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**Simplifying institutional
digital asset trading**

INDUSTRY REPORT

**EMS consolidation
in a complex trading
environment**

CTM SLIDE

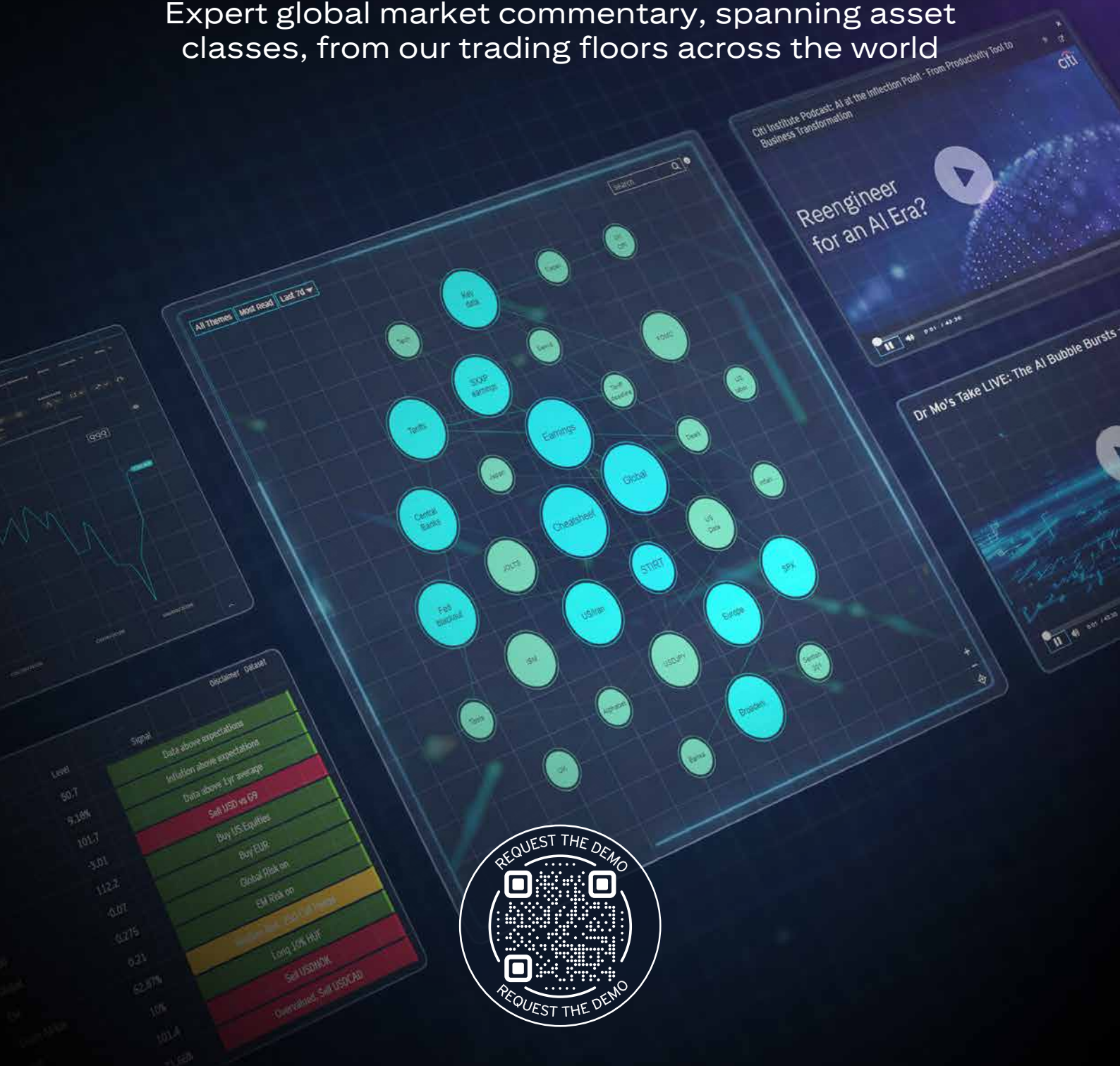
**Giving FX traders greater
control over passive
execution**

COVER INTERVIEW
KEITH TIPPELL
HEAD OF FX AT OSTTRA

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August 2026

Data figures prominently in this edition. Our Special Report focuses on FX options data which is extremely valuable to options traders for their pre- and post- trade analytics and to other types of traders for insight into market expectations of future market moves. The forward-looking intelligence it can provide influences tactical decision making across the global FX ecosystem and given the increasing use of advanced AI powered models informing trading strategy and execution decisions, the source and quality of FX options data has really never been more important. One of the key differences between firms that simply consume market data and those that systematically extract intelligence from it is related to how the data is used with some firms treating it primarily as a reference point for reporting, reconciliation or compliance while others build it directly into the way they trade, manage risk and allocate liquidity. It's clear that as FX markets become increasingly electronic, automated and fragmented, the quality and timeliness of all types of data is becoming just as important as the technology used to execute a trade. Data is now an essential component of the entire electronic FX lifecycle, from generating client prices and managing liquidity, through execution and hedging, to measuring performance after the trade.

This month we also investigate why digital assets trading remains operationally complex for institutional market participants despite rapid advances in technology and market infrastructure. Interoperability between the current market infrastructure and emerging digital assets ecosystems is increasingly seen as critical and firms that can connect traditional market infrastructure with digital asset rails in a way that preserves institutional controls while improving liquidity, settlement and capital efficiency are likely to emerge as winners. Liquidity fragmentation remains one of the major frictions in this market and a number of solutions have emerged to address it, including smart order routing, liquidity aggregation tools, off-exchange settlement networks, institutional connectivity providers and technology platforms but we remain some way from a genuinely institutional-grade liquidity model.

As usual I hope you enjoy reading this edition of the magazine.

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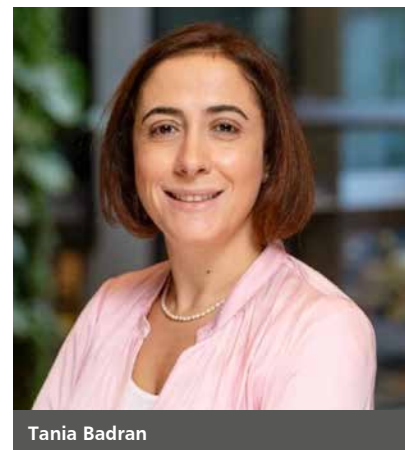
Dtcplay adopts Bloomberg's B-PIPE

Bloomberg has announced that dtcplay, a Singapore headquartered payment company, has adopted Bloomberg's flagship real time market data feed, B-PIPE. B-PIPE provides dtcplay with access to high-quality foreign exchange data to support its treasury FX spot trading, enabling transparent pricing and enhanced cost management as the company manages FX exposures arising from multi currency payment flows. As part of the adoption, Bloomberg's trusted FX data supports the firm's treasury team in independently verifying

counterparty pricing, supporting informed execution decisions, and strengthening internal management around FX valuation.

"As payment companies scale across markets and currencies, access to real-time, trusted FX data is essential to managing increasingly complex exposures with greater transparency and control," said Tania Badran, Head of Enterprise Data Sales, South APAC at Bloomberg. "We're pleased to support dtcplay with real-time FX data through B-PIPE as the company

strengthens its management of FX exposures and costs."

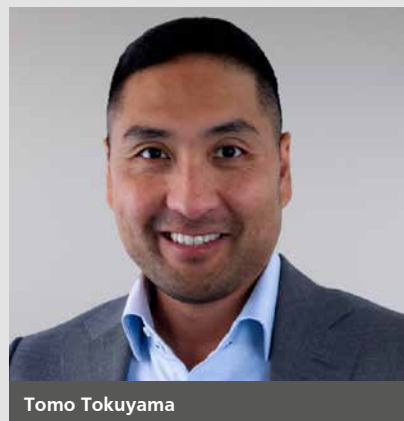


Tania Badran

FX traders want EMS consolidation

Demand for consolidating execution management systems (EMS) and bringing FX into broader multi-asset trading workflows continues to grow. New research conducted with dozens of buy-side market participants found that achieving a unified, real-time view of risk is the primary driver for firms considering the consolidation of their FX and listed derivatives EMS. The findings detailed in the new white paper, *Bringing in FX: EMS Consolidation in a Complex Trading Environment*,

are based on a survey of 65 hedge funds, proprietary trading firms



Tomo Tokuyama

and asset managers, conducted by management intelligence provider Acuiti on behalf of Trading Technologies International, Inc. (TT), a global capital markets technology provider. Tomo Tokuyama, EVP, Managing Director, FX of TT, said: "Sophisticated buy-side participants understand that risk management is one of the keys to their success, and this survey reinforced that it is a priority that goes beyond the obvious cost efficiencies of consolidation." See page 28.

NAGA integrates with Radar and Apex

NAGA has integrated iSAM Securities' Radar and Apex solutions, adding real-time risk analytics and low-latency execution technology to support its next phase of growth. With Radar, NAGA has access to a powerful risk analytics platform designed to improve understanding of client activity, exposure, profitability and trading behaviour. Through a detailed view of book performance, risk and dealing teams can identify trading patterns earlier and make more data-driven decisions.

Through Apex, NAGA will benefit from iSAM Securities' bridge technology, giving the team greater control over ultra-low latency pricing, liquidity, routing, hedging and execution settings. Apex supports tailored execution controls while helping brokers to better manage latency-sensitive flow through fast, stable and accurate LP pricing, particularly during volatile market conditions. "We are delighted to support NAGA with both Radar and Apex. By combining real-time risk analytics with precise execution

control, iSAM will help drive NAGA's broader expansion plans," said Dennis Weissert, Chief Commercial Officer, Apex.



Dennis Weissert

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JT Markets launches TPI

JT Markets has announced the launch of the Trader Profile Index (TPI), a proprietary flow-scoring system designed to give brokers a clear, data-driven answer to one of the industry's oldest questions: which clients should be warehoused, and which should be hedged. Unlike legacy scoring tools built around MT5 alone, TPI profiles any GUI clients as well as tags within API clients a distinction that sets it apart in a market where algorithmic and

API-driven flow is a growing share of volume most tools still can't see clearly.

"I used to be an A-book evangelist," said Jonny Brewer, Managing Partner, JT Markets. "There are still one or two of us left, but it's a dying breed in retail FX today, that's a fight not worth having. The better strategy is helping brokers make sharper, more informed decisions about their own flow. That's exactly what TPI does."



Jonny Brewer

Northern Trust enters agreement with Lukka

Northern Trust has announced that it has entered into an agreement with Lukka to deliver an institutional-grade digital asset reporting capability, expanding Northern Trust's service offering to include enhanced access to digital asset data. Lukka provides institutional-grade digital asset data infrastructure, software, and analytics designed to help organizations ingest, normalize, reconcile, and report on complex on- and off-chain activity. The new capability provides clients with enhanced reporting on digital asset

data, including transaction history and point-in-time balances with historical



Justin Chapman

views. "Clients are seeking a more streamlined and institutional approach to managing and reporting on their digital asset exposures," said Justin Chapman, group head of Strategic Partnerships, Digital and Financial Markets at Northern Trust. "This relationship with Lukka allows us to deliver a critical capability, bringing together digital and traditional asset reporting, while continuing to build toward a more comprehensive, interoperable and connected digital asset servicing model."

Spotex integrates with BitGo Go network

Spotex has joined BitGo's Go Network, enabling eligible institutional clients to access Spotex's electronic trading venue while keeping assets in regulated BitGo custody throughout the trading lifecycle. The integration expands the execution venues available through BitGo, giving institutions another way to access liquidity without changing how they manage custody, settlement, or operational risk. The integration combines Spotex's institutional execution infrastructure with BitGo's proprietary Go Network clearing and settlement infrastructure. Clients allocate assets

held in regulated BitGo custody for trading on Spotex while the underlying assets remain securely held at BitGo.

