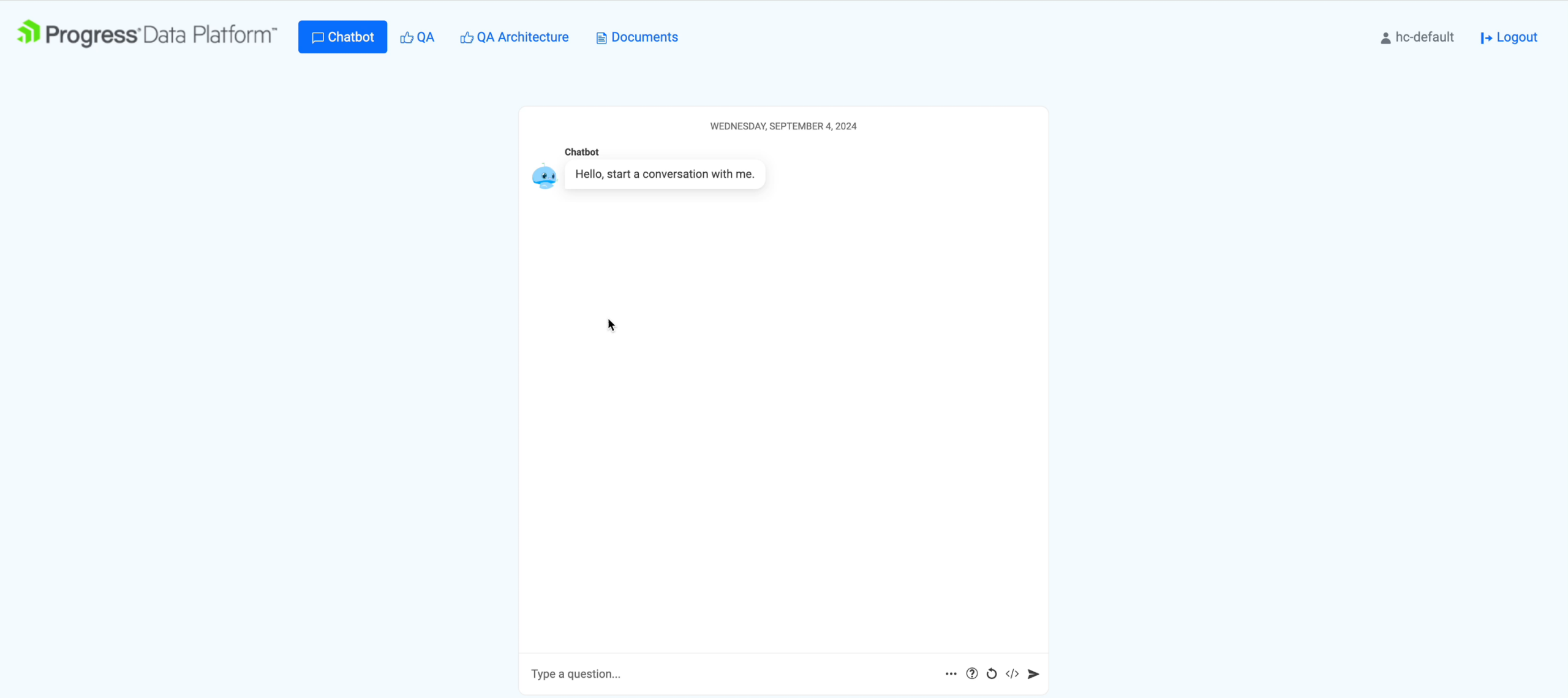
Filters

All | Open | Closed

Order No.	Date	Description	
#9234	Aug 3, 2024	50 x VELUX GGL CK02 3070 Pine Laminated Centre Pivot Roof Window 55x78cm	Issues reported
#1508	Aug 15, 2024	10 x VELUX GGL PK06 3070 Pine Laminated Centre Pivot Roof Window 94x118cm	



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Global Manufacturer To Accelerate Financial Reporting, Optimal Decision-Making

- **360-degree view of data** - Integrated hundreds of disparate ERP systems each with terabytes of data in six months
- **Improved Data Governance** - Breaking silos to create an integrated view of data ensured data can be tracked through its lifecycle – its provenance, who can access it, and who modified it.
- **Future-Proofed Infrastructure** - MarkLogic's ability to support multiple schemas ensures that any new source of data can be efficiently integrated.
- **Reduced Costs, Increased Efficiencies** - A single platform simplified architecture and minimizes errors, costs and maintenance. Additionally, business executives can make informed decisions based on reliable data.

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Creating trusted data for supply chain visibility and optimization

- **Data Harmonization:** Consolidated data from countless partners – suppliers, carriers, brokers, other stakeholders, having multiple data formats.
- **Semantic Modelling:** The solution provides a common language, helps validate data at ingestion, and is easily extensible to new partners.
- **Better Customer Experience:** Users can search and browse real-time data, including with a map feature that lets users perform actions like clicking on a location in the middle of the ocean with cargo ships, selecting a ship, and seeing purchase orders with products on the ship.
- **Improved Decision Making:** The data engine solution delivers trusted data to power reports and dashboards for the company, its clients, and other transportation organizations
- **Reduce Operational Risks:** Improved value by proactively diagnosing shipment issues and prescribing and automating solutions to address them.

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Optimizing Global Safety Analytics Program

- Subject matter experts create, govern and maintain a sophisticated safety knowledge model
- Semaphore processes up to 18 million safety records from over 20 sources, uncovering data once out of reach of their business intelligence applications
- The integration of Semaphore allows them to precisely and quickly identify safety issues and proactively adjust processes to improve outcomes

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