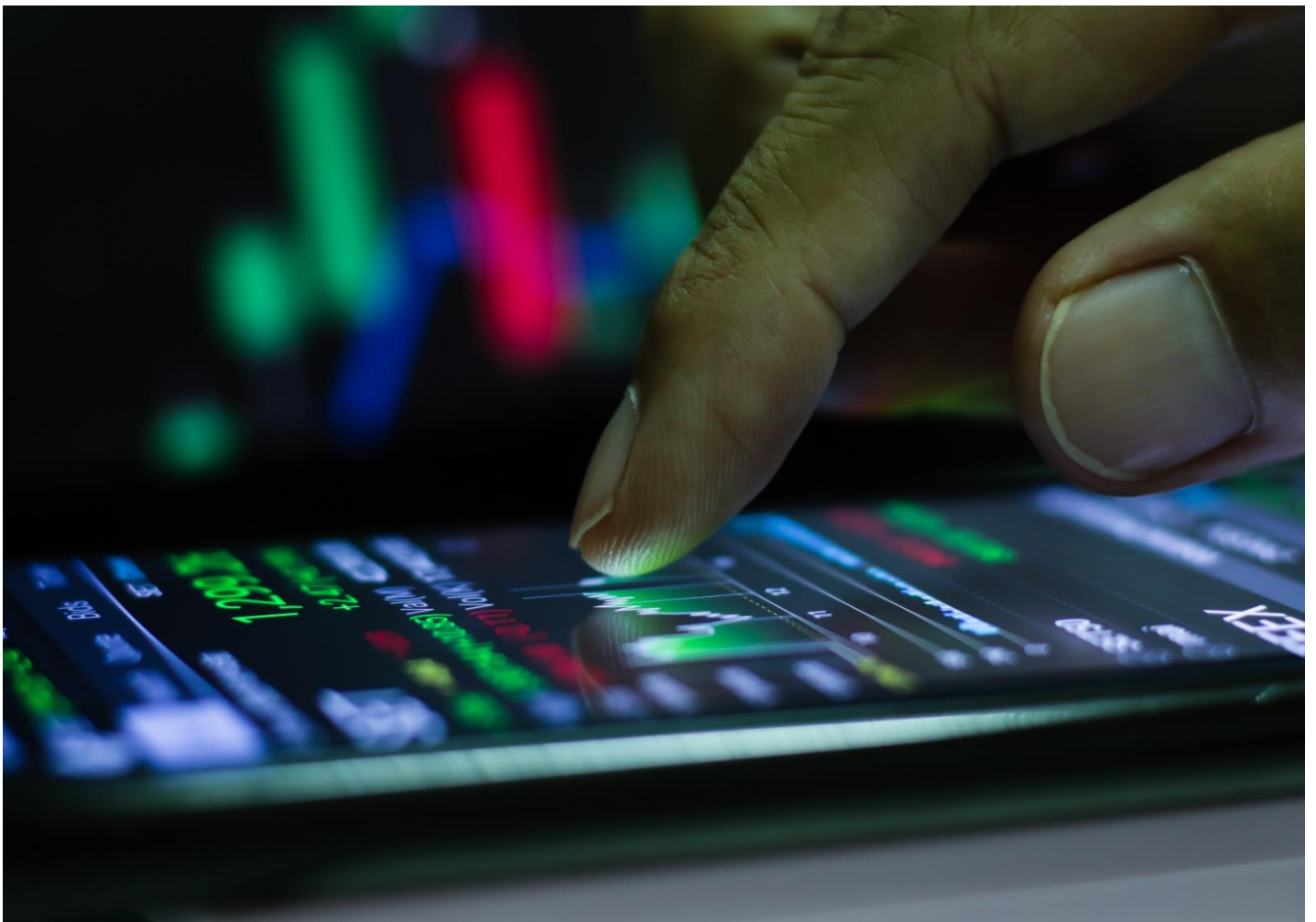


# Evolving trading and risk platforms

Whitepaper

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## Keeping up

Banks are constantly evaluating their ability to meet stringent regulatory asks, create operational efficiencies and deploy the right technology platforms in a rapidly evolving trading and risk landscape.

But, for most, regulatory mandates overshadow the much-required transformation plans, especially as they look to rein in costs.

Though banks are consolidating, decommissioning and customising legacy platforms to reduce infrastructure downtime, digitalisation of trading and risk platforms has been slow.

The transition to a next-generation architecture still revolves around policy, governance, data, processes, and alignment across the front-office, risk and finance functions.

Banks need a target operating model that enables convergence of front-office, risk and finance models and processes, embeds a robust data architecture, and embraces cloud and advanced analytics across the value chain.

This whitepaper delves into the trading and risk infrastructure of banks, providing recommendations and highlighting challenges.

## Unification of risk and trading architectures

- A centralised data management system to integrate risk and trading data from various sources, along with consolidation of multiple risk and trading systems, will provide banks with a holistic perspective on trading, risk, and profit and loss (PnL).
- A shared data layer that enables the calculation of present value through a unified interface will enable uniform front-office risk data.
- Banks should look to streamline the process of calculating risk sensitivities and automate scenario generation.
- They should also leverage cloud-based infrastructure for scalability, cost-efficiency and faster time to market.
- The adoption of a cloud-native architecture ensures smooth operations in both the on-premises and multi-cloud environments.