"We believe that institutions want greater choice in execution without adding unnecessary complexity across custody, credit, and settlement," said Adam Sporn, Head of Prime Brokerage and U.S. Institutional Sales at BitGo. "Spotex brings established electronic trading and connectivity across traditional and digital asset markets. Through this integration, eligible clients can access Spotex while keeping

assets within regulated custody and maintaining the operational controls required for institutional trading."



Adam Sporn

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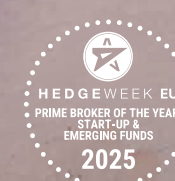
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CTM Slide from Euronext FX: Giving FX traders greater control over passive execution

By Nick Burrlock, Head of Product, Euronext FX



Nick Burrlock

As institutional FX markets continue to evolve, traders face a familiar challenge: how to balance execution quality against execution certainty. Passive execution can offer meaningful price improvement but often requires patience, while aggressive execution may achieve immediate fills at the cost of crossing the spread and increasing market impact.

Euronext FX's Collapse-to-Mid (CTM) functionality was originally developed to bridge that gap. Since its introduction, CTM adoption has grown steadily as market participants have sought new ways to access liquidity, reduce information leakage, and improve execution outcomes while remaining passive.

Building on that success, Euronext FX has introduced CTM Slide, a new enhancement that gives traders greater control over how and when passive orders become executable. By allowing users to define trigger points within the prevailing spread, CTM Slide transforms midpoint matching from a fixed methodology into a configurable execution framework tailored to individual trading objectives.

THE ORIGINS OF CTM

Collapse-to-Mid originated from conversations with market participants who were dissatisfied with the alternatives available for midpoint execution.

Some solutions relied on complex post-trade revaluation models that could produce outcomes that were difficult to explain and predict. Other approaches exposed passive interest to sweeping activity, resulting in immediate market impact and reducing the benefits traders hoped to achieve by posting resting interest.

The objective behind CTM was to address these challenges by creating a mechanism that allowed traders to remain passive while still benefiting from midpoint opportunities when

suitable contra-side interest existed. Rather than forcing participants to choose between resting passively or aggressively crossing the spread, CTM sought to combine the advantages of both approaches.

Today, CTM enables passive orders to interact at mid when opposing eligible interest is available, whether that interest originates from other passive participants or firm liquidity providers. This helps clients access improved pricing opportunities while maintaining the benefits associated with passive execution/capturing spread.

LISTENING TO CLIENT FEEDBACK

As CTM adoption grew, Euronext FX maintained regular dialogue with users to better understand their experience and evolving requirements.

The feedback revealed an interesting trend. Some participants felt execution speeds were close to ideal. Others wanted their orders to execute more quickly, while some preferred a slower, more selective execution profile.

What became evident was that there

is no single execution setting that works for every participant. Different firms place different values on fill probability, execution speed, spread capture and price improvement opportunities. A solution that is optimal for one strategy may be suboptimal for another. This recognition became the catalyst for us to develop CTM Slide.

INTRODUCING CTM SLIDE

CTM Slide extends the original CTM model by allowing participants to specify their CTM trigger point as a percentage of the spread, rather than simply relying on the midpoint. In practical terms, this gives traders greater control over the trade-off between execution probability and execution quality.

A participant seeking higher execution certainty can configure a more aggressive trigger point, increasing the likelihood that their passive interest becomes executable. Conversely, a participant focused on maximising price improvement can position themselves more conservatively and prioritise execution quality over immediacy.

The result is a more flexible framework that can be tailored to different trading styles, market conditions and execution objectives. Clients can set their own parameters dynamically on each order via API or can request that Euronext FX applies pre-configured values per ccy pair to their orders.

BALANCING PRICE IMPROVEMENT AND EXECUTION PROBABILITY

Every execution decision involves trade-offs.

Generally speaking, the more aggressively a trader wishes to execute, the more likely they are to

cross the spread and incur additional costs. Equally, the more patient a trader becomes, the greater the opportunity for price improvement, but the lower the certainty of immediate execution.

Research and client experience have consistently shown that CTM occupies an attractive middle ground between spread capture and speed of execution, providing a compelling balance between execution quality and fill rates.

CTM Slide takes this concept one step further by allowing each participant to define where they want to sit on that spectrum.

Rather than imposing a standard setting across all users, Euronext FX now enables traders to calibrate their execution behaviour according to their own objectives. This flexibility allows firms to adapt to changing market conditions, varying levels of urgency and different strategy requirements without fundamentally altering their workflow.

WHO BENEFITS MOST?

The flexibility offered by CTM Slide has broad appeal because execution objectives vary significantly across the institutional FX landscape.

Participants executing benign flow that is unlikely to move the market can benefit by having orders sit passively and capture spread. In those circumstances, capturing some portion of the spread or interacting at advantageous levels can deliver better outcomes than consistently crossing the market.

At the other end of the spectrum, traders managing more aggressive flow or who have a strong view on where the market is about to move can prioritise the speed of execution.

CTM Slide allows those participants to adjust their settings accordingly while remaining within the same overall execution framework.

The key benefit is choice. Rather than being forced into a single execution methodology, traders can align their passive execution behaviour with their specific objectives.

COMPLEMENTING EXISTING WORKFLOW TOOLS

CTM Slide has been designed to work seamlessly alongside existing Euronext FX functionality, including CTM and Flex Limit. Together, these tools provide market participants with a broader set of options for managing passive liquidity and tailoring execution outcomes to their requirements.

The broader trend across institutional FX is towards greater configurability and more intelligent execution workflows. CTM Slide reflects that evolution, by giving clients additional control without introducing complexity into their trading process.

LOOKING AHEAD

CTM Slide represents one step in a broader programme of execution innovation at Euronext FX. The company continues to invest heavily in data infrastructure, analytics, and quantitative research capabilities. These investments are enabling deeper analysis of execution quality, liquidity dynamics and trading behaviour, creating opportunities to develop solutions that address genuine client challenges.

Future innovation projects we are working on include solutions to detect skew leakage, finding more efficient ways for Liquidity Providers to deliver and optimise pricing, and improving choices for clients looking to trade passively – be that at mid or capturing spread.

The new intelligence layer: Harnessing FX Options data for better trading decisions

Paul Golden investigates why the value of harnessing FX options data for better trading decisions is becoming ever more evident as market participants chase valuable insights.



Paul Golden

FX options data is valuable because it reveals what market participants expect and how they are positioning for future currency moves, rather than simply showing what has already happened in the spot market. Aspects of this data that are particularly useful include:

- Forward-looking information - options prices incorporate expectations about future exchange rate levels and volatility, which can provide clues about where traders think currencies could move over the coming weeks or months
- A measure of expected volatility - implied volatility from options prices shows how much movement the market expects, with a sharp rise a possible signal that investors anticipate greater FX uncertainty
- Insight into tail risks - options can reveal how concerned investors are about extreme currency moves with measures such as risk reversals showing whether demand is greater for protection against a currency rising or falling
- Evidence of hedging demand - corporate treasurers, asset managers and banks use FX options to hedge currency exposures so changes in option volumes

"FX options data has evolved from execution reference into forward-looking intelligence that guides tactical decision making across the global FX ecosystem."



Chris Povey

- Early warning of market stress - options markets can sometimes show rising concern before it becomes obvious in spot FX (for example, a sudden jump in implied volatility or demand for downside protection can signal that investors are preparing for a significant move)

Options also reveal information that spot and forwards don't provide. So while a spot rate indicates the current price and a forward rate the market's agreed future exchange rate, options additionally tell market participants about the distribution of possible outcomes - including how much investors are willing to pay to protect against unusually large moves. In addition, a CFO or treasurer can use options data to assess the cost of hedging future revenues, costs, debt or investments denominated in another currency.

- and pricing can indicate where businesses and investors are becoming more concerned about FX risk
- Identifying market positioning - if options activity becomes heavily concentrated around particular strikes or maturities, it can indicate where investors are positioning or where significant hedging needs exist

DATA DRIVES ANALYTICS

FX options data is extremely valuable to options traders for their pre- and post-trade analytics and to FX traders of all types for insight into market expectations of future market moves, observes Chris Povey, executive director, head of FX options & NDFs at CME Group.

"High quality real-time and historic options market data has traditionally been hard to come by, particularly for the buy-side," he says. "Price discovery was driven by activity in the inter-dealer broker market, where data was limited only to participating dealers, delivered via a chat or GUI and generally not easily accessible for analytics."

Electronification has fundamentally changed this landscape, with many participants now consuming options market data via API and applying increasingly sophisticated pre- and post-trade tools to extract useful insights.

This in turn has significantly increased the demand for high quality,



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"FX options data is a mirror of the OTC market itself in that the data and expertise remain fragmented across individual institutions."



Chris Jackson

transparent FX options market data, adds Povey.

"FX options data has evolved from execution reference into forward-looking intelligence that guides tactical decision making across the global FX ecosystem," he says. "For example, real-time streaming prices in our short-dated options provide critical data for event-driven hedging for all types of FX traders, especially around elections, central bank meetings and major economic releases. Even those not trading options use the data to

identify events that are anticipated to be market moving."

Systematic buy-side firms have long used machine learning trained on CME's FX options CLOB for signal generation, valuing its transparent and continuous real-time market data. However, the emergence of publicly available generative AI has significantly democratised the ability to extract actionable signals, which in turn has increased the demand for clean, reliable sources of high quality FX options market data.

Buy side firms also use CME Group's data for viewing intraday moves across the FX volatility surface without relying on manual RFQs or indicative quote feeds. Systematic strategies inform their algorithmic execution systems, while macro strategies use it to gauge the competitiveness of pricing from their dealers. Historic datasets are critical for back-testing new options strategies. "With increasingly advanced AI powered models informing trading strategy and execution decisions,

the source and quality of FX options market data has never been more important," says Povey.

CRITICAL MANAGEMENT INPUT

FX options data is one of the cleanest real-time reads on probability, risk appetite and market expectations but it is also a critical input for execution and risk management. In an era of frequent event-driven shocks, geopolitical tensions and policy pivots, the term structure and skew capture the expected range of outcomes and the asymmetry of those outcomes.

"What makes it more interesting now is that the market is growing rapidly but the data picture is still incomplete," explains Chris Jackson, CEO & co-founder OptAxe. "FX options data is a mirror of the OTC market itself in that the data and expertise remain fragmented across individual institutions. There is no uniformity - data retrieval and interrogation for end-users is not straightforward. This is a challenge and opportunity because that data therefore becomes a critical differentiator for participants."

The most relevant emerging use case for FX options data across different functions and FX workflows from OptAxe's perspective is liquidity observation.

In a bilateral, OTC marketplace, liquidity is never transparent and the cost of obtaining liquidity is market footprint. The observable data is therefore a critical component of pre- and post-trade workflows but it is still largely absent for FX options.

"When [Microsoft CEO] Satya Nadella said customers essentially pay twice to access AI - once with money and once with something even more valuable, their proprietary knowledge - it really struck a chord with us," says Jackson.



Options data was once largely confined to specialist desks but that is becoming less true

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"As more options trading moves onto electronic platforms, the volume and quality of this data continue to improve."



Oleg Shevelenko

"The same conflict exists in asking multiple LPs for an OTC FX option price."

In this scenario, participants pay both a financial cost and an information cost to obtain liquidity but only the first is routinely measured. Protocols such as book crossing or mid matching have existed in other asset classes to reduce the information cost but they only work if customers have real-time observable and reliable FX options data.

