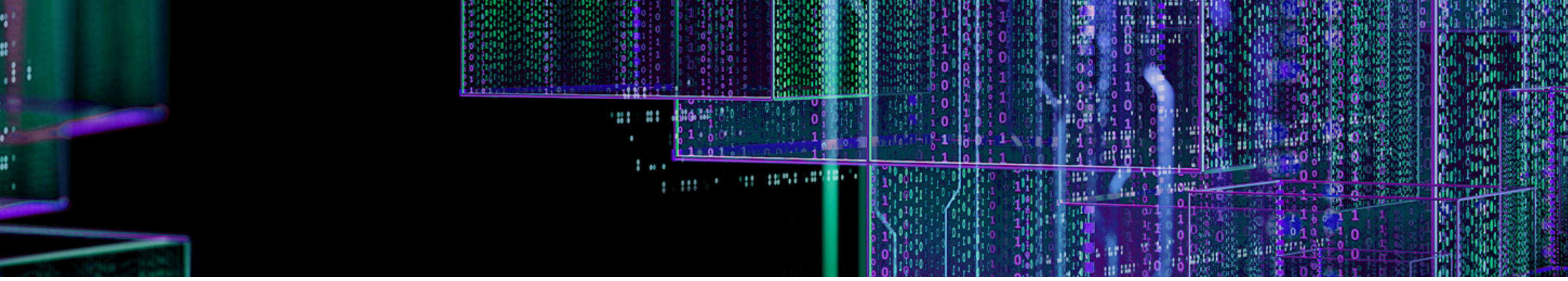
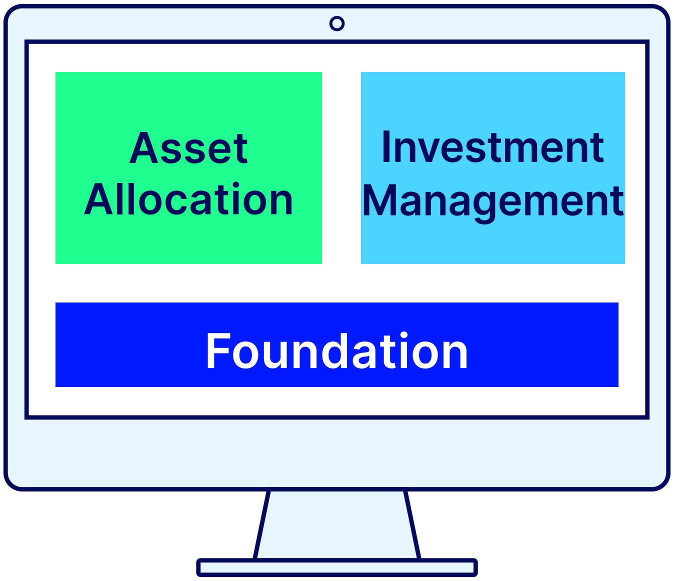
Charles River® for Asset Owners

