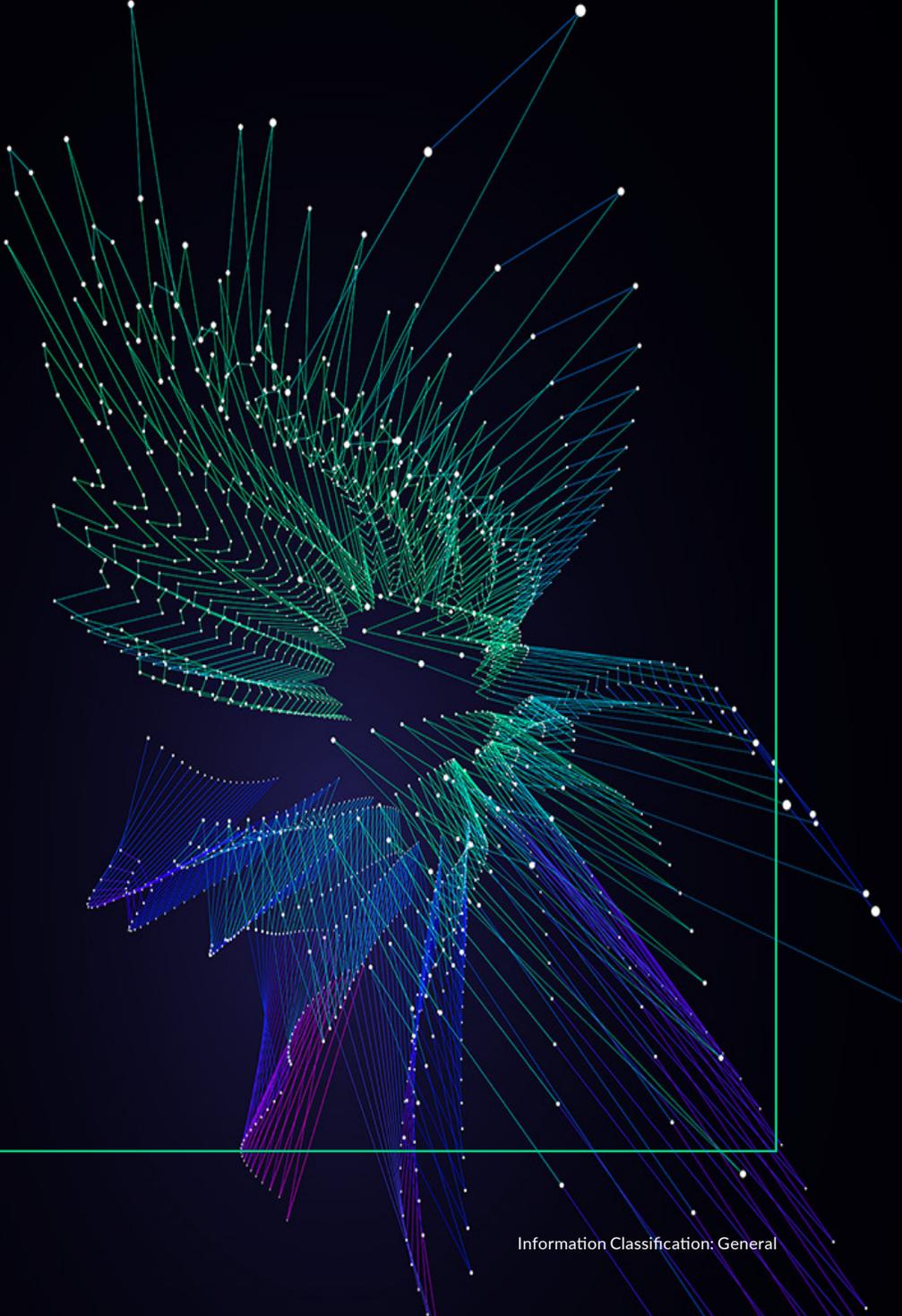


# Charles River<sup>®</sup> IMS Middle Office



# The Charles River Middle Office

Charles River Investment Management Solution (Charles River IMS) provides an alternative to outsourcing with a complete set of middle office capabilities, including cash, position and collateral management, performance measurement and attribution and post-trade processing. This provides the front and middle office with a shared and consistent view of positions, investable cash and available collateral.