"That is interesting to us and to our clients because it leads to emergent

and improved execution protocols in FX options," says Jackson. FX options data provides a window into what the market expects next, not just what has already happened. While spot market tells you where currency prices are today, the options market embeds information about volatility, future risks and investor positioning.

Metrics such as implied volatility, skew and positioning across strikes and maturities provide context that is difficult to find elsewhere, explains Oleg Shevelenko, head of pricing and execution product at FXGO. "As more options trading moves onto electronic platforms, the volume and quality of this data continue to improve, which makes it one of the sharper reads available on shifting market sentiment."

EVER-EXPANDING ROLE

He notes that the role of options data has expanded well beyond the options desk. Traders use it to inform execution decisions and pricing in real time, while risk teams rely on it to identify concentrations of exposure building

across currencies or maturities before they turn into a real risk. Portfolio managers are also making greater use of the data, particularly when assessing different hedging scenarios or modelling how a prospective trade could affect the wider portfolio. "Rather than serving as a record of past activity, options data is increasingly part of the decision-making process itself."

Shevelenko agrees that the increasing electrification of trading is changing the way FX options is obtained and utilised. Until relatively recently, much of the FX options market traded voice, so large parts of the trading process were difficult to capture in any meaningful way.

"It is worth noting that while the options segment is making meaningful progress towards electrification, it is not there yet," he says. "But where electronic execution has taken hold - whether through RFQs, automated workflows or APIs - that activity is now creating structured data in real time." The result is a much clearer picture of market behaviour before, during and after execution. Firms have better visibility into volatility, pricing dynamics and positioning than they did even a few years ago and that has improved both trading decisions and post-trade analysis.

As more of the options workflow becomes automated, from RFQ submission through to execution and post-trade confirmation, the data generated at each step becomes structured, time-stamped and machine-readable in a way that voice-traded flow simply cannot match. "That is what makes electrification so consequential for analytics," explains Shevelenko. "It is not just about faster execution, it is about creating a data trail that firms can actually learn from."



FX options data is a critical input for risk management

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AI is helping firms make better use of increasingly complex datasets

In the meantime, AI is helping firms make better use of increasingly complex datasets. Options markets generate huge amounts of information across strikes, maturities and volatility measures and AI is well suited to identifying relationships that would be difficult to spot manually.

It is also proving useful in turning unstructured information - such as pricing shared through chat or other communication channels - into data that can be analysed alongside electronic trading activity. "This is an area of focus for Bloomberg where NLP is being used to streamline pricing information for FX instruments," observes Shevelenko. "There is also a broader point about what APIs make possible in this context. When options execution is fully programmable, the feedback loop between data and decision-making becomes much tighter. A systematic fund can run a model, generate a signal, submit an RFQ, receive competing prices, execute and feed the outcome back into its risk system - all without manual intervention."

AI HELPING TRADERS

Shevelenko believes AI is most powerful when it is operating within

that kind of closed loop, where the inputs and outputs are clean and structured rather than fragmented across voice, chat and email and that the real value is not replacing traders' judgement but rather helping them identify meaningful shifts in market behaviour earlier and with greater confidence.

Jackson suggests that electronification is not just changing execution but creating new datasets. "A market that used to run on voice and chat generated substantial information but little of it was structured and reusable. Electronification in FX options should be seen as a data ownership opportunity, not just an automation opportunity."

It is also bringing new entrants into view as more non-bank market makers enter FX options. Their approach to risk modelling and trading is very different to traditional banks, creating new and differentiated sets of data.

"The nuance is that without centralised clearing or a centralised tape there will always be opacity and competing data sets, so we need to make customers' lives easier within the existing constraints," adds Jackson.

"We need to offer contextual and permissioned transparency."

He describes genuine transaction cost analysis for FX options as an absolute minimum that will be achieved soon.

"What interests us now is the next generation of toolsets. Vol surface crossing, smart contracts, pre-trade capital pricing, tradable event weightings - there is more surface area to look at once you have the data. This is where the prediction markets have been so fascinating. Trading market products on events with implicit volatility and binary outcomes may shift to trading explicit event outcomes with freely observable probabilities. That will require re-engineering of risk models and adding new product sets, all of which will feed back into FX option pricing."

The real value of AI lies in pattern recognition across a very high dimensional dataset: regime shifts, unusual volatility shapes, misaligned wings, response optimisation and the extraction of structured information from large, unstructured data sets. But that is not new, it has just been democratised. AI in that sense has dispersed knowledge across the market more evenly.

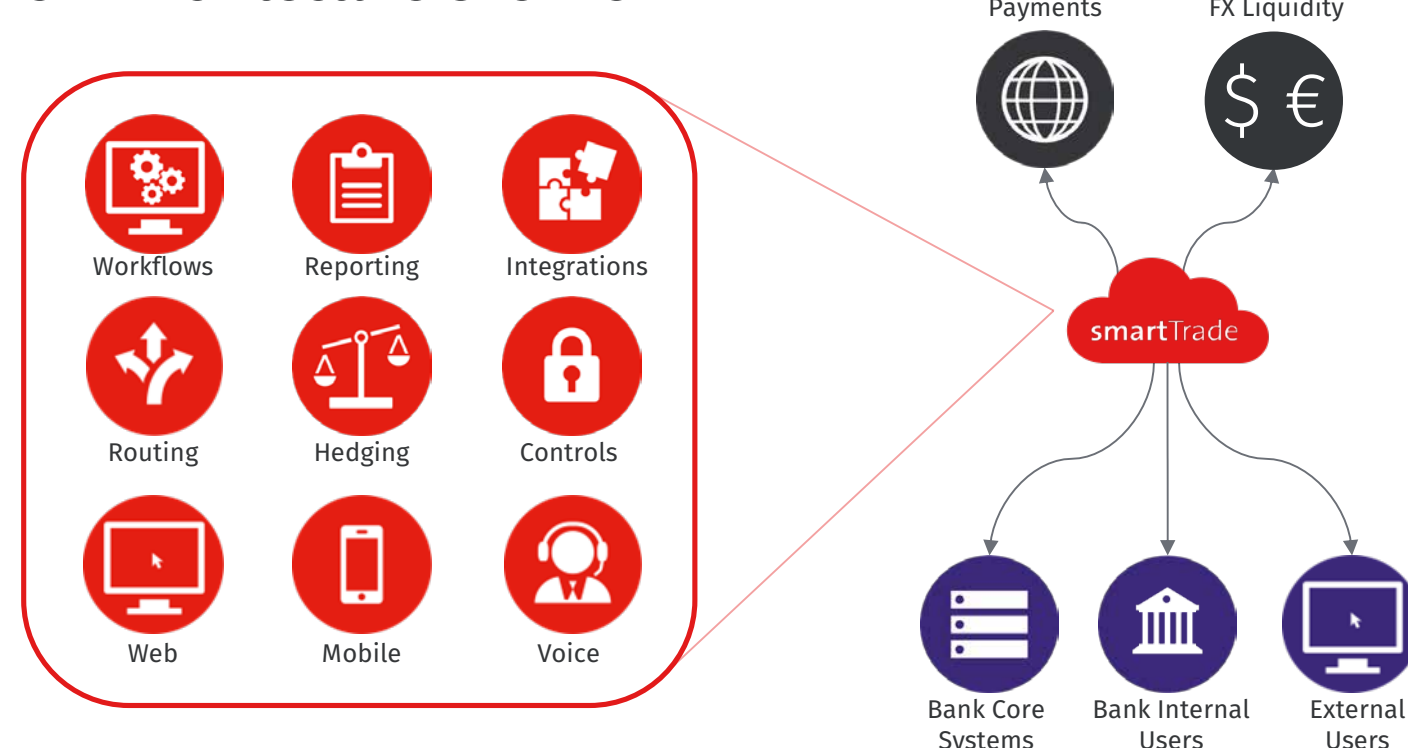


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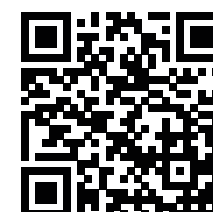
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The new intelligence layer: Harnessing FX Options data for better trading decisions



FX options data is extremely valuable to options traders for their pre- and post-trade analytics

"In day-to-day workflows, we already see a lot of embedded AI tooling at the point of trade - chat bots, data retrieval, surface analytics, smart routing, etc," says Jackson. "These are useful but feel very much like first generation use cases taking away manual workflows. Next generation use cases will be where the real ROI comes. Interrogating complex cross-asset vol surfaces, supporting trade selection, surfacing liquidity discreetly and building learning loops back into execution."

SUPPORTIVE INTELLIGENCE LAYER

FX options data is becoming an intelligence layer that supports decision making across the wider FX ecosystem but Jackson reckons it is still far from perfect, noting that once equities data became standardised, machine-readable and relatively easy to obtain, it stopped being used only by traders and became an input into algo trading, TCA, smart-order routing,

portfolio construction, market replay and trade surveillance.

"The risk ecosystem will continue to grow in complexity and breadth," he says. "New information is available now from crypto, prediction markets, perpetuals and others and this has increased both the input and output from cross-asset risk assessments. FX options data is just one input of many in this process but it remains one of the harder ones to independently assess."

"The layer will get richer as more of the workflow is captured electronically on regulated venues and that standardisation should compound in value. Standardisation should not be confused with the destruction of value, though. In equities, standardising the core dataset created the foundation for increasingly valuable analytics, execution tools and derived products and FX options can follow the same path."

On the question of what separates firms that simply consume market data from those that systematically extract intelligence from it, Jackson recognises that there will always be asymmetry.

"A well-known market-maker has 25,000 top-end Nvidia GPUs in Finland operating at the cutting edge of latency, statistical modelling and research. The advantages in being able to consume, interpret and extract intelligence at scale are unprecedented for these types of organisations but there is a wide distribution of consumers of market data and AI is allowing them to treat their own workflow as a data-generating asset."

Every enquiry, response, pass, execution and subsequent outcome can become part of a governed institutional dataset. According to Jackson, that workflow ownership is becoming one of the most strategically valuable assets in electronic trading and that is where the intelligence layer is added.



Options data is becoming an intelligence layer that supports decision making across the wider FX ecosystem

Options data was once largely confined to specialist desks but that is becoming less true as firms take a more integrated approach to managing FX exposure. Signals from options markets are now influencing decisions around hedging, execution and portfolio construction across a much broader set of teams.

According to Shevelenko, fragmentation across venues and data sources is a continued challenge. "The value of having data, liquidity and analytics in a single, integrated solution grows each time the market adds another venue or API. This is where APIs are quietly reshaping the intelligence layer in FX options."

MAKING PRICING ACCESSIBLE

Historically, the multi-dealer dynamic that gives buy-side firms pricing competition was only accessible if you had the operational infrastructure to manage multiple bilateral connections or multiple single dealer portals. A single multi-dealer UI or

API framework simplifies that by broadening access to competitive pricing while simultaneously generating richer, more comparable data across dealers and execution styles.

"Over time, that data becomes the intelligence layer itself," he adds. "Firms can see not just where they executed but how different dealers performed across market conditions, tenors and structures. As the underlying data becomes easier to access and integrate into existing workflows, it is evolving from a specialist resource into something that supports decision-making across the wider FX business."

Shevelenko says the difference between firms that simply consume market data and those that systematically extract intelligence from it lies in how the data is used, noting that some firms treat market data primarily as a reference point for reporting, reconciliation or compliance

while others build it directly into the way they trade, manage risk and allocate liquidity.

"In those organisations, data is not something that is reviewed after a decision has been made," he continues. "It is one of the inputs shaping the decision itself. Capturing that data comprehensively matters too, including from voice workflows where trades are often booked after the fact with timestamps that do not reflect actual execution."