CharlesRiver
A State Street Company

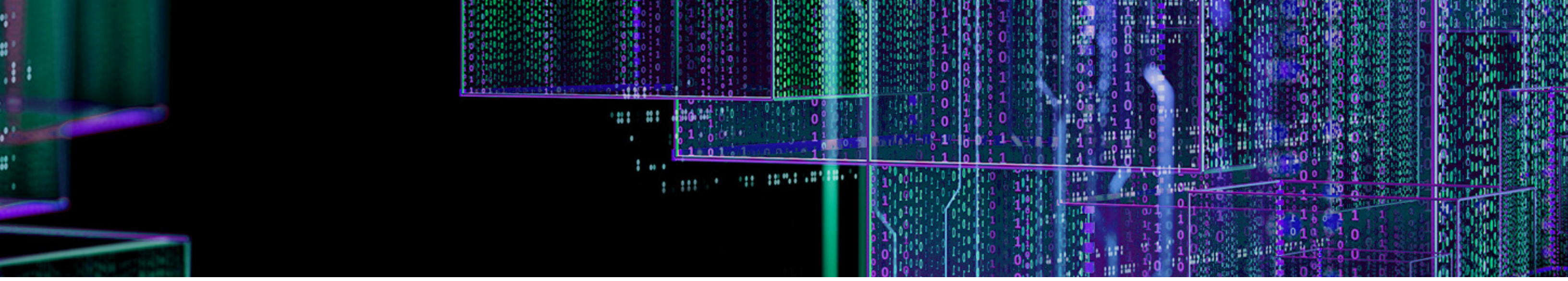


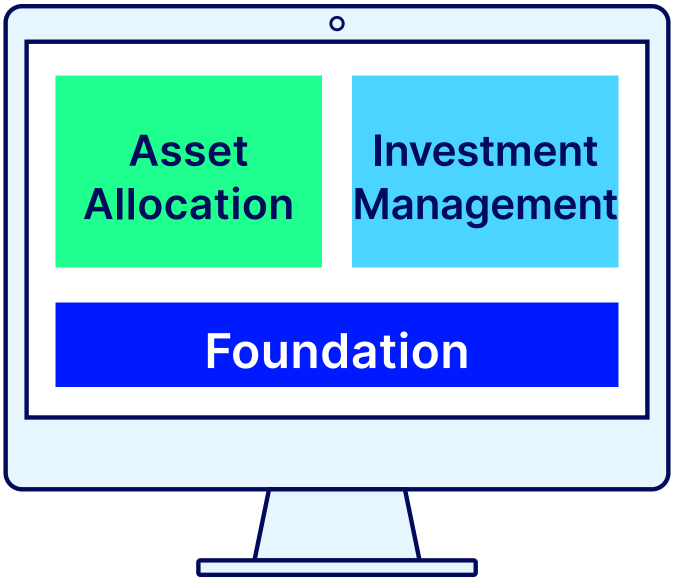
A Unified Solution for Asset Owners



Charles River provides an enterprise platform for pensions, superannuation funds and official institutions looking to “right source” their operating model with a combination of technology and services. The platform is designed to support growth, helping organizations diversify into new strategies, asset classes and geographies, and powering improved customer engagement by enabling near real-time insights into member portfolios.

By eliminating technology and data silos that inhibit innovation, Charles River helps provide asset owners with the agility to respond to changing customer preferences, regulatory requirements and market structure.





Asset Allocation

A “whole-of-fund” view provides asset owners with a holistic view of internally and externally managed assets across public and private markets. This ensures that portfolio and risk management workflows are based on a current, complete and accurate view of positions and exposures. Leveraging the whole-of-fund view offers asset owners several key benefits:

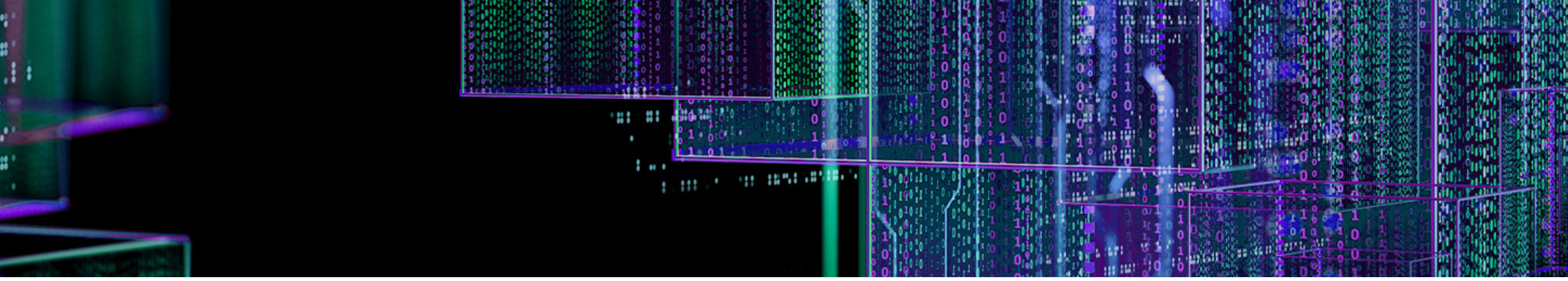
- Cost-effective rebalancing and portfolio completion by realigning to a fund’s desired asset allocation
- Consistent performance measurement and attribution analysis for investment products offered to plan members
- Stress testing of regulatory and internal scenarios to understand fund resiliency
- Transparency into the portfolio’s ESG impact as asset owners transition to net zero targets