## Charles River Middle Office Capabilities



Cloud-Based Deployment

# Challenges

Investment firms face several middle office challenges. Reliance on back office accounting systems and custodians results in stale and incomplete views of account positions and investable cash.

Manual post-trade processing introduces settlement process errors, and multiple asset class-specific performance and attribution systems create integration bottlenecks with portfolio management and risk systems.

Regulations have saddled firms with new compliance obligations for OTC derivatives, requiring advanced collateral and margin management capabilities to remain compliant.

“The biggest immediate value Asset Managers see in automation comes from removing cost from the middle office, where there is the most low-hanging fruit.”

- Wholesale Banks & Asset Managers: Winning Under Pressure

Morgan Stanley/  
Oliver Wyman Blueprint

## Our Solution

Charles River IMS provides investment firms with enterprise capabilities for addressing these challenges.



### Capabilities:

- Position & cash management
- Collateral and margin management
- PMA and GIPS composite management
- Post-trade processing
- SaaS based deployment and SWIFT messaging



### Benefits:

- Helps reduce reliance on back office accounting systems and custodial position reporting
- Aims to eliminate the need for asset class-specific performance and attribution systems
- Designed to deliver timely, consistent and transparent information across the enterprise
- Automates the entire post-trade life cycle with faster processing and high volume scalability
- Enables better compliance with regulations (Dodd-Frank, MiFID) and industry standards (GIPS)

# Position Management



Charles River's Investment Book of Record (IBOR) provides the front office with accurate, real-time positions and cash, and supports the retrieval and reconstruction of historic positions to help answer inquiries from portfolio managers, traders, and compliance officers. As an independent source of start-of-day positions, IBOR decouples the front office from the back office, enabling consistent and real-time management of position data on a single platform.



By establishing a "single and current version of the truth", IBOR instills greater confidence in investment decisions. IBOR feeds the Charles River IMS with beginning-of-day positions and can distribute position data to ancillary front and middle office systems. By eliminating dependency on daily feeds from back-office systems for investment operations and consolidating multiple sources of position related data onto one platform, clients can eliminate position errors, streamline operations, and reduce costs.

Learn more at [crd.com/ibor](http://crd.com/ibor)

## Charles River's Investment Book of Record

1

Helps ensure that investment managers are trading on timely and accurate information, to reduce the possibility of oversold positions, compliance violations, fines and losses

2

Streamlines operations through self-sufficient position management workflows

3

Aims to eliminate the need for multiple front office systems by supporting all asset classes and instruments, including derivatives

4

Maintains an independent and auditable view of position data, critical for firms with outsourced back office services

5

Seeks to reduce end-of-day processing time by eliminating dependency on back-office data

6

Supports faster implementation and deployment of new product offerings

# Collateral Management



An increasing number of firms must post collateral for bilateral (uncleared) swaps, to settle collateral on T+1, and to maintain separate legal documentation arrangements for initial and cleared variation margin. By managing collateral and margin in Charles River IMS, firms can eliminate the need for third party systems. Charles River supports both front and middle office margin requirements, from pre-trade decision support through to management of margin calls and collateral posting.



Managers gain visibility into the initial margin estimate based on regulatory guidelines and can readily establish whether required collateral agreements are in place. Real-time updates of the trading book can eliminate over/under pledging. Firms can streamline operations by centralizing the identification of eligible collateral with recording, reconciliation, selection and tracking tasks.

Learn more at [crd.com/cm](https://www.crd.com/cm)

“We estimate **40%** of processing and administration costs are personnel, despite the high potential for automation.

The battle is on to develop the winning proposition, with the goal to deliver a more robust, scalable technology driven solution.”

- Wholesale Banks & Asset Managers: Winning Under Pressure  
Morgan Stanley / Oliver Wyman Blueprint

# Performance Measurement & Attribution

Charles River IMS enables firms to view historical account performance across any timeframe and understand the portfolio construction and asset selection decisions responsible for that performance.

Analysts can change performance or attribution settings on the fly and run different analyses for the same account across asset types, down to the individual security level. Performance results can be converted to any currency and custom benchmarks can be created by importing and blending category- or constituent-level indices.

Charles River also supports attribution analysis from third party models.