Shevelenko reckons firms that can wrap an electronic layer around their voice activity - preserving timestamps, spreads and counterparty data to the same standard as an electronic trade - are the ones that will get the most out of their TCA and dealer selection tools. "That depends on having the right technology but just as importantly it requires an organisation that sees data as a competitive advantage rather than an operational by-product."

The data advantage: How better FX data drives better pricing, hedging and execution

By John McGrath, Chief Revenue Officer Fluent Trade Technologies



John McGrath

In institutional FX, almost every important decision ultimately starts with data.

From the price a bank shows its client, to the liquidity it chooses to hedge against, to the way it manages risk and executes trades, the quality and timeliness of market data can directly influence both client experience and trading performance. For a bank, the impact goes far beyond execution. The quality of the underlying market data can influence the price presented to a client, the liquidity selected to support that price, and ultimately the bank's ability to hedge the resulting exposure efficiently. A delayed or stale price is therefore not simply a technical problem - it can become a client experience problem, a risk-management problem and, ultimately, a profitability problem.

As FX markets become increasingly electronic, automated and fragmented, the quality and timeliness of this data is becoming just as important as the technology used to execute a trade. For market-leading FX technology providers such as Fluent Trade Technologies, this is becoming a fundamental consideration in how institutional trading infrastructure is designed.

THE REAL COST OF STALE DATA

Latency in FX is often discussed in terms of execution: how quickly can

an order travel from A to B? But there is another form of latency that can be just as important: the time between the market changing and a trading system knowing that it has changed.

Latency matters most when markets are moving fastest. During normal market conditions, a small difference in the timeliness of data may appear insignificant. But when prices move rapidly, those milliseconds can compound across multiple liquidity sources, creating a meaningful difference between the market a bank thinks it is seeing and the market that actually exists. The faster and more consistently market data can be captured, normalised and distributed, the better positioned a bank is to respond when speed matters most. The consequences of stale data extend well beyond a trading strategy. If the market information feeding a pricing engine is delayed or incomplete, a bank may be quoting clients on information that no longer accurately reflects the market. The same data can then influence how that exposure is hedged. A small latency problem at the market-data layer can therefore propagate through the entire trading lifecycle.

This becomes increasingly significant as institutions connect to multiple liquidity providers, venues and execution channels across different geographic regions. Each source can have its own protocols, data formats, network characteristics and performance profile.

The result can be a complex data environment in which firms have plenty of information, but not necessarily the right information at the right time. In an increasingly electronic FX market, clients expect competitive pricing, reliable execution and consistent liquidity. If a bank is working with delayed or inconsistent market information, that can affect the competitiveness of its pricing. If

The data advantage: How better FX data drives better pricing, hedging and execution

liquidity is not accurately assessed, it can affect execution quality. And if the bank cannot efficiently hedge the resulting position, the consequences can ultimately appear in its risk and trading performance. The client therefore experiences the quality of a bank's data infrastructure, even if they never see it.

FROM MORE DATA TO BETTER DATA

Market data from different liquidity sources must be captured, normalised and distributed in a consistent way so that trading systems can make meaningful comparisons. Firms need visibility into the quality of individual liquidity streams, including latency, pricing behaviour and consistency.

This is an area where specialist providers such as Fluent Trade Technologies are helping financial institutions address the increasing complexity of electronic FX. Fluent's technology connects to multiple market-data and liquidity sources, translating and normalising feeds into a unified environment for pricing and execution. Rather than treating connectivity as simply a technical plumbing exercise, the approach is designed to give institutions greater visibility and control over the data flowing through their trading infrastructure. That distinction is important.

The objective is not simply to make more information available. It is to make information actionable. Knowing that one liquidity provider is consistently slower than another can influence how a trading system prioritises that source. Understanding how liquidity behaves during periods of market stress can influence routing decisions. Being able to measure performance across geographic regions can identify infrastructure bottlenecks that would otherwise remain hidden.

Data therefore becomes more than an input to a trading strategy. It is an essential component of the entire electronic FX lifecycle—from generating client prices and managing liquidity, through execution and hedging, to measuring performance after the trade.

This also raises an important question when trading systems or algorithms fail to deliver the expected results. The instinct can be to change the model, invest in a new algorithm or redesign the trading system. But in some cases, the underlying problem may sit further upstream. If the data feeding those systems is delayed, inconsistent or incomplete, even the most sophisticated algorithm can be making decisions based on the wrong information. Before replacing the engine, firms should therefore consider whether they are giving it the right fuel.

SPEED STILL MATTERS—BUT CONSISTENCY MATTERS TOO

The industry has talked about low latency for years. For many institutions, however, simply hearing that a technology platform is 'low latency' is no longer enough. The more important question is: what does that latency mean for the business?

This is another area in which Fluent Trade has developed a strong position in the institutional FX technology market. Its architecture is designed not only to minimise latency, but to provide visibility into how market data and execution infrastructure are performing in real trading environments. That means being able to measure what is happening at every stage of the data and execution journey—from the arrival of a market-data message, through processing and distribution, to the point at which a trading decision is made and an order is executed.

BUILDING AN INFRASTRUCTURE AROUND DATA

Fluent Trade Technologies takes the view that market data should be treated as a strategic component of the electronic FX business, rather than simply as technology infrastructure. The company provides market-data connectivity, liquidity aggregation and execution technology designed for institutional FX environments, bringing together multiple sources within a unified technology architecture.

Its market-data infrastructure is designed to capture and normalise feeds from different liquidity sources while providing monitoring and visibility into latency and liquidity performance. This allows institutions to better understand the behaviour of their liquidity ecosystem and make more informed decisions about how that liquidity is distributed and consumed. For a market that operates continuously across global financial centres, that visibility is increasingly valuable.

As FX becomes more automated, firms will continue to demand faster infrastructure. But they will also need greater certainty that the information driving their algorithms is timely, consistent and reliable. The competitive advantage may therefore not come from simply having access to more data but will come from being able to trust it, understand it and act on it faster. Low latency is therefore not the end objective. It is an enabler. The real value comes from what a bank can do with better, more timely and more actionable data. That is where the next competitive advantage in electronic FX is likely to emerge.

For more information contact sales@fluenttech.net or <https://fluenttech.net/>

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Bringing In FX: Ems Consolidation In A Complex Trading Environment

Foreign exchange (FX) occupies a unique place alongside other members of the big four asset classes. It is much less likely to be traded for alpha generation than equity, credit or rates. Instead, many approach the market as a mechanism for access, as investors and proprietary trading firms use it to rotate into non-domestic markets. As such, the FX function has often sat separately from other trading desks. A common setup for listed derivatives desks, for example, has been to call a separate floor when they need the currency to trade non-domestic equity and fixed income markets.

However, recent trends in buy-side operations and market dynamics have been pushing change in these assumptions. More firms are starting to integrate FX into a multi-asset approach to trading. The motivations for doing so range from the rise of multi-asset trading models at buy-side firms, to more firms seeking alpha in FX itself. For many firms, the move to multi-asset trading is driven by cost efficiency. Firms that previously hired a trader for each asset class are often moving towards a more lightly staffed and centralized trading desk where traders have responsibility for more

than one asset class. This consolidation has been supported by the rise of electronic trading protocols.

Whether it is a European hedge fund seeking dollars to access U.S. equity markets or a proprietary trading firm looking to add FX as another asset class to trade, FX is increasingly coming into the fold of other trading desks. This trend is running at the same time as a gathering buy-side wide focus on controlling trading costs, both to fine-tune strategies that rely on fine margins and to boost shareholder returns through an optimized cost structure around functions such as margin. Such efficiencies are not being pursued in the front office. Synergies are much more likely to be sought further along the trade life cycle by consolidating systems and workflows where possible. Any consolidation project of that scale will be a substantial one, however.

In order to better understand the challenges involved, as well as the potential payoffs, Trading Technologies commissioned research company Acuiti to survey 65 trading firms on their current approach to FX and how

they view its integration with other asset classes. Firms participating in the survey comprised a roughly even split between hedge funds, proprietary trading firms and asset managers.

THE KEY FINDINGS OF THIS REPORT WERE:

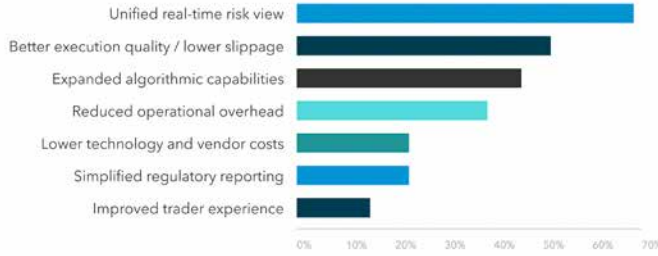
- For 69% of survey respondents, a unified real-time view of risk is the greatest benefit of full execution management system (EMS) consolidation between FX and other asset classes
- Basis trades are at a particular risk of EMS complexity, with leg synchronization across venues proving to be a prominent pain point
- Trade reconciliation across venues as well as position and P&L reporting latency were cited as the two greatest post-trade challenges of running separate systems
- Migration risk was pointed to by 43% of survey respondents as the biggest single obstacle to EMS consolidation of FX and other asset classes

RESOLVING PAIN POINTS THROUGH CONSOLIDATION

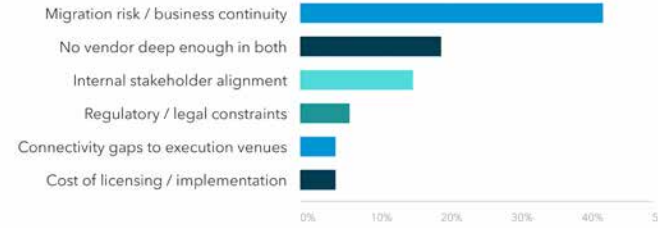
The extra costs of running separate trading systems make consolidation worth exploring for many firms. Not only does this open the door to potential synergies that can simplify workflows and reduce overall costs, but it can also create room for more auditable, standardized benchmarks that serve as the base for a more streamlined multi-asset trading operation.

A real-time view of risk was the greatest benefit of full EMS consolidation with FX and other systems cited by survey respondents.

WHAT WOULD BE THE MOST IMPORTANT BENEFITS OF FULL EMS CONSOLIDATION ACROSS FX AND LISTED DERIVATIVES FOR YOUR FIRM?



WHAT IS THE SINGLE BIGGEST OBSTACLE TO CONSOLIDATING YOUR EMS TODAY?



This focus on cross-asset risk has increased in the wake of several events in equity markets since 2020, including severe losses on dividend linked structured products and the collapse of Archegos Capital.

Those concerns have also dovetailed with an ever-growing focus on margin management. With volatility becoming a more constant feature of markets in the post-quantitative easing era and margin calls concurrently becoming more frequent, demand for real-time monitoring of risk positions has risen. As such, a unified view of risk has become highly desirable, especially one that crosses asset classes to provide the broadest possible oversight of a firm's trading activity.

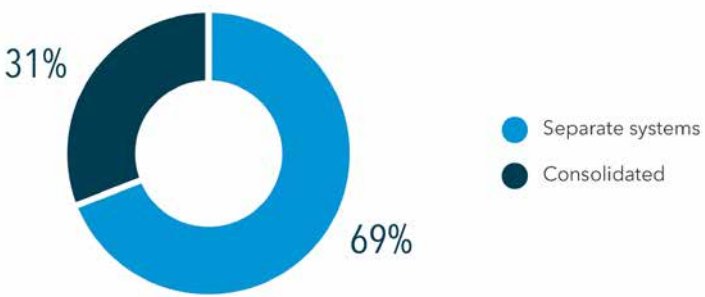
Survey respondents also commonly cited better execution quality as a key benefit of EMS consolidation. Here, the ability to create a more unified view of trading positions can reduce timing gaps as well as more consistent order controls and routing logic. Similarly, a trading operation that is able to bring greater standardization across systems also stands to improve algorithmic

capabilities across the asset classes they trade.

