



Foundry Technical Overview

End-to-End Data Operating System

Data integration, visualization, and point analytics are helpful, but they don't provide a foundation to truly steer the organization and its operations. Our software creates software-defined feedback loops that span data, analytics, and business teams. These feedback loops are unique to Foundry and essential for local and global organizational learning.

*Foundry is the operating system
for the modern enterprise.
Emphasis on "operating."*

Each layer of Foundry contributes to the goal of delivering outcomes for the business at increasing complexity and ambition.

Foundry
↳ For Builders

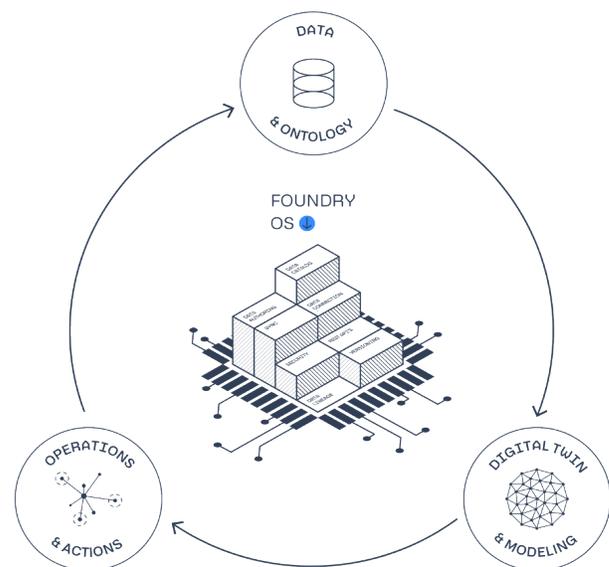
The graphic features a light gray rectangular box with the text 'Foundry' and '↳ For Builders' inside. Below the box is a bar chart with four bars of varying heights. The background consists of several overlapping, curved, light gray bands that create a sense of depth and movement.



Foundry in a Nutshell

Foundry is a highly available, continuously updated, fully managed SaaS platform that spans from cloud hosting and data integration to flexible analytics, visualization, model-building, operational decision-making, and decision capture.

Having all of these capabilities available as part of a unified platform protects against the friction and risks associated with siloed technologies, and ensures a seamless experience where data history, security, and privacy are protected and maintained.



Foundry for Builders

Foundry for Builders is a program for early and growth stage companies to leverage this best-in-class enterprise technology earlier in their lifecycle.

Accelerate Development & Operations

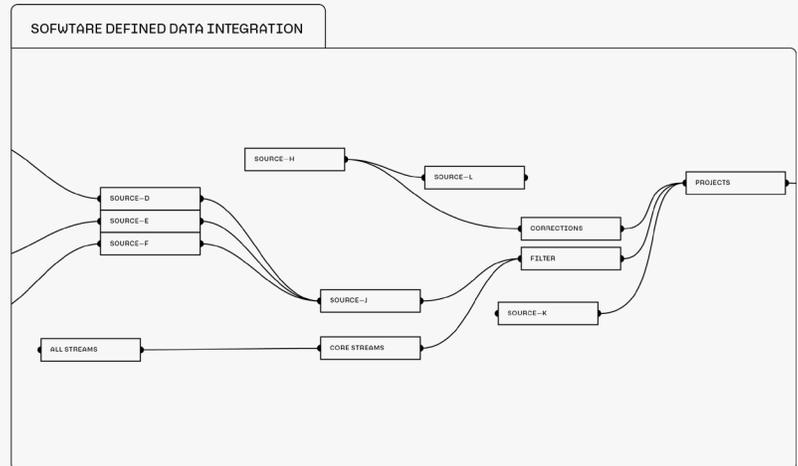
Reduce Costs

Collaborate Globally

Save Time on Security

01 – Data Integration

Secure, scalable, and resilient integration of all data sources.



01. FOUNDRY DATA CONNECTION

- 200+ data connectors, leveraging an extensible plugin-based paradigm
- Flexible ingress topology, which can leverage agent-based, REST, JDBC, and other approaches
- Easy-to-configure schedules, success criteria, and permission models
- Multi-modal (structured, unstructured, streaming, IoT, geospatial, etc.)