Investment Management

For organizations managing some or all assets in-house, Charles River provides a full suite of investment management capabilities, including portfolio construction, scenario analysis, trading, manager selection and performance measurement and attribution.

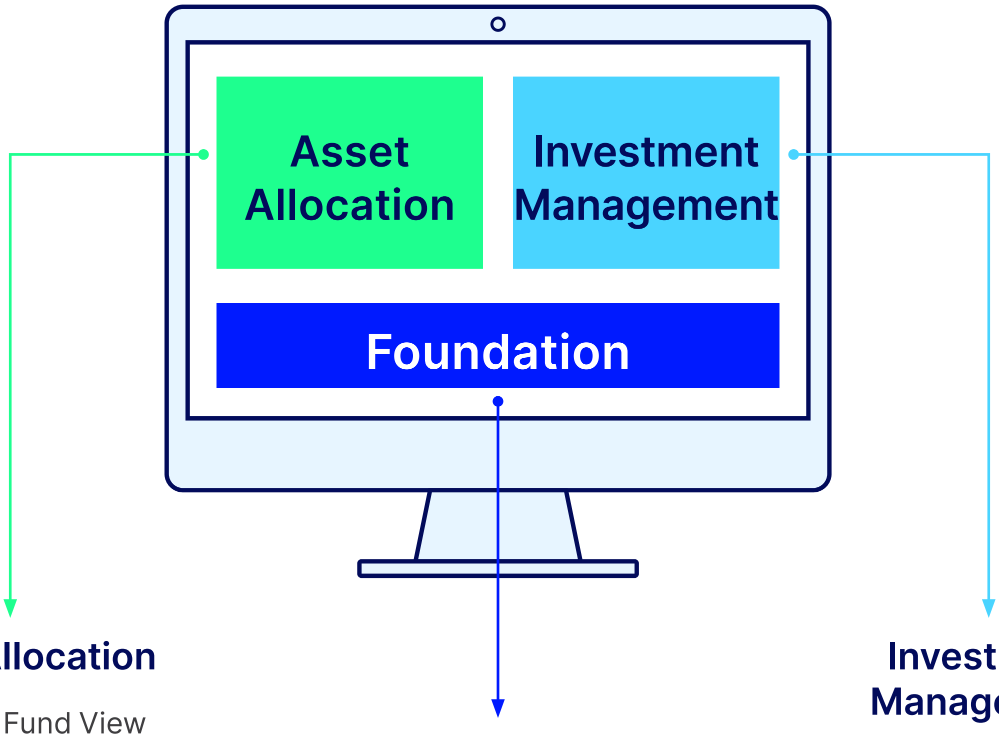
Foundation

A solid data foundation underpins the platform, starting with an Investment Book of Record (IBOR) that provides an aggregated view of start-of-day positions and investable cash across custodians. Enterprise Data Management (EDM) provides data collection, validation, governance and warehousing across internal and external data sources.



Manage all Assets from a Single Desktop

Charles River empowers organizations with a single desktop view of assets, whether managed internally or externally. Eliminate data silos, fragmented legacy systems and delayed views of positions and cash with our cloud-based, enterprise solution.