This is, again, an advantage for firms seeking to improve spreading tools for strategies like the basis trade. Notably, improved trader experience ranked bottom of the list. This highlights the primacy of middle and back-office operational considerations over "pure" front-office improvements at many institutions. Internal signoff on new technology is often much more likely when it is a platform offering durable efficiencies across trading workflows, rather than front-office functionality that gives a trader an edge in the markets.

Any substantial technology investment project is likely to involve considerable scrutiny though, due to its consumption of internal resources. Indeed, migration risk ranked as the single biggest obstacle for firms considering EMS consolidation. The cost of displacement for firms that already trade FX, even if inefficiently, can often result in corporate inertia. Internally, teams are often wary of the resource drain and career cost that a long and onerous transition to another system can entail.

DO YOU CURRENTLY HAVE A SEPARATE O/EMS FOR FX AND LISTED DERIVATIVES?



FX market participation was widespread among surveyed firms, with 61% saying that they trade the asset class. Of these, the majority run their FX trading activity through order and execution management systems (O/EMSs) that are separate from other asset classes.



Keith Tippell

OSTTRA:

Building the next generation
of FX market infrastructure

From tackling settlement risk in underserved currencies to strengthening FX Prime Brokerage workflows, and helping institutions optimise capital and margin, OSTTRA is expanding the role it plays at the heart of the global FX market. Keith Tippell, Head of FX at the firm, brings over two decades of capital markets leadership and post-trade fintech expertise to his new role. Prior to returning to OSTTRA, he served as Chief Product Officer at CLS Group, where he led product strategy across global settlement risk mitigation platforms. e-Forex spoke with him about OSTTRA's priorities, the evolution of its FX infrastructure and how it is working with market participants to address some of the industry's most important post-trade challenges.

OSTTRA: Building the next generation of FX market infrastructure

Keith, you're fresh in your role at OSTTRA. What is the scope of your responsibilities and priority objectives?

I'm responsible for current and new OSTTRA FX services, across both bilateral and intermediated ecosystems, and will also support my colleagues who own a multitude of cross-asset services (such as risk mitigation/optimisation services and portfolio reconciliation) as they pertain to FX use cases.

My priority objectives include:

- Working with our clients on the industry go-live of our FX PvP service in H1 2027, starting with the largest currencies which don't currently benefit from a scalable safe settlement service. We are fortunate to have had a significant number of global banks contributing to and endorsing our service design – it's now our responsibility to work with banks, local market participants and overseers to ensure a successful launch, resulting in broad adoption over the coming years for currencies such as CNH, PLN, TRY, THB, CZK, AED, SAR.
- Doubling down on our FX Prime Broker ecosystem and developing the appropriate functionalities to ensure all client types across our workflows feel the platforms are being enhanced in line with their needs. OSTTRA is central to the FX PB market, and I want a deeper and more structured cadence of engagement with both the hedge fund community and the Prime Brokers. OSTTRA is privileged to be at the centre of these networks and I am committed to ensuring our services evolve in line with our clients' requirements.
- Hiring additional talent - folks with a proven track record of delivering successful FX industry solutions. For example, Matthew Hill joined OSTTRA and my team at the beginning of August. He has extensive experience in FX with CLS, HSBC, TP ICAP and of course MarkitSERV (a founding business of OSTTRA). Across our tenures at MarkitSERV and CLS, Matt and I have worked together for over 10 years, and I'm delighted that we are doing so again. He's going to bring his experience of building industry consensus to the evolution of OSTTRA's FX suite.

Your previous leadership roles were at core infrastructures like CLS, SWIFT and MarkitSERV. How does that background shape your approach to FX safe settlement via PvP Orchestration?

Those experiences and taking time to listen to the deep domain experts amongst our client base, have taught me the importance of taking a pragmatic approach to service design. It's critical to factor in current rails, local market conventions, ease of client contracting and technical adoption as well as having a precise understanding of the value proposition from the users' perspective, including time-to-market and time-to-value. I think that's the key to unlocking the benefits of safe settlement for a broader range of currencies.

For this service, clients can leverage existing connectivity, contract via existing master agreements and don't need to pay a third party for sponsored access. The service is designed for the specific needs of the target currencies, accommodating the unique demands and operating hours of each currency market and it does not create liquidity pinch points: it applies an approved rulebook to existing bilateral flows, reducing settlement risk and providing limit relief without restricting local market liquidity.

Why has safe settlement become such an urgent priority for global FX market participants right now?

There is clear industry momentum for reducing settlement risk. We all know the headlines about an estimated \$1.4 trillion in daily traded volume being exposed to settlement risk and multiple growth currencies not being supported by traditional settlement infrastructure. The FX Global Code acknowledges this risk and in Principle



MATTHEW HILL IS BRINGING HIS EXPERIENCE OF BUILDING INDUSTRY CONSENSUS TO THE EVOLUTION OF OSTTRA'S FX SUITE.



From credit limits to trade notifications, confirmations to cashflows, OSTTRA's network sits at the heart of FX post trade

TARGET CURRENCIES



Our FX safe settlement service is designed for the specific needs of the target currencies

35 it states: "Where practicable, market participants should eliminate settlement risk, for example by using settlement services that provide PvP settlement".

The challenge with PvP services has historically been that they have not yet reached all parts of the FX market. Asian currencies such as the Chinese renminbi and the Thai baht, Eastern European currencies such as the Polish zloty and Czech koruna, Middle Eastern currencies such as the United Arab Emirates dirham and Saudi riyal as well as the Turkish lira, are most typically cited by major market participants as the most underserved by existing PvP solutions.

I have yet to meet a significant FX market participant who would not welcome the ability to safely settle

these growing currencies if it comes at a sensible price point. Our clients want a service model that can flex to the specific requirements of each currency, thus ensuring a path to broad adoption and unlocking additional benefits, such as settlement risk limit relief which would enable increased trading of these currencies.

All of the aforementioned currencies are part of our roadmap.

You mentioned the importance of taking a practical or pragmatic approach: From an operational and technology perspective, how does your service make PvP adoption simpler?

One of our core design principles was to eliminate the heavy implementation burden traditionally associated with

OSTTRA: Building the next generation of FX market infrastructure



The scale of OSTTRA's market connectivity is unmatched across global capital markets

joining new market infrastructures. We achieved this by building on top of the rails and pipes that market participants already use every single day:

Direct Matching Ingestion: Trade data is ingested directly from the OSTTRA trade matching platforms that banks rely on today, including OSTTRA Connect for FX (formerly TradeSERV).
Existing Payment Rails: The service utilises a bank's existing SWIFT messaging capabilities.

Commercial Settlement Agents: We utilise trusted commercial bank settlement agents to support payment orchestration, facilitating the time to market timeframes that our clients require.

Simplified Legal Framework: Participants access the service through direct membership and can leverage existing master legal frameworks. By eliminating the need for expensive third-party sponsored access models, we provide a clean, direct path to broad market adoption.

This central service, operated by OSTTRA, is really designed to

complement existing PvP services, and to minimise technical and operational implementation.

How do you see OSTTRA's FX PB services evolving?

OSTTRA sits at the very centre of the FX Prime Brokerage market. In 2025 alone, our network processed over 350 million FX PB transactions. Given this central role, I am deeply committed to ensuring our service

capabilities evolve in lockstep with the changing requirements of the Prime Brokers, their clients and the Executing Brokers they trade with. To drive this evolution, we are enhancing our market engagement model. In addition to refreshing our FX Prime Broker working groups, we are establishing a dedicated forum specifically for the Hedge Fund community. Buy-side market participants represent a vital component of the Prime Brokerage ecosystem, and their operational



Our clients want a service model that can flex to the specific requirements of each currency, thus ensuring a path to broad adoption and unlocking additional benefits



In 2025 alone, our network processed over 350 million FX PB transactions

needs must directly inform our product roadmaps.

Can you talk to specific FX PB roadmap items?

Our roadmaps will be refreshed following the changes to market engagement but will include enhanced

support for FX Options, upgraded operational dashboards for Hedge Funds and further development of OSTTRA's credit management service.

Beyond matching and settlement, how is OSTTRA helping FX market participants optimise capital and margin across their portfolios?

Post-trade efficiency extends far beyond execution, matching and settlement. Under today's stringent capital frameworks (such as SA-CCR) and uncleared margin rules (UMR), capital optimisation and margin mitigation are central to a bank's profitability.

OSTTRA offers a comprehensive suite of cross-asset portfolio services that layer directly onto post-trade transaction flows:

- Portfolio Compression: OSTTRA has compressed over \$37 trillion in notional since service inception, eliminating unnecessary gross exposures.
- Basis Risk Mitigation: Over the last 12 months, our basis risk optimisation platforms processed trillions of dollars of notional in both FX Options and NDFs, across 15 currency pairs for 30 global banks.



In addition to refreshing our FX Prime Broker working groups, we are establishing a dedicated forum specifically for the Hedge Fund community

		Spot	Forward	Swap	NDF	Options
FX SERVICES						
Matching & Clearing Connectivity	80+ Counterparties in the network	•	•		•	•
Broker Affirmations	15 IDBs connected initiating the broker affirmation process	•	•	•	•	•
STP/ Notice of Execution	350 Banks and buy-side firms receiving NOEs from 100+ venues	•	•	•	•	•
FX Prime Broker Services	350 million Transactions in 2025	•	•	•	•	•
NEW Safe Settlement via PvP Orchestration	7 EM Currencies which will initially benefit from Safe Settlement	•	•	•		
CROSS ASSET CLASS SERVICES						
Credit Management	4 34 Prime Brokers Executing Brokers on service	•	•	•	•	•
Portfolio Reconciliation	188 million Unique FX trades reconciled per year	•	•	•	•	•
Portfolio Compression	\$37 trillion In notional compressed since inception of the service		•	•	•	

OSTTRA offers a comprehensive suite of cross-asset portfolio services

- Margin & Capital Reduction: OSTTRA's optimisation services reduced billions of dollars in UMR Bilateral Initial Margin, significantly reducing capital requirements for our clients.
- Portfolio Reconciliation: triResolve reconciles over 188 million unique FX trades per year, ensuring portfolio integrity across global counterparties.
- This interconnected suite ensures that every trade passing through OSTTRA's infrastructure can be optimised for capital, margin, and operational efficiency.

You were part of the management team that built MarkitSERV, a founding OSTTRA company. What's it like coming back and how have things changed?

Returning to the business feels both familiar and incredibly exciting. OSTTRA has evolved significantly since its formation in 2021 through the combination of MarkitSERV, Traiana, TriOptima, and Reset. Following KKR's acquisition of OSTTRA alongside strategic equity investments from a consortium of major global banks, the business has gained fresh momentum, scale, and financial backing.

What stands out most today is the sheer breadth of OSTTRA's combined capabilities. In the earlier days at MarkitSERV, post-trade was largely focused on electronic confirmation, straight-through processing and supporting the G20 regulatory change agenda via clearing connectivity and

regulatory reporting. Today, we layer in sophisticated cross-asset optimisation, compression, reconciliation and settlement services.

The scale of OSTTRA's market connectivity is unmatched across global capital markets. Our network connects 29 G-SIB banks, over 550 banks in total, 1,400 investment managers, and 150 trading venues, processing upwards of 80 million trades every month, yet there are still additional and new parts of the post-trade value chain that our clients wish OSTTRA to service. It's a fantastic point in time to reunite with exceptional colleagues across a diverse talent set and be part of the next chapter.