02. DATA TRANSFORMATION

- Flexible architecture with bundled engines (Spark & Flink)
- Low-code / no-code transformation (Preparation, Contour)
- Treating Data like Code (versioning, branching, full change management)
- Full provenance through the Job Spec paradigm

03. PIPELINE ORCHESTRATION

- Build system that is engine-agnostic
- Intelligent refreshing / state-tracking across all pipelines
- Seamless integration with Foundry's health monitoring

04. SECURITY

- Role-, Classification-, and Purpose-based paradigms
- Integration with existing authorization models
- Propagation by default; extreme configurability

05. LINEAGE

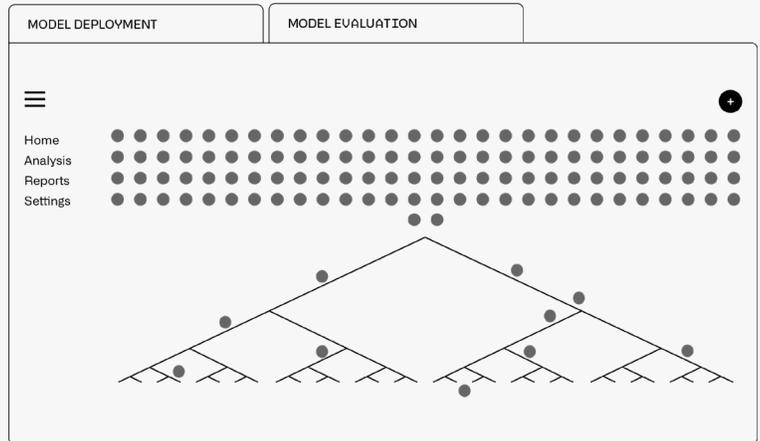
- Interwoven with security paradigm; provides immutable tracking
- Allows for impact analysis, granular usage analysis
- Rich APIs allow for navigation upstream and downstream, for a given resource

06. DATA HEALTH MONITORING

- Pre-built checks, and customizable checks
- Leverages Foundry's lineage system, for alerting and impact analysis
- Full triage & tracking through integration with Foundry Issues

02 – Model Integration

Flexible integration (or registration) of models and business logic.



01. CODE WORKBOOKS

- An integrated, end-to-end workbench for model construction (PySpark, R, SparkSQL)
- Native, secure data access for model builders (dataset and ontology paradigms)
- Integrated model training, health, and management services
- Flexible deployment options, for use in operations (batch and inference)

02. EXTERNAL MODEL INTEGRATION

- Build and train your models in any industry-standard toolset
- API-driven connectivity to the Ontology from those external tools
- Promote into production through Foundry, when ready

03. MODEL OBJECTIVES

- “Mission Control” for models being used throughout Foundry workflows
- Rich, competitive evaluation of models; comparing performance
- Binding directly to the Ontology, which provides a “type system” for models - allowing them to be leveraged in myriad operational settings (without putting the onus on the application builder)

03 — Ontology

Connecting essential logic with data.



01. THE CORE ONTOLOGY

- Contains the key semantics of your world (objects and relations)
- Contains the key kinetics of your world (Functions, Actions)
- Integrated monitoring, and extensibility with external systems

02. DECISION CAPTURE / ENTERPRISE WRITEBACK

- Structured mechanisms for capturing data from end users, back into the ontology
- Native frameworks for propagating data capture to external systems
- External system responses can be woven into multi-step workflows
- Full provenance through the Job Spec paradigm

03. OUT-OF-THE-BOX OBJECT EXPLORATION

- Object Explorer provides a secure, scalable, point-and-click view into the ontology
- Quiver provides a chart-based paradigm, allowing for (among many other workflows) the navigation of multi-dimensional, real-time streaming data
- Map provides a geospatial canvas for exploring the ontology
- Each of the “base” applications is replete with a widget library that is continuously updated

04. THE FOUNDATION FOR OPERATIONS

- Workshop & Slate are end-to-end application builders that leverage the ontology
- The ontology is natively “scenario-aware”, allowing for what-if analysis and running compound simulations
- The Objects Gateway, among myriad other APIs, allows for the ontology to be leveraged in external toolsets and frameworks

04 — Workflows

Integrated exploration of possible actions.