Asset Allocation

Whole of Fund View

Rebalancing and Portfolio Completion

Plan Performance, Attribution & Risk

Stress Testing

Foundation

Cash and Position Management (IBOR)

Data Management and Warehousing

Partner Ecosystem

Cloud Deployment

Investment Management

Portfolio Management

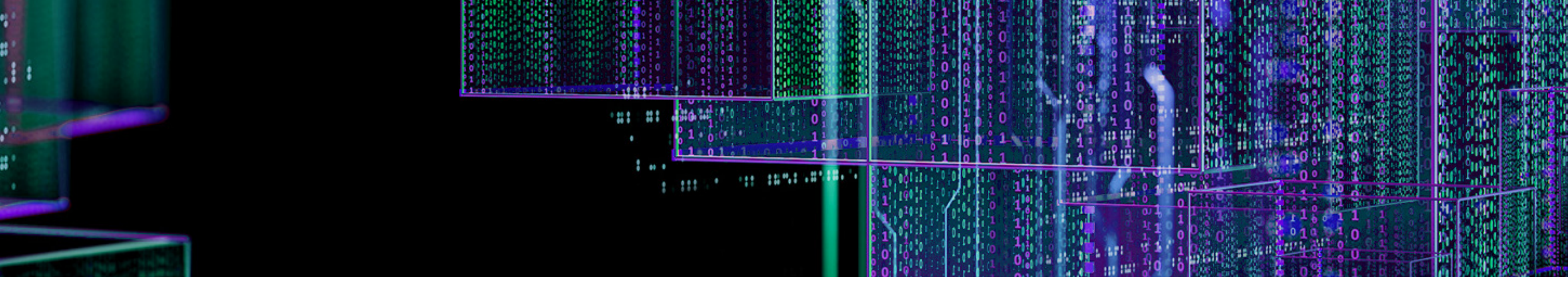
Manager Selection

Manager Performance, Attribution & Risk

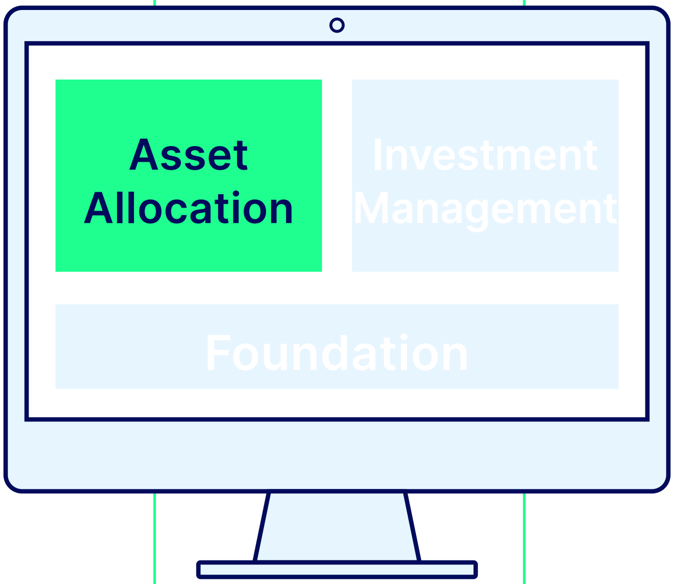
Scenario Analysis

Trading

Compliance



Asset Allocation



WHOLE OF FUND VIEW

Aggregate Portfolios Across Internal and External Managers

Consolidate cash flows and positions across your full range of assets, whether managed internally or externally, and augment with risk and performance analytics. Understand ESG and other factor-based exposures in terms of country, currency or sector and analyze which names or issuers are contributing to returns.

REBALANCING & PORTFOLIO COMPLETION

Realign Funds with Asset Allocation Targets

Leverage a whole-of-fund view that incorporates cash flows between and across member investment products and asset classes to understand deviations from targets. Generate asset class tilts using exchange-traded futures, ETFs, or synthetic products to cost-effectively realign investments with allocation targets.