OUR SOLUTIONS TAKE THE RISK AWAY



WHAT STANDS OUT MOST TODAY IS THE SHEER BREADTH OF OSTTRA'S COMBINED CAPABILITIES

Purpose built with best-in-class technology:

How Fintium is improving the fabric of interbank FX Swaps and liquidity

Fintium addresses a critical pain point for banks which revolves around the friction, operational and opportunity costs and inefficiencies inherent in managing intraday liquidity. We asked the firms CEO, Brian Nolan, to tell us more about how it has gone about addressing this issue.



Brian Nolan

price maker in an intraday FX swap, earning up to several million per year.

For the counterparty, this also helps to optimise liquidity. For Goldman Sachs, UBS and NatWest, which are live with Fintium, liquidity optimisation is important. When the counterparty can source intraday liquidity for the hours that it's needed, instead of holding expensive liquidity buffers, they can generate substantial P&L.

For a top-50 bank, we have calculated the P&L benefit at an average of \$55m per year, from sourcing intraday liquidity and reducing liquidity buffers. This is a direct P&L benefit because the liquidity buffer held for intraday is in government bonds yielding $\pm 4\%$, lower than the bank's cost of funding at $\pm 4.5\%$. By reducing the liquidity buffer the bank needs to hold, there is a direct cost saving of \$55m, as well as the opportunity cost of redeploying balance sheet into higher-yielding assets.

Tier 1 banks could be on both sides of these trades, in some of their currencies, at different times of the day. For many banks, the P&L beneficiaries are the FX or STIR desks, which get lower internal charges and lower FTP from treasury.

I worked in UBS and Bank of Ireland since 2008 in treasury and on the trading floor, and I experienced first-hand the frustration of losing money on intraday liquidity every day.

In banks, persistent idle liquidity is mostly the result of inadequate solutions. But now, thanks to collaboration with our brilliant clients, together with the innovative technology and rule book that Fintium created, we are delighted to be helping the industry to become more efficient.

How does your platform enable banks and financial institutions to optimise intraday and overnight liquidity more efficiently than traditional approaches?

Many financial institutions continue to hold significant pools of idle liquidity. Why has this remained such a persistent industry problem and how does Fintium seek to solve it?

The idle liquidity that Fintium focuses on specifically is only idle for a few hours. It is intraday liquidity, which institutions have not had the opportunity to generate any return on, until now. Fintium enables banks to lend idle intraday liquidity to their counterparties as a



The Fintium platform covers both FX swaps and repo

For intraday liquidity, the most common traditional approach for a bank to optimise it is to withhold outgoing payments, commonly referred to as "throttling" or "queue reordering". Throttling creates a suboptimal bank customer experience, because corporate treasurers don't like their payments being delayed. Also, a lot of activity, such as CLS pay-ins, can't be withheld because it's time-sensitive.

Fintium creates an alternative to throttling, by enabling banks to source intraday liquidity exactly when it's needed, meaning they can continue their payments on schedule and keep clients happy, but they need to hold smaller liquidity buffers.

For overnight liquidity, Fintium plans to arrange overnight FX swaps that settle PvP at the T+0 near leg, at a chosen specific time. This will be an important risk reduction compared with traditional overnight FX swaps, where the near leg can settle any time on T+0, and where there is no PvP settlement available.

Fintium's approach removes the settlement risk and significantly reduce the RWAs associated with overnight FX swaps, making them a viable alternative to tom/next FX swaps and to overnight repo.

The Fintium Platform offers both RFQ, for customised near leg and far leg times and disclosed trading, as well as a CLOB with a hard match, to create market liquidity around standardised far leg times, with pre-trade anonymity.

Our platform covers both FX swaps and repo, enabling banks to efficiently fund themselves intraday and overnight across both markets.

What are the key benefits institutions can achieve from adopting Fintium's marketplace model for short-term funding and liquidity management?

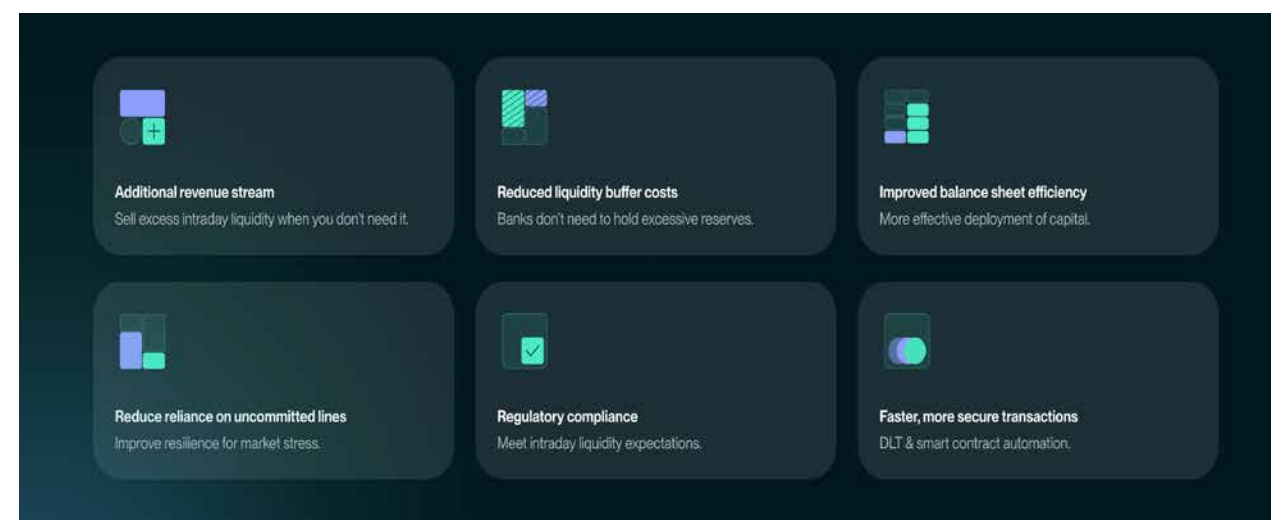
As mentioned previously, the main benefit is the \$55m+ business case. But there are also several important wider strategic benefits to mention.

Many banks are planning for more of their payment, settlement and customer activity moving to real-time, 24-hours, across multiple settlement methods (central banks, nostros, tokenised deposits, stablecoins, etc.). They recognise the need for inter-dealer funding via FX swaps for that new environment, and several have onboarded Fintium to support that.

All banks are getting more involved in DLT, tokenisation and digital assets. Most of these initiatives will have consequences for the bank's liquidity. Fintium provides capabilities to reduce the impact of this, which is foundational for the banks.

In some cases, working with Fintium can meet firm-wide innovation objectives and the FX and STIR desks gain senior recognition by taking a leading role.

Banks tell us that they view Fintium as useful for both BAU and stress scenarios. Having access to an additional tool to actively manage



The Fintium Platform is designed to deliver value to banks not just today but also for the future

intraday liquidity is well received by risk teams and regulators. For large EU banks, as an example, Fintium Platform trades have been helpful to demonstrate progress in addressing the 2024 ECB guidelines on intraday liquidity.

In some cases, intraday FX swaps help to facilitate and fund bank customer activity, such as larger-than-normal CLS pay-ins, IPOs and debt syndications that would otherwise be a drag on the firm's intraday liquidity on those days.

Lastly, some banks can replace more expensive or less reliable funding, such as credit lines, with our time-specific, regulated and proven intraday FX swaps.

Fintium's platform uses distributed ledger technology (DLT). What advantages does that have?

By leveraging DLT, the Fintium Platform creates a shared data record of each negotiation and each trade, which is only visible to the bank and its counterparty. This gets digitally signed by both sides to be ISDA compliant. This shared data record and digital workflow eliminates the need for MT300 confirmation messages. This makes the end-to-end

trade workflow more efficient than with legacy platforms and enables trades to settle more quickly, which is critically important when it comes to intraday liquidity.

DLT has also made it easier for Fintium to integrate with digital settlement methods and other DLT-based solutions, such as the Fnality payment system, tokenised deposits, and Circle's stablecoins.

Fintium has also built a validator on the Canton network, to make it easier to negotiate trades with Fintium and interoperate with Canton-based settlement solutions. Fintium is agnostic to different settlement methods, including the traditional RTGS such as Fedwire and CHAPS, but these new DLT-based methods are important to banks as they enable 24/7, real-time PvP settlement.

In what ways are liquidity optimisation, funding efficiency and settlement risk becoming increasingly interconnected challenges for participants in the global FX market and how have you gone about future proofing your platform to ensure that clients are ready for the needs of tomorrow?

The banks that onboard Fintium

involve the teams from treasury, operations, digital assets, risk, compliance, etc., as well as the FX desk, to assess the Fintium Platform with their own specialist expertise. Those teams validate that all of these mentioned interconnected challenges are addressed by the Fintium Platform.

We have future-proofed our platform in several ways, beyond using the latest DLT technology.

Firstly, by ensuring our APIs are ready for electronic trading of FX swaps.

Secondly, we are making it seamless for our clients to settle 24-hours a day across central banks, nostros, tokenised deposits and stablecoins, to recycle the bank's money in each currency more frequently and serve its clients more effectively, while maintaining settlement efficiency that is comparable to CLS today.

Thirdly, we partner with best-in-class solutions, like United Fintech's CobaltFX Dynamic Credit product for risk limits,

Last, but not least, we have started to develop MCP servers, in case our clients want their AI models to interact with our platform directly.

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The next frontier for FX credit management: from spot to swaps and beyond



Darren Coote

FX credit innovation has largely focused on spot trading and electronic venues, but the greatest potential benefits may lie in more credit- and balance-sheet-intensive products. In this interview, Darren Coote, Strategic Relations & Partner at United Fintech explores how dynamic credit is extending into FX swaps and other products, what makes

derivatives credit fundamentally more complex, and whether real-time credit management could transform liquidity access and capital efficiency across the wider FX market.

Why has FX credit management historically evolved much more slowly than pricing, execution and other parts of the electronic trading workflow?

Pricing and execution had a clear commercial incentive to automate - speed and price improvement translate directly into revenue. Credit, by contrast, has traditionally sat with risk and credit teams working from static, manually adjusted limits per venue, without the same P&L pressure driving modernisation. Credit is also inherently harder to automate; it touches legal documentation, balance-sheet policy, and multiple internal systems, rather

than a single execution engine, so change has been slower and more consensus-driven.

How much progress has the FX market genuinely made in moving away from static credit allocation?

We have made meaningful, but partial progress. Spot FX now has real, live examples of dynamic, real-time credit distribution - a model in which a single global limit is held centrally and redistributed by percentage across venues in real time, rather than pre-carved in fixed amounts per venue. This approach is now live across more than 20 venues. However, most of the market still runs static carve-outs, particularly outside the largest and most sophisticated banks, and dynamic adoption remains far more advanced in spot than in other products.

Why is extending dynamic credit management beyond spot FX such an important next step for the industry?

Spot is the smallest consumer of credit and balance sheet relative to swaps and forwards. Solving dynamic credit for spot proves the model but leaves the bulk of the inefficiency, and the bulk of the balance-sheet cost - untouched. Extending it into swaps is where the real capital efficiency gains sit. We should also remember the spot credit world was a bit of a mess a few years ago, and we haven't just improved the banks' usage and control of credit but



Spot settles almost immediately, so credit exposure is short-lived and easy to net down

also driven the marketplaces to have better discipline with their use of credit.

What makes the management of credit for FX swaps fundamentally more complex than for spot transactions?

Spot settles almost immediately, so credit exposure is short-lived and easy to net down. Swaps carry forward legs with tenor, meaning exposure persists over time, potential future exposure (PFE) must be modelled rather than simply read off at execution, and exposure changes with market moves over the life of the trade. Multiple limit types, NOP, DSL, PFE, and Margin, also interact with one another, rather than resolving to a single static number.

