

The Chirality Approach to Data Historian Implementation

Practical Foundations. Proven Strategy. Precision Delivered.



EXECUTIVE SUMMARY

Practical Foundations | Proven Strategy | Precision Delivery



Chirality Research delivers end – to - end implementation, support, and optimization services for industrial data historians. Backed by decades of expertise in operational data strategy, we ensure seamless integration, scalability, and performance. This solution overview outlines our approach, services, architecture, licensing, and value-adds for clients in energy, manufacturing, and critical infrastructure.

OUR VALUE-ADDED BENEFITS:

ACCELERATED
DEPLOYMENT

STRATEGIC
GOVERNANCE

TAGGING
OPTIMIZATION

AGNOSTIC
INTEGRATION
APPROACH

SUPPORT &
TRAINING

DASHBOARDS AND
ANALYTICS

The brochure is titled "THE CANARY SYSTEM" and is divided into three main steps. Step 1, "COLLECT AND STORE YOUR DATA", describes securely collecting process data from edge and IIoT devices, logging millions of tags, and using loss-less compression for fast performance. Step 2, "ASSIGN CONTEXT", includes views for building virtual data models, asset modeling for organizing tags, a calculation server for writing expressions, and event monitoring for condition-based asset events. Step 3, "MAXIMIZE YOUR OPERATION", focuses on visualizing data with Axiom dashboards and connecting data to favorite applications. The Canary Labs logo is at the bottom left of the brochure.

THE CANARY SYSTEM

STEP 1.

COLLECT AND STORE YOUR DATA.

Securely collect process data from edge and IIoT devices.

LOG MILLIONS OF TAGS...

Over 2 million per Historian, or tens of millions when clustered.

WITH LOSS-LESS COMPRESSION...

Forget interpolated, averaged, or dropped data... Canary preserves the original values forever.

...AND INCREDIBLY FAST PERFORMANCE!

Write 1.5 million & read 2.5 million updates per second with unchanging performance as you grow.

STEP 2.

ASSIGN CONTEXT.

Transform your complex data into clear easy to understand information.

VIEWS

Build virtual data models of the Historian.

ASSET MODELING

Change tag names, organize tags based on equipment, filter by condition, and make templates for visualization.

CALCULATION SERVER

Don't waste time in SCADA or PLCs... write expression that apply to all asset instances including backfilled data.

EVENT MONITORING

Create rules to monitor for condition-based asset events.

STEP 3.

MAXIMIZE YOUR OPERATION.

Analyze your operational health on any device and make better decisions.

VISUALIZE DATA WITH:

Build dashboards, trends, reports, and much more.

AXIOM

DATA CONNECTORS

Integrate the data with your favorite applications and platforms.

canary

Canary Labs Marketing Brochure www.CanaryLabs.com

COMBINING DATA SCIENCE WITH GENERAL SCIENCE

INTEGRITY

We hold ourselves to the highest standard of honesty and ethics, fostering transparent and trustworthy partnerships with clients, partners and team members.

CURIOSITY

We have an unwavering commitment to scientific thought. We believe scientific instinct brings a natural curiosity, which powers our trial-and-error method.

PASSION

Our primary goal is to bridge the gap between technical expertise and field operations by innovating simple solutions and integrating them where the action is happening in the field.

SUSTAINABILITY

Success is not just about the present; it's about building a future that thrives. Chirality contributes to a sustainable approach, ensuring that our custom solutions remain relevant and effective as your business evolves.



REAL WORLD APPLICATION

Thought Leadership | Case Studies | Publications | Client Success

Chirality was founded as a research-driven firm that blends deep technical execution with bold thought leadership. We're not just implementers, we're strategic thinkers, solution architects, and innovators who publish, question, and contribute insights that contribute to the industries we support.



Dr. Huz Ismail, PhD.

Brandeis - BA Chemistry

Brandeis - MS Chemistry

MIT - PhD Physical Chemistry

Sandia National Labs, Visiting Scientist
Baker Hughes, Enterprise Research Scientist (measurements and sensors)
MaxOil Solutions, Production Chemistry / Integrity Management

Chirality Research, Founder

A niche data science company seasoned for chemical and environmental challenges in an ever-evolving industry from a **scientific, data-driven** perspective.