PLAN PERFORMANCE, ATTRIBUTION & RISK

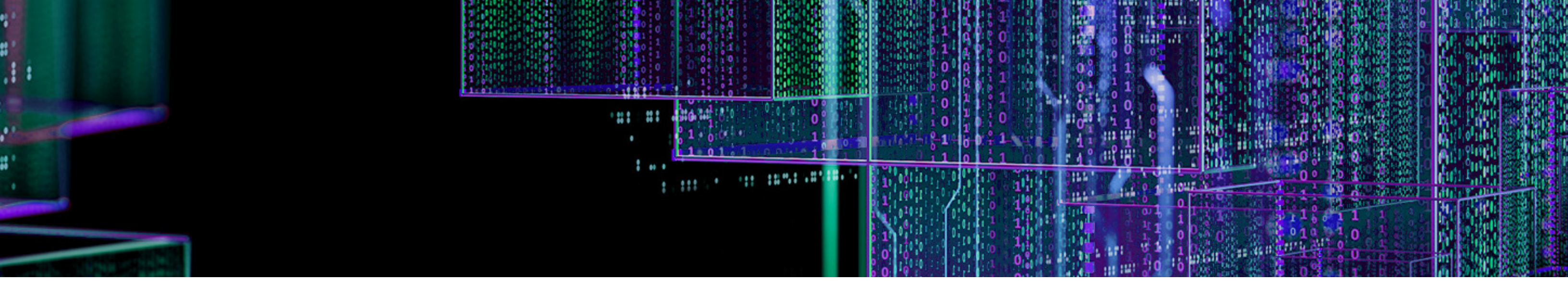
Measure, Attribute and Analyze Plan Performance

Calculate and report multi-asset and multi-currency performance attribution results across the fund. Analyze performance against government or industry benchmarks to understand what's driving returns.

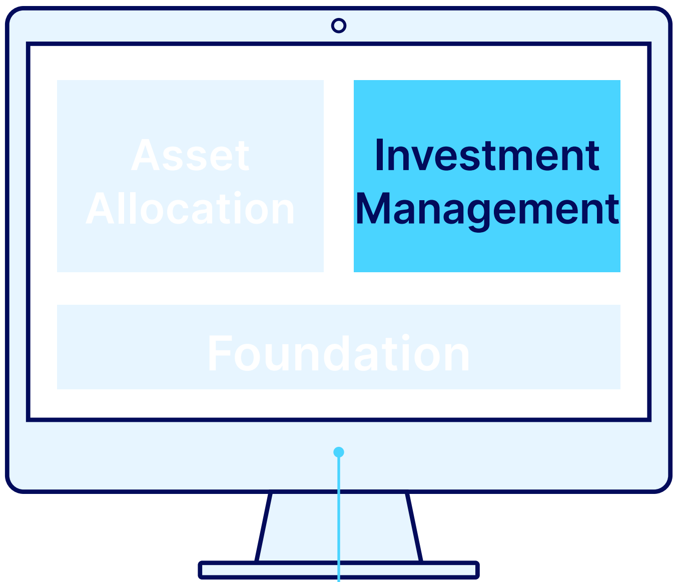
STRESS TESTING

Understand Fund Resiliency

Apply regulator-mandated or internal stress tests across the whole-of-fund to understand the impact of interest rate, market and currency shocks on performance and worst-case drawdown. Design and implement strategies to hedge unwanted risks.



Investment Management



PORTFOLIO MANAGEMENT

Manage Public and Private Assets on one Platform

Consolidate portfolio construction, optimization, risk measurement and scenario analysis on a single platform, leveraging your choice of internal or third-party risk analytics. Gain a unified portfolio view across asset classes, including externally managed funds.

SCENARIO ANALYSIS

Determine Portfolio Impact of Market and Macro Shocks

Understand asset-class specific impacts of multiple stress factors on your portfolios, including factor-based and economic scenarios such as interest rate and FX shifts, credit spread changes, inflation shocks, and equity market movements.

MANAGER SELECTION

Make Informed Manager Selection and Allocation Decisions

Benchmark internal and external asset managers to understand contributions and correlations. Make data-driven manager selection and capital allocation decisions.