Why do traditional static credit-allocation models become particularly inefficient when applied to swaps, forwards and other longer-dated FX products?

A static carve-out must be sized for worst-case exposure over the life of the trade, which means credit sits idle and

unused for most of that period. With longer-dated products, this unused-headroom problem compounds - the bank ends up provisioning balance sheet against a peak exposure that may never materialise, rather than what is needed at any given moment. Obviously, added to this, the bank has many internal moving parts and monitoring processes.

How can real-time credit management improve access to liquidity in the FX swaps market?

If credit rebalances dynamically as exposure changes, a bank no longer needs to pre-reserve maximum credit at every venue or counterparty just in case. It can allocate what is needed now and shift capacity elsewhere as positions mature or roll off, freeing up capacity to trade with more counterparties and venues without needing to raise total credit lines. Part of the drive really is to make sure the credit profiles are optimal for market access, as the first point is: how do we make it easy to trade swaps electronically?

Could better credit management help firms execute more business while deploying less credit?

Yes, this is the core value proposition of dynamic credit management. On a day-to-day basis we see this in spot FX, and the same principle should apply, likely with an even greater absolute impact, when extended to swaps given how much more credit-intensive they are.

How important is it for banks to have a single, real-time view of credit exposure across ECNs, direct relationships and different FX products?

It is critical. Fragmented views, separate by venue, separate by product, are exactly what entrenches static allocation, because no single place shows true aggregate exposure. A consolidated, real-time view allows a bank to see actual headroom and risk as it stands, rather than reconciling manually across venues, and is what makes controls such as kill switches and utilisation alerts operationally meaningful rather than purely reactive.



Credit is inherently hard to automate

The next frontier for FX credit management: from spot to swaps and beyond



A consolidated, real-time view simplifies risk events

It also simplifies risk events where changes need to be made quickly, such as country risk exposures or bank collapses.

Could dynamic credit allocation help address some of the balance-sheet pressures associated with swaps and longer-dated FX trading?

Yes, directly. If credit is only tied up when and where it is being used, rather than provisioned against worst-case static carve-outs, banks can support the same swaps volume against a smaller total balance-sheet commitment - an increasingly important consideration under tightening capital and leverage-

ratio constraints. Traders today have various counterparty, tenor, and regulatory controls they have to manage; credit centralisation can take some of the noise away from this.

How does the extension of dynamic credit into direct trading relationships change what is possible compared with venue-based credit management alone?

Venue-based credit only solves part of the problem, since a large share of FX activity - particularly swaps - trades bilaterally rather than via ECN for now. Extending dynamic allocation to direct relationships allows the same global

limit to flow across both venue and bilateral flow, creating one true pool of credit rather than two disconnected worlds. We see our setup as first a bilateral credit monitor that is also able to dynamically redistribute values and monitor PB flows at the same time.

What role can analytics play in identifying where credit is being wasted, trapped or preventing potentially profitable trading activity?

Analytics turns credit from a static risk control into an active efficiency tool. It can surface where limits sit unused at one venue while another is capacity-constrained, where PFE assumptions are overly conservative relative to realised exposure, or where a bank is turning away or de-prioritising profitable flow purely because of misallocated, rather than genuinely insufficient, credit. Analytics that have traditionally been computed predominantly on spot are increasingly being requested for swaps. Markouts and other metrics allow better matching of liquidity providers to order flow which can lead to greater and more dynamic credit requirements.

Looking ahead, how close are we to an FX market in which credit can be managed dynamically across every product, counterparty and market access point?

Spot is now largely proven. Swaps and other longer-dated products represent the current frontier, where technical complexity, PFE modelling, tenor, and the interaction of multiple limit types - still need to be solved at scale. A fully dynamic market, spanning every product and every access point, venue and bilateral alike, is a realistic direction of travel, but broad adoption is likely still some years off, gated more by industry inertia and legal or operational change than by technical feasibility.



Analytics turns credit from a static risk control into an active efficiency tool

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The Container Principle: What AI actually standardises in structured FX

By Charles Glah, CFA UK (ASIP)



Charles Glah

In April 1956, a converted tanker called the Ideal-X left Newark for Houston carrying fifty-eight trailer bodies on

its specially fitted deck. Nothing about the cargo got simpler. What Malcolm McLean changed was the interface between the contents and everything that had to move them — not the contents. As Marc Levinson's *The Box* (2006) tells it, conventional break-bulk shipping could leave vessels in port for days while cargo was loaded piece by piece, at enormous handling cost. Standardising the box made the handoff fast, cheap and mechanical between systems that didn't need to understand each other's contents.

FX is not shipping cargo, but its automation debate is repeating a mistake shipping solved seventy years ago. Paul Golden's feature for this

publication, "Structured FX Derivatives and the Challenges of Automation" (December 2025), reached a defensible conclusion: correlation baskets, barriers and target redemption structures resist full automation. Alexandre Gabovich of Makor Securities put it plainly — these trades "often require a level of human judgment, negotiation and documentation that current digital solutions cannot fully replicate." So why does one of the industry's experienced infrastructure builders, in the same piece, locate the actual obstacle somewhere else entirely?

THE WORKFLOW UNDERNEATH EVERY BANK'S PLATFORM
Strip away the branding, and a

structured FX trade at a major bank typically moves through a broadly recognisable sequence. A business-language hedging need becomes a candidate payoff — note, accumulator, barrier option — iterated on strike, tenor and notional; the exotics desk prices it against an internal vol surface using a model appropriate to the payoff; market and counterparty risks are assessed; legal and documentation requirements are addressed; the trade books and hedges; and the position becomes live — Greeks managed, barriers watched, correlation monitored — until it matures, knocks out or is restructured.

The precise workflow, controls and division of responsibility vary between institutions. But the underlying stages are not unique to any single bank. That is the shipping lane structured trades broadly travel, which is precisely where standardised interfaces can be inserted without needing to replicate what happens inside any individual bank's hold.

THE PLATFORM PROBLEM, NOT THE COMPLEXITY PROBLEM

Camus, Head of Hydra at Digital Vega, was blunt about where electronification has stalled: "if you have a product with Bank A you cannot passport it to bank B — they are not interoperable... it is not open architecture." He credited the one condition that made much of the automation now possible — cloud infrastructure, and specifically Amazon Web Services: "even ten years ago it would have been impossible... the costs would not have stacked up." Camus has identified an important bottleneck, and it is not simply intelligence. Much of the industry's automation effort has historically been built around platforms — including single-dealer interfaces with their own connectivity, API contracts and onboarding. Interoperability between them remains limited.

A pricing capability embedded inside Bank A's environment cannot automatically be picked up by Bank B's crane. The opportunity is therefore to standardise the box at a layer where doing so does not require banks to expose their proprietary pricing models, inventory or client relationships: the interface through which pre-trade intelligence is requested and returned.

WHY STRUCTURING ITSELF CANNOT SIMPLY BE AUTOMATED AWAY

Camus himself drew the line precisely: "correlation swaps will probably never be executed this way, but all the commonly traded products are going to be electronified increasingly quickly." That boundary sits in a specific place, for three reasons.

First, structuring is partly a preference-elicitation problem, not simply an optimisation problem. A treasurer who says "protect my EUR receivables over the next eighteen months" has specified a business problem, not a derivative. Which barrier level is acceptable, whether a structured option or a forward strip is appropriate, and how hedge-accounting considerations under IFRS 9 or ASC 815 affect the choice depend on objectives, constraints and risk appetite that may only become clear as the client and structurer work through the trade-offs. Before those preferences are defined, there is no single objective function to hand to a machine.

Second, documentation and model governance introduce constraints that are not computational problems. An ambiguity in drafting is a legal liability, not a rounding error. Model-risk regimes reinforce the need for formal governance, clearly assigned responsibilities, independent challenge and effective oversight. In the United States, the interagency Model Risk Management guidance issued in April

2026 under Federal Reserve SR 26-2 replaced the earlier SR 11-7 guidance; in the UK, the PRA's SS1/23 places responsibility for the overall model-risk-management framework on boards and senior management, with accountability allocated through the firm's governance structure.

The history of structured FX supplies a useful warning. In October 2008, CITIC Pacific disclosed HK\$807.7 million of realised losses associated with leveraged foreign-exchange contracts and a further HK\$14.7 billion mark-to-market loss on its outstanding leveraged FX positions. The contracts included target redemption forwards, with limited profit potential but no equivalent knock-out feature for losses. The lesson is not that the mathematics was unavailable. It is that sophisticated payoff mathematics is no substitute for limits, governance, monitoring and effective escalation.

Third, the economics matter. A bespoke correlation structure may trade only occasionally at an individual institution, offering a very different return on automation investment from a vanilla flow business processing thousands of transactions. Camus is therefore describing a boundary that is economic and institutional as much as technical.

WHAT IS ACTUALLY CHANGING — NOT IN THEORY, IN THE DESK'S DAILY WORKFLOW

None of that means the rest of the process has to remain manual. Outside the elements that require genuinely bespoke structuring, negotiation and legal judgement, there is substantial scope for AI and machine learning to change the workflow.

Vol-surface construction and interpolation provide one example. Sparse tenor and strike combinations are an unavoidable problem in less liquid parts of the market. Parametric

The Container Principle: What AI actually standardises in structured FX

approaches such as SABR and SVI remain important, but machine-learning techniques can also be used as flexible approximation tools for fitting and interpolating complex surfaces. They do not remove extrapolation risk — no model does — but they add another set of tools for dealing with sparse and irregular data.

Natural-language systems can shorten the translation step between a business-language hedging requirement and a structured RFQ template. That is a real automation opportunity: reducing the mechanical burden of expressing the request, without pretending that the system has replaced the judgement needed to decide whether the resulting structure is appropriate.

Lifecycle monitoring is another. Systems can continuously watch barrier proximity, exposure and market conditions and escalate alerts before a trigger is reached. That does not make the decision for the risk manager. It changes how quickly the risk manager sees the information.

The most consequential shift may be in risk calculation. Large-scale CVA, XVA and derivatives-risk workloads have traditionally relied heavily on batch calculations because repeated simulation across complex books is computationally expensive. Brian Huge and Antoine Savine, then at Danske Bank's Superfly Analytics group, introduced "Differential Machine Learning" in 2020: training neural networks not only on simulated prices but also on their derivatives with respect to model inputs. The resulting approximators are designed to return prices and risk sensitivities extremely quickly and can be applied to computationally intensive problems including XVA, FRTB and SIMM-MVA.

That does not mean every path-dependent book can simply be converted into a real-time calculation.

For discontinuous payoffs such as digital and barrier options, later research has shown that naïve pathwise sensitivities can be biased and need to be handled carefully. But the direction is important: computationally expensive risk calculations can increasingly be approximated quickly enough to move some analysis from periodic batch processing toward real-time or near-real-time decision support.

Order-flow toxicity and regime classification belong here too — the layer I know best, because I build it. A Hidden Markov Model, in the tradition of the regime-switching work James Hamilton formalised in *Econometrica* in 1989, can infer an unobserved market state — calm, transitional, stressed — from the statistical behaviour of observable market variables.

David Easley, Marcos López de Prado and Maureen O'Hara's 2012 Review of Financial Studies paper introduced VPIN as a way of estimating flow toxicity from volume imbalance and trade intensity. Flow is "toxic" in this framework when liquidity providers are at risk of being adversely selected. VPIN therefore provides a measurable market-state signal; it does not, by itself, establish why an individual trade moved the market or prove that informed flow caused a subsequent price move.