 **30+**
PUBLICATIONS

 **34+**
OPERATORS



 **19+**
YEARS OF O&G
EXPERIENCE

 **3**
PATENTS

Chemistry/Integrity Management

Production Chemicals Optimization Congress: Implementing a Metric-Driven Chemical Management Program

<https://www.lbcg.com/media/downloads/events/487/day-1-huzeifa-ismail-production-chemistry-and-integrity-management-and-leslie-malone-senior-staff-en.8005.pdf>

Application for Operations

Proposed Framework Normalizes Completions Tags

<https://jpt.spe.org/proposed-framework-normalizes-completions-tags>

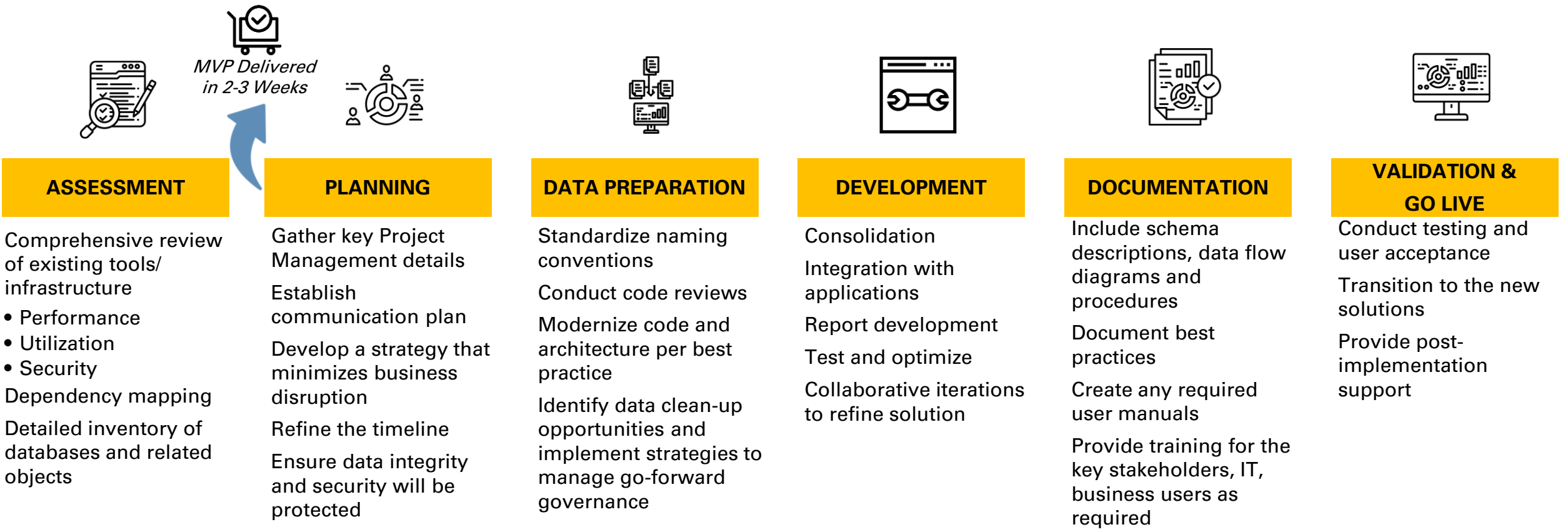
Data Historian

Data Historian and Trending Tool Transforms Company Operations

<https://jpt.spe.org/data-historian-and-trending-tool-transforms-company-operations>

METHODOLOGY | Results Driven Success

Rapid Prototypes | Iterative Collaboration | User-centric Validation



Why It's Important: Delivering Early Value with an MVP

A Minimum Viable Product (MVP) is essentially the most basic version of a solution that still delivers value to our clients. For Chirality, it's about providing something tangible early in the process, so our clients aren't left waiting until everything is polished and perfect. By offering an MVP during the assessment phase, we give you a functional tool to interact with while allowing us to gather feedback, refine processes, and test on a real data set. This approach lets us scale up efficiently, ensuring the final solution is aligned with your needs while maintaining momentum in project development. It's a strategic way to work smarter, not harder, as we evolve the solution together.