## Challenges

- Diverse risk and trading systems create data silos and pose integration challenges. It is essential to address compatibility issues and ensure smooth data flow to unify these structures.
- Multiple platforms spanning various asset classes and regions result in inconsistent data formats in front-office systems, manual processing efforts due to different pricing libraries, varying risk sensitivity calculations, and independent work to meet regulatory standards on each trading and risk platform.
- Integrated risk and trading architectures are required to comply with strict regulations such as Basel III, FRTB and BCBS 239, emphasising the importance of robust risk management practices and data governance.

## **Transition from legacy systems to modern architectures**

- To improve agility, cost-effectiveness and adaptability, banks must upgrade from outdated, monolithic legacy systems to modern, component-based architectures.
- Integration of the microservices architecture, application programming interface (API) gateway, and service meshes will result in a more flexible and scalable infrastructure.
- Banks should develop an API layer to support existing legacy systems, while facilitating modernisation of front-end applications.
- A comprehensive front-to-back risk architecture will help effectively aggregate, manage and control risk across different business clusters.
- Banks must actively pursue modular and efficient infrastructure solutions, seeking the opinions of system integration and product experts for development or acquisition of solutions.

### **Challenges**

- Complex and disparate legacy systems pose challenges in refactoring, necessitating meticulous planning and execution.
- Integration of new components into existing systems can lead to compatibility and data-migration issues, particularly in intricate trading and risk management applications.
- Re-platforming requires expertise in contemporary technologies and architectural paradigms, which the banking industry's workforce does not possess.
- There is also lack of integrity between individual valuation frameworks and the central risk and trading architecture.

## **Interoperability between trading and risk applications**

- Standards such as FDC3 allow centralised data and analytics to be accessible on a single trader desktop. Open API technology supports a 'best-of-breed' approach with interchangeable elements.
- Seamless data transmission between trading and risk systems for instant risk evaluation and management results in improved decision-making.
- Combining trading and risk applications can reduce operational expenses by removing duplicate processes and enhancing data precision.

### **Challenges**

- Lack of data integration results in data silos, hindering a unified view of information necessary for conducting comprehensive risk analysis.
- Manual processes add complexity and increase the likelihood of errors in risk analysis and reporting.

## **Real-time risk capture and analysis**

- Banks can enhance system performance and reliability by implementing a distributed, fault-tolerant, and scalable architecture, while addressing requirements for ultra-low latency and high-frequency trade execution.
- They need a real-time risk infrastructure, encompassing trade booking, PnL reporting, risk reporting, market scenarios, trade pricing and calculations, backtesting, and time series.
- Mitigation of security risks by eliminating outdated vulnerable libraries and dependencies will lead to a reduction in technical debt.
- Banks must strive for high-quality code and development practices by enforcing clean-code standards, minimum code coverage and coding style guidelines, along with integration with DevOps tools.
- Integration of alerting tools can enhance incident response and troubleshooting capabilities.
- Transitioning to event sourcing/ command query responsibility segregation (CQRS) pattern in specific parts of the system will result in stateless microservices and eliminate a single source of truth.

### **Challenges**

- Real-time risk and pricing systems are facing scale and latency pressures in intra-trade calculations for rates and other products because of higher market volatility and increased electronification of fixed income and rates products.
- Further, banks' integration, monitoring and troubleshooting capabilities are inadequate.

## **Machine learning and self-service analytics for data analysis**

- Machine learning enables efficient handling of large volumes of data to identify patterns and correlations. Data can be from both external and internal sources, including market data, reference data, pricing data, credit data, market trends, and customer transactions.
- Customisation of risk assessment models to individual clients or portfolios allows informed decision-making in investments, lending and other financial activities.
- Self-service analytics empower clients to access and analyse data on their own.
- Banks should monetise in-house data assets and intellectual property, such as risk models, algorithms and other valuable resources.

### **Challenges**

- Banks face the risk of non-compliance with regulatory requirements, and struggle to generate accurate regulatory reports.
- Clients are unable to independently perform data analysis, hindering their ability to gain insights through self-service analytics.
- Many banks are unable to democratise data and capitalise on intellectual property, leading to missed monetisation opportunities.

## **Conclusion**

The trading and risk architectures of banks will keep evolving as capital markets continue to transform.

Banks are integrating their fragmented and legacy front- and middle-office platforms and applications to improve efficiency, reduce costs and enhance risk management practices.

They further aim to integrate pricing and valuation, transition from legacy to modern systems, ensure interoperability between trading and risk applications, upgrade technology stack, unify risk and trading architectures, and build a target operating model.

That said, banks need to address issues related to compatibility and data integration and analysis.

Banks that implement and execute the right integration approach, along with deploying effective cross-border teams across system, data and cloud migration, have a better shot at building a successful next-generation trading and risk architecture.

The process of change entails a journey rather than a fixed endpoint.

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