WORKFLOW — QUALITY CONTROL

<p>FILTERS</p> <p><input type="radio"/> Closed 18</p> <p><input type="radio"/> Open 6</p> <p>VEHICLE TYPE</p> <p><input type="radio"/> Sedan 9</p> <p><input type="radio"/> SUV 7</p> <p><input type="radio"/> Truck 3</p> <p><input type="radio"/> Luxury 2</p> <p>Vehicle ID ⌵</p> <p>Plant Name ⌵</p> <p>Start date ⌵ End date ⌵</p>	<table border="1" style="width: 100%; border-collapse: collapse; text-align: left;"> <thead> <tr> <th>ASSIGNED TEAM</th> <th>PRIORITY</th> <th>RISK SCORE</th> <th>STATUS</th> <th>CLAIMS</th> </tr> </thead> <tbody> <tr><td>In-service</td><td>High</td><td>95</td><td>Open</td><td>105</td></tr> <tr><td>In-service</td><td>High</td><td>97</td><td>Open</td><td>26</td></tr> <tr><td>Supplier Quality</td><td>High</td><td>99</td><td>Open</td><td>93</td></tr> <tr><td>In-service</td><td>Low</td><td>70</td><td>Open</td><td>45</td></tr> <tr><td>Supplier Quality</td><td>High</td><td>91</td><td>Open</td><td>79</td></tr> <tr><td>Supplier Quality</td><td>Medium</td><td>85</td><td>Closed</td><td>83</td></tr> <tr><td>Supplier Quality</td><td>Medium</td><td>83</td><td>Closed</td><td>44</td></tr> <tr><td>In-service</td><td>High</td><td>93</td><td>Closed</td><td>20</td></tr> <tr><td>In-service</td><td>Low</td><td>79</td><td>Closed</td><td>103</td></tr> </tbody> </table> <div style="text-align: right; margin-top: 10px;"> REASSIGN ESCALATE CLOSE ISSUE </div>	ASSIGNED TEAM	PRIORITY	RISK SCORE	STATUS	CLAIMS	In-service	High	95	Open	105	In-service	High	97	Open	26	Supplier Quality	High	99	Open	93	In-service	Low	70	Open	45	Supplier Quality	High	91	Open	79	Supplier Quality	Medium	85	Closed	83	Supplier Quality	Medium	83	Closed	44	In-service	High	93	Closed	20	In-service	Low	79	Closed	103
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01. EVOLVING ANALYTICS INTO WORKFLOWS

- Object Explorer is designed to incorporate Actions, and evolve exploration into workflows
- Quiver allows for the derivation of new object sets, and derived streams of real-time data
- Taurus provides a business-centric method of defining and managing rule sets

02. WORKSHOP

- Foundry's native no/low-code application builder, which operates atop the Ontology
- Manages the underlying storage, compute, ontological data and model bindings, and security paradigm - allowing application builders to focus on building
- Designed for a "low floor & high ceiling" in terms of user workflow complexity - ranging from spartan applications for a small group, to mission-critical applications at the heart of operations centers

03. SLATE

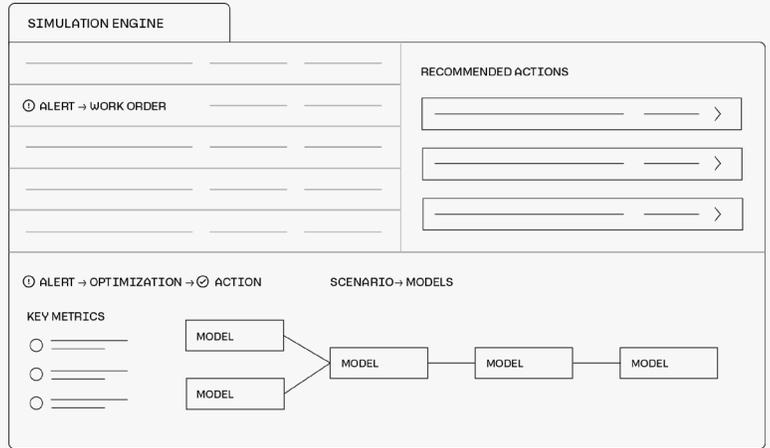
- Foundry's solution for WSIWYG, widget-driven development
- Leverages core JavaScript paradigms, intended to feel familiar to front-end developers
- Flexibility to interact with both ontological data, and tabular/SQL-shaped data

04. APIs / EXTENSIBILITY

- Objects Gateway provides secure, full-spectrum to the Ontology for builders
- Custom webhooks and writeback procedures can be authored directly in Foundry's applications
- Foundry's Third Party Authorization framework allows external client applications to be registered with the platform, and fully leverage Foundry's granular security paradigm

05 — Decision Orchestration

Synchronizing decisions
back to the source.



01. SCENARIOS & SIMULATIONS

- Treating Your Business Like Code; branch, simulate, and explore at full scale
- Simulations can leverage all types of models, including high-dimensional linear solvers
- Simulations can be tactical or long-lived, refreshing along with data and models

02. VERTEX

- Foundry's out-of-the-box application for graph/relational exploration of the ontology
- Allows for easy creation of new scenarios, and simulate "what-if" conditions
- Enables complex simulations that chain multiple models together

03. DEMOCRATIZING SCENARIOS & WHAT-IF ANALYSIS

- Scenarios defined in an analytical exploration (e.g., in Vertex) can be packaged, constrained, and surfaced to more operational users (e.g., using Workshop)
- All simulated data and scenario states can be accessed programmatically

04. SYNCHRONIZING DECISIONS BACK TO EXTERNAL SYSTEMS

- Foundry's "Actions" framework provides a structured, secure, and auditable mechanism for publishing decisions (and other data) to external systems
- Data egress leverages all of the capabilities of Foundry's Data Connection framework
- Full lineage is maintained from data to decision, allowing the organization to always ask "what was the state of the world?" when a particular piece of data or metadata was written externally