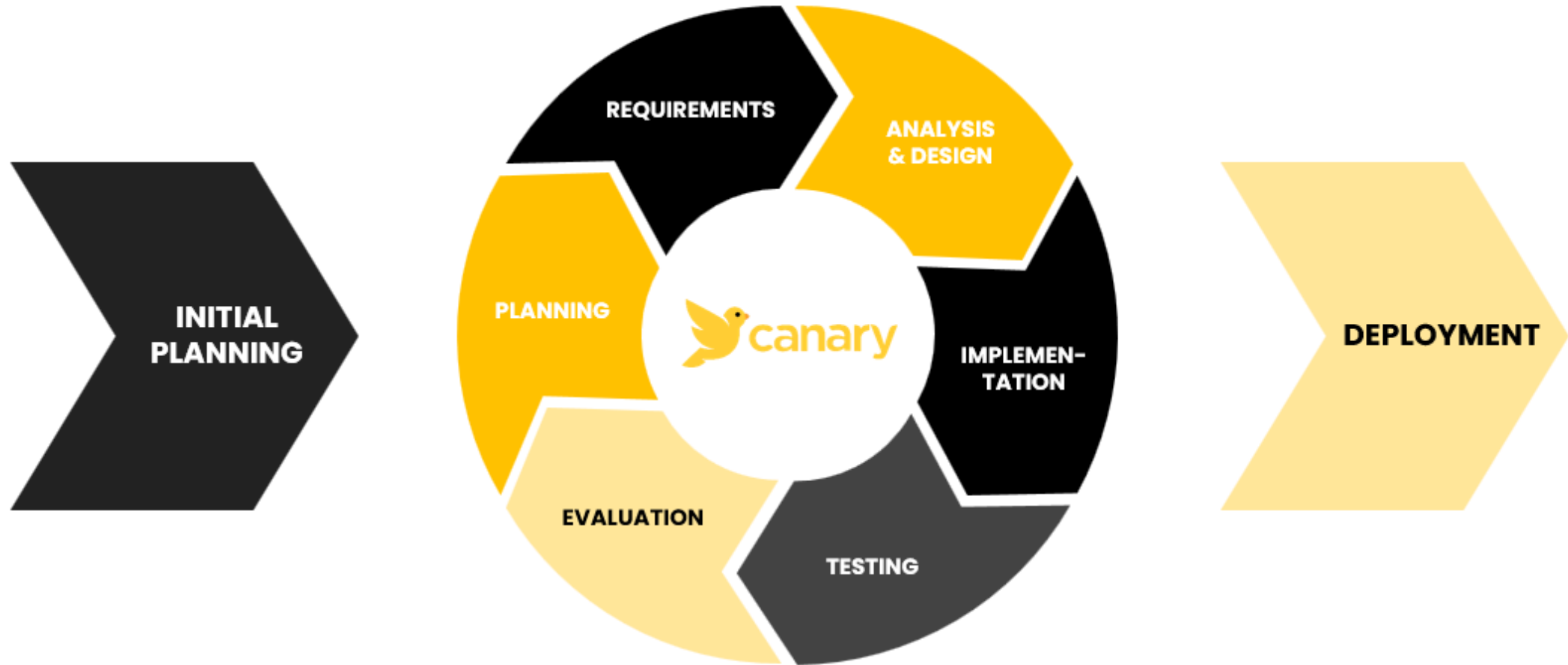
SMART FOUNDATIONS

Capture What Matters | Structure it Right | Operational Intelligence

01 COLLECT &
STORE DATA

02 ADD
CONTEXT

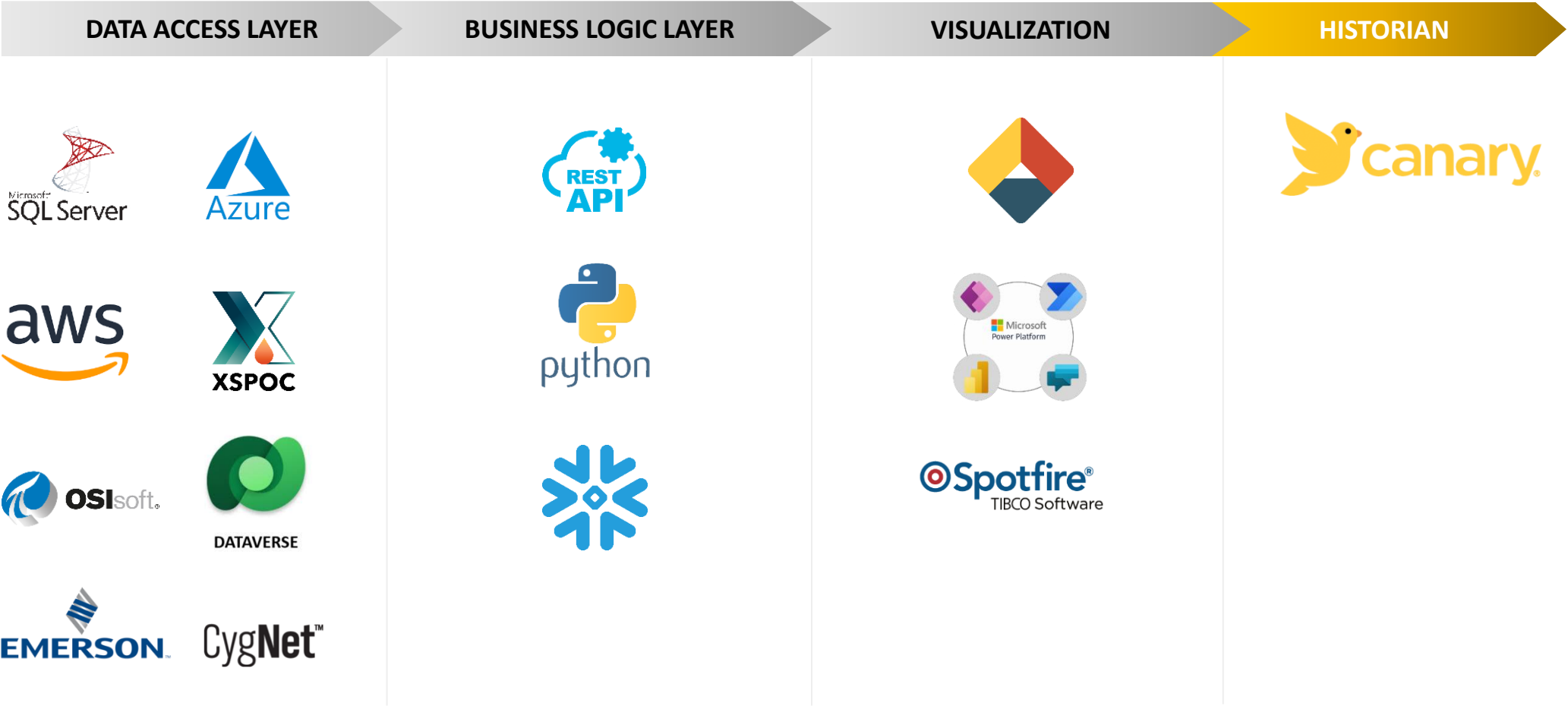
03 MAXIMIZE
YOUR VALUE



SOFTWARE & TOOLS

Capture What Matters | Structure it Right | Operational Intelligence

We are system-agnostic and experienced across a wide range of technologies, allowing us to support your unique environment and business goals. We can support if you need a recommendation or prefer to align with internal IT strategy.



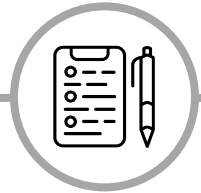
DATA MIGRATION APPROACH

System-Agnostic Connectivity | Legacy & Modern Platforms | Standards-Driven Integration



WEB API

Web interface approach to communicate between client and canary read/write API



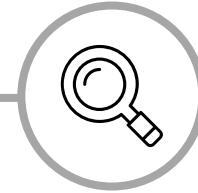
SFTP

Secure File Transfer Protocol - A secure file-based method for scheduled or batched data transfers.



SQL DBS

Data is captured and indexed in the PROD/DEV server and ingested to Canary through SQL Collector



BULK DATA UPLOAD

Manual upload through the front-end platform for non-integrated systems or one-time imports.



RESTful API

Using REST Api endpoints on Canary Store and Forward to ingest data from Client Data source

TAG NORMALIZATION

Sustainable Framework | Real-Time Tag Mapping | Built to Scale

Without consistent tag naming, even the most robust datasets become unusable for analytics which leads to missed opportunities for operational optimization.

TAG NORMALIZATION

Implement a multi-tier classification methodology to systematically filter and normalize all tags, leveraging a machine learning library trained on all observed tag variations.