TRADING

Automate Trades Across Global Liquidity Venues

Our multi-asset order and execution management connects you to global liquidity venues, automates low-touch trades and supports portfolio trades. Access your choice of transaction cost analytics providers to document best execution and gain visibility into trade execution quality.

PLAN PERFORMANCE, ATTRIBUTION & RISK

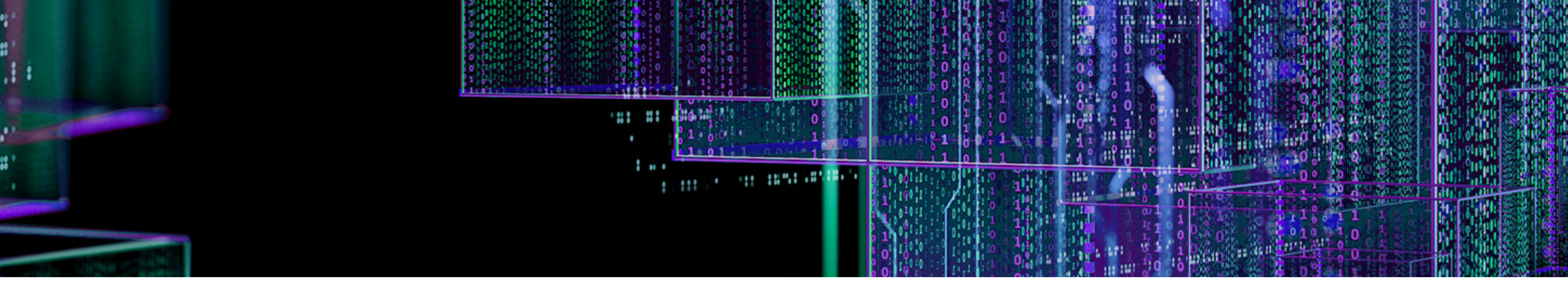
Understand Performance and Attribution Across Managers

Calculate attribution across asset classes either from internally generated or custodial returns for both public and private assets. View the latest return, contribution and attribution data across any time frame and geography for each asset class.