## Attribution Methodologies and Capabilities:

- Daily attribution by asset style and currency
- Attribute roll-up to multiple classification levels for each security, including domicile (region, country, currency) and sector (industry or sub-sector)



## Portfolio Managers and Analysts Can:

- Measure performance using either true time-weighted or modified Dietz methodologies, configurable at the account level
- Calculate multiple return types, including capital, income, base, local, currency, gross and net
- Roll up performance to any level, including multiple nested classifications, total portfolio/benchmark, account groups and composites

Learn more at [crd.com/pma](https://crd.com/pma)

# Post-Trade, Settlements & SWIFT Connectivity

By automating the post-trade process and providing centralized confirmation, trade matching and settlement instruction workflows, Charles River IMS helps firms reduce clearing-related risk. Dealers and traders, portfolio managers, compliance, and operations personnel have the same real-time view of all post-trade processing activity and data for each transaction. The resulting low-touch settlement process aims to minimize manual steps and reduce operational bottlenecks.

**End-to-end confirmation, reconciliation, and settlement workflows:** Bidirectional message support and connectivity with SWIFT networks expedite routing of individual trades and allocations to help ensure same-day matching and confirmation

**Reduce failed trades:** Automated matching and confirmation of blocks and allocations help eliminate error-prone manual workflows

**Automate trade confirmation across multiple asset classes:** Charles River IMS integrates DTCC Central Trade Manager (DTCC CTM) for central matching of cross-border and domestic transactions

**Support local trade matching:** Standing settlement instructions and configurable, rule-based tolerance matching enable match/affirm with any local destination

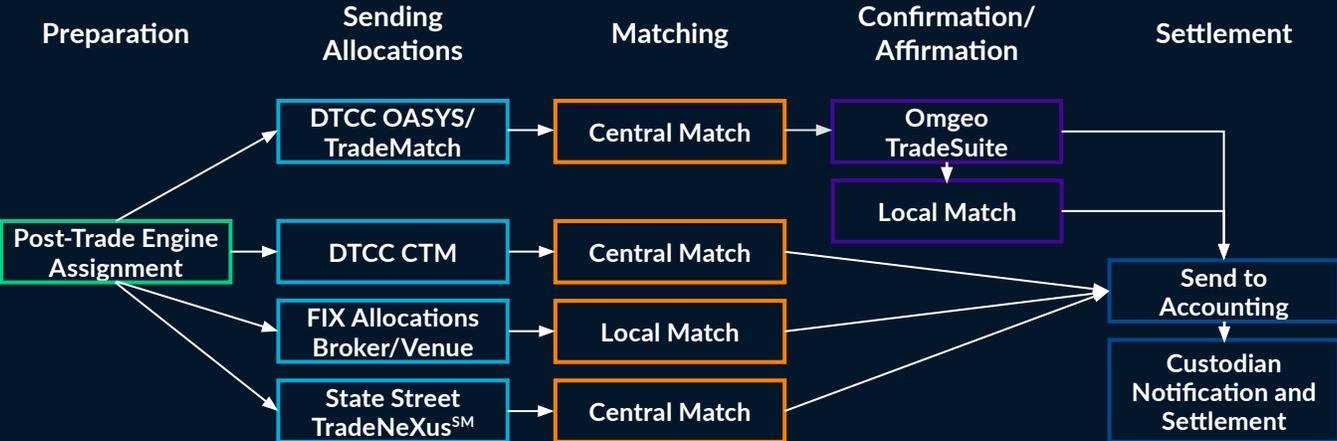
**Manage “by exception”:** Personalized views and alerts can save time and speed up corrective intervention

**Satisfy regulatory mandates:** OTC clearing workflows and audit trails help ensure adherence to the latest regulations

**Consolidate post-execution operations:** Centralization of all reference data and settlement instructions helps reduce cost and complexity

Learn more at [crd.com/post](http://crd.com/post)

## Centralized Post-trade and Settlement





## Charles River Development, A State Street Company

Investment, wealth and alternative managers, asset owners and insurers in 30 countries rely on Charles River IMS to manage USD \$36 Trillion in assets. Together with State Street's middle and back office services, Charles River's cloud-deployed front [and middle] office technology forms the foundation of State Street Alpha<sup>SM</sup>. 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. We serve clients globally with more than 1,000 employees in 11 regional offices.

(Statistics as of Q4 2021)

Learn more at [crd.com/CRIMS](https://crd.com/CRIMS)

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