META DATA VALIDATION

Deploy dataset to gather meta data across different platforms and embedded as tag properties

ASSET MODEL CREATION

Build GLOBAL unified asset model hierarchy applied across entire organization from meta data of the normalized tags

PERFORMANCE EVALUATION

Developed User friendly Tag tracking for trending dashboards and reports for End Users

SUSTAINABLE TAG FRAMEWORK

Utilize Chirality's proprietary application to continuously normalize and categorize new, previously unseen tag combinations.

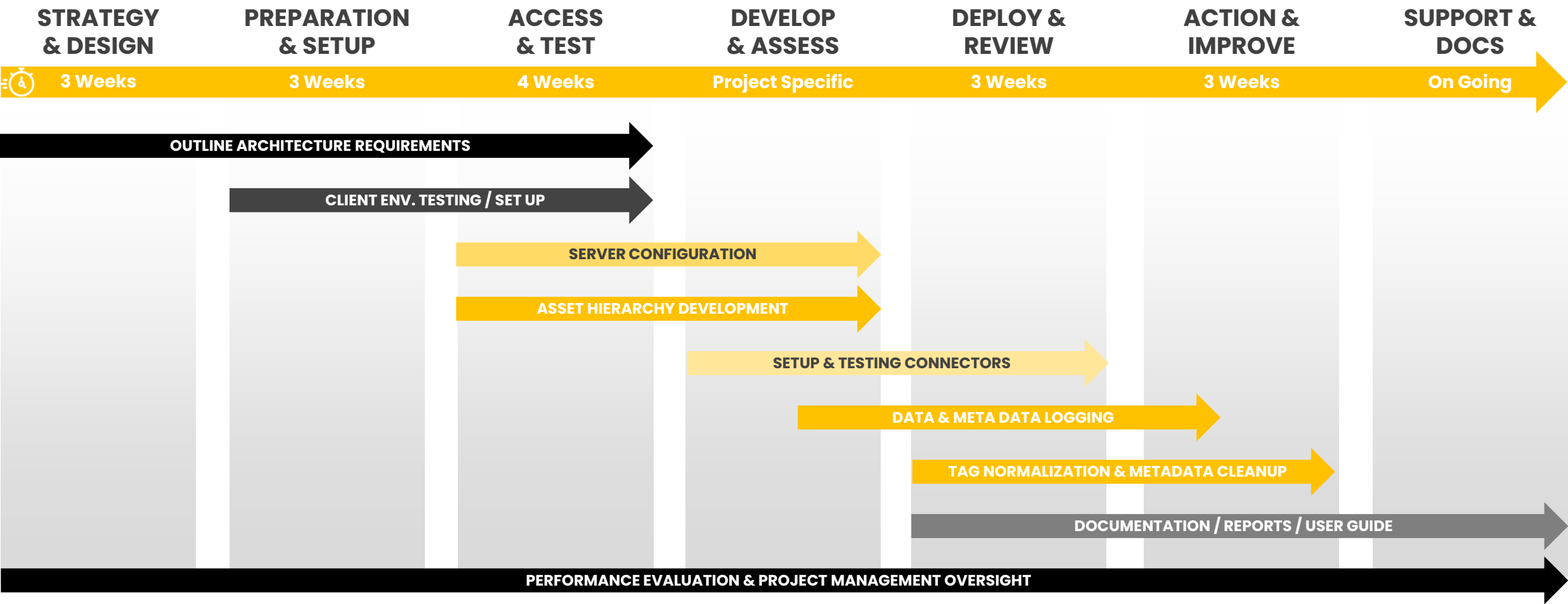
VALUE CREATION

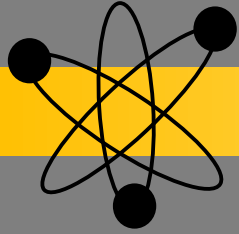
Deploy customized Use Case Applications for various teams across organization.

ROADMAP TO HIGH-VALUE SYSTEM

Discovery & Scoping | Reliable Execution | Best Practices Applies

Our methodology blends best practices with flexibility, allowing us to adapt to real-world business constraints while keeping momentum. We focus on delivering early wins through agile deployment cycles, so teams can begin leveraging insights sooner without compromising on long-term sustainability.





Focused on **high impact**
data science projects for the
Oil and Gas industry.

In a fast-paced world of
Machine Learning, AI, and
expensive technologies, we
help you **thrive** with an
affordable and simple
approach to Data Analytics.

www.ChiralityResearch.org

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