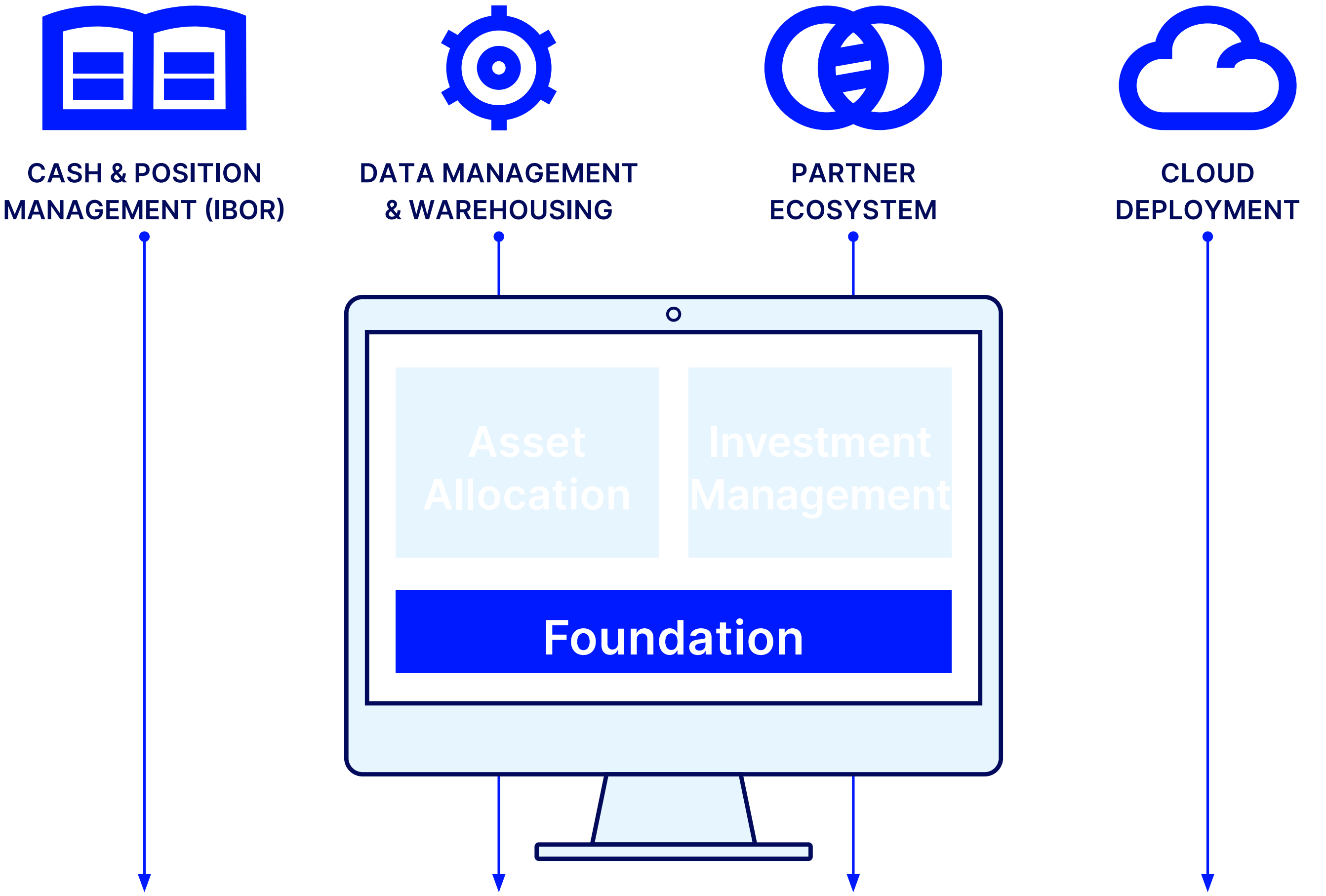
COMPLIANCE

Ensure Compliance with Investment Policy Statements

Centralize compliance monitoring and management across the investment life cycle, with services that helps reduce costs and maintain compliance with global regulations. Streamlined rule-building, testing and maintenance, customizable reporting, and a complete audit history.



Foundation



Operate From an Investment-Centric View of Holdings

Eliminate the time lag of custodial position feeds with accurate, start-of-day cash and positions across your entire fund. Access detailed breakdowns of underlying constituents for complex fund structures that help explain contribution to the fund's overall risk and exposure profile.

Capture, Curate and Harness Internal and External Data

Capture the disparate data generated across your investment process and from external sources to better inform your asset allocation, investment and de-risking decisions and help meet regulatory requirements using our cloud-based data warehouse.

Leverage Your Choice of Third-Party Providers

Our growing third-party provider ecosystem facilitates interoperability with your preferred risk analytics, factor models and data providers directly from our platform.

Operate From a Secure, Scalable and Highly Performant Platform

Our cloud-deployed platform helps enable more agile operations, supports compliance with growing regulatory and data residency requirements, and scales seamlessly to support organic and acquisition-based business growth.

About Charles River Development, A State Street Company

Investment and wealth managers, asset owners and insurers in over 30 countries rely on Charles River IMS to manage USD ~$58 Trillion in assets. Together with State Street's middle and back office services, Charles River's cloud-based front office technology forms the foundation of State Street Alpha. Charles River helps automate and simplify the investment process across asset classes, from portfolio management and risk analytics through trading and post-trade settlement, with integrated compliance and managed data throughout. Charles River's partner ecosystem enables clients to access the data, analytics, application and liquidity providers that support their product and asset class mix.With a 1750+ global headcount, Charles River serves clients in 11 regional offices. (Statistics as of Q3 2023)

Learn more at **crd.com/asset-owners**