What ties this together is calibrated uncertainty. Anastasios Angelopoulos and Stephen Bates' A Gentle Introduction to Conformal Prediction and Distribution-Free Uncertainty Quantification describes a framework for constructing prediction sets or intervals with explicit statistical coverage guarantees under the relevant assumptions. Combined with out-of-distribution detection or abstention logic, that can support a useful engineering discipline: widening uncertainty — or declining to provide an estimate — when the system is operating outside the region in which its answer can be defended.

A surface model that extrapolates confidently into thin data may be more dangerous than a model that makes its uncertainty explicit, and the same principle applies to a lifecycle monitor or an XVA approximation.

AN OPEN QUESTION I WAS TESTING — AND THE ANSWER
Highly bespoke and illiquid structured FX derivatives have received far less systematic microstructure analysis than spot FX or more standardised parts of the FX options market. That is understandable: transactions in a particular structure and tenor may be separated by weeks or months, leaving very little data on which to train a model directly.

The underlying spot market, however, trades continuously, and flow-toxicity measures can be calculated from much denser data. That raises an interesting question. Does spot-market toxicity contain incremental information about the market impact of an illiquid derivatives execution — or is apparent post-trade spread widening driven mainly by other factors such as dealer inventory, volatility-surface stress, trade size, market regime or the hedging flow generated by the derivative itself?

That is a causal question, not merely a correlational one. One way to investigate it is Double Machine Learning: using machine-learning methods to estimate nuisance relationships while constructing an orthogonalised estimate of the parameter of interest. In this case I used it to partial regime, size and session timing out of both the toxicity signal and the derivative-impact measure, then asked whether a relationship remained in the residuals.

The first test did not support the causal story I had hoped to find. On synthetic data built specifically to isolate the mechanism, the raw information coefficient between toxicity and impact was +0.23. Once regime, size and session timing were partialled out through the DML residualisation, it fell to +0.09 and lost statistical significance — approximately a 61% reduction.

That result needs to be interpreted for what it is. A synthetic experiment cannot establish that no causal relationship exists in the real FX market; its conclusion is conditional on the data-generating process used to construct the test. What it showed was that the causal claim I was considering was not robust even in a controlled framework designed to separate the proposed mechanism from obvious confounders.

I then put the same question directly to a senior FX structuring practitioner

at a Tier 1 bank, independently of the model, in a private conversation rather than a published source, so I am not naming them here. Their answer — arrived at from desk experience rather than from seeing my analysis — pointed in the same direction. They argued that an apparent relationship between spot toxicity and options impact could instead arise because a single large participant is active in both markets simultaneously, rather than because spot conditions are themselves causally driving derivative impact.

Those were two very different pieces of evidence — neither sufficient on its own to establish a universal result — but both gave me the same reason to step away from the stronger causal claim. I shelved the product built around that claim the same week. The interface — a pre-trade layer that returns a bounded estimate or an explicit refusal to estimate — still works as engineering. What it would have been estimating turned out to be less defensible than the initial correlation suggested, and building further on that premise would have meant selling a story I no longer believed.

The abstention discipline this piece argues for is not just for the model. It applies to the person deciding whether to keep building.

A NOTE ON WHAT THIS ARGUMENT IS NOT
Alan Dweck, COO buy-side solutions at SGX FX, offered the cleanest description of what remains irreducibly human — "a good way of looking at a trader's job is that they manage house and market risk." Nothing described above replaces that responsibility. It informs the person who carries it, at more points in the workflow than it did five years ago. Technology can increasingly assist with elements of product discovery, structuring, pricing, monitoring and risk analysis, but it does not remove the judgement involved in genuinely

bespoke structuring, legal negotiation or the management of house risk.

A system of this kind is only as trustworthy as its abstention discipline, and only as accurate as the data against which it has been calibrated. Extending such systems toward real dealer execution history remains an important part of the work in implementations including my own. A system that starts guessing on thin data rather than exposing uncertainty or declining to answer becomes exactly the quiet risk this approach exists to avoid.

CONCLUSION: THE BOX, NOT THE TRADE

A correlation swap will not suddenly become simple to structure because the interface around it improves. Its complexity is mathematical, economic, legal and institutional. Standardising the box never made the cargo simpler — it made the handoff cheap enough that the complexity of the cargo stopped being an excuse for friction everywhere it didn't need to be.

That is the more useful way to think about what AI can standardise in structured FX.

What is changing across the automatable parts of the workflow is not the underlying trade. It is the ability of someone, cheaply and from systems they already use, to ask what condition the market is in, what the risk might be, how uncertain that estimate is and whether the system has enough evidence to answer at all.

Some of those questions once required a platform login, a spreadsheet or a phone call. In the segment the industry itself concedes is tractable, an increasing number can now be exposed through a standardised interface.

The box is getting simpler. The cargo does not have to.



NLP can shorten the translation step between a business-language hedging requirement and a structured RFQ template

From Complexity to Connectivity: Simplifying institutional digital asset trading

Nicholas Pratt explores the challenges and opportunities involved in creating a more seamless and scalable environment for institutional participation in digital asset markets



Nicholas Pratt

Digital assets trading remains operationally complex for institutional market participants despite rapid advances in technology and market infrastructure.

According to Chris Knight, managing director, LMAX Digital, the infrastructure has advanced only in silos rather than holistically. Consequently, the market structure is below the expectations of most institutional participants. "Institutions expect standardised workflows across execution, clearing, settlement and reporting, but digital assets still require multiple venue connections, custody models and regulatory interpretations," says Knight. "The technology is there. The challenge is making it fit the operating model institutions already use."

POST-TRADE BARRIERS

Post-trade remains the main barrier. "Execution access has improved, but custody, collateral movement, settlement and reporting still create friction. Institutions do not want more manual processes or bespoke integrations. They want digital asset trading to plug into the controls, credit and workflows they already trust." Liquidity fragmentation is another issue, but, says Knight, simply aggregating more venues only treats the symptom rather than solving

the underlying problem. "From our perspective, the better answer is convergence: fewer connections, deeper pools and a workflow where FX and digital assets can sit on the same institutional infrastructure. Institutions do not want to manage more plumbing. They want digital assets to feel operationally as familiar as trading a currency pair."

Clearly there is a role for technology providers to play in terms of making institutions more comfortable in the digital assets market – be that streamlining execution workflows, improving connectivity and reducing operational overheads.

"The best technology providers are reducing complexity, not adding more layers," says Knight. "Standardised APIs, FIX connectivity, automation and integrated execution tools help institutions access digital assets through familiar workflows. Adoption accelerates when firms can use existing governance, risk and compliance processes rather than build an entirely separate stack."

Interoperability between the current market infrastructure and emerging digital assets ecosystems is also going to be critical, notes Knight. "Institutions are not going to rip out existing systems. They will extend them. The winners will be the firms that connect traditional market infrastructure with digital asset rails in a way that preserves institutional controls while improving liquidity, settlement and capital efficiency." The core components for supporting institutional-scale digital asset trading are familiar, says Knight: resilient execution, institutional custody, transparent market data, robust post-trade processing, integrated compliance and real-time risk management. "The differentiator is whether those pieces work together

"The winners will be the firms that connect traditional market infrastructure with digital asset rails in a way that preserves institutional controls while improving liquidity, settlement and capital efficiency."



Chris Knight

at scale. Institutional clients need one coherent trading environment, not another set of disconnected tools." The real efficiency gains though are in processes such as custody, collateral management and settlement, says Knight. "Risk now moves in real-time, but collateral often does not. That mismatch amplifies stress in volatile markets. Better custody, off-exchange collateral and faster settlement reduce the need to pre-fund every venue

and allow capital to move when it is actually needed. Volatility is inevitable. Friction is optional."

Advances in automation, data analytics and artificial intelligence are also helping firms simplify execution, enhance decision-making and strengthen risk controls, says Knight. "Automation removes manual breaks in the trading lifecycle, while better data improves visibility into liquidity, execution quality and risk. AI will increasingly support surveillance, anomaly detection and operational monitoring, but in institutional markets it has to sit inside strong governance and human oversight."

Tokenisation and on-chain settlement are two further developments that address a basic market inefficiency, says Knight. "Capital is still too often trapped in settlement cycles. If ownership and money can move at the same speed as risk, collateral becomes

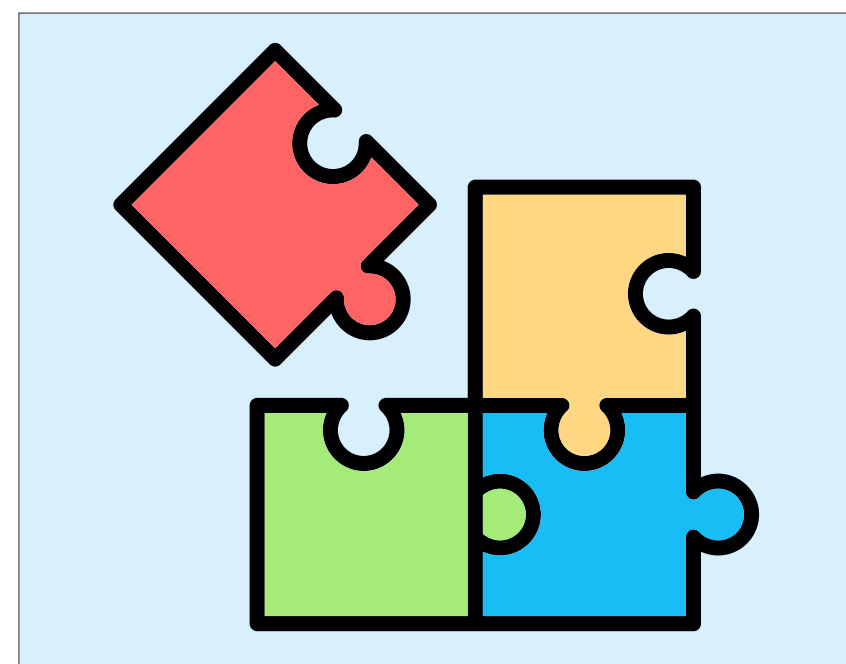
more useful and markets become more efficient. Stablecoins are important here not as a crypto product, but as programmable settlement infrastructure that lets digital assets settle against digital cash."

For many institutions, says Knight, the question is no longer whether digital assets are relevant, but how to use them at scale. "The remaining challenges are practical: clearer regulation, stronger interoperability with traditional infrastructure, better credit intermediation and post-trade services that match institutional standards. Once those pieces are in place, digital assets become another part of the capital markets toolkit."

CONNECTING THE TRADING LIFECYCLE

According to Adam Sporn, head of prime brokerage and institutional sales at BitGo, the digital asset infrastructure company, the technology has moved quickly, but the operating model has not caught up. "Institutions still have to navigate multiple venues, custody arrangements, funding models and reporting systems, often with significant manual coordination between them."

The biggest friction in the trading lifecycle tends to occur between systems rather than within any one part of the trade, says Sporn. "Onboarding is often repeated across providers, liquidity is spread across multiple venues, and assets may need to be moved or prefunded before execution. Post-trade reconciliation and reporting can also remain more manual than institutions are used to in traditional markets. While significant strides are being made to make digital asset prime brokerage more closely resemble traditional markets, greater integration is still needed across the trade lifecycle."



The challenge is making the technology fit the operating model institutions already use



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“Broader institutional adoption will depend on whether institutions can access digital asset markets with the same confidence, transparency, and control they expect in established financial markets.”



Adam Sporn

Liquidity fragmentation across exchanges, OTC venues and digital assets ecosystems continues to be a meaningful issue, says Sporn. “Pricing, depth, and asset availability can vary significantly across exchanges, OTC desks, and blockchain ecosystems. Institutions are increasingly looking for aggregated access, smart routing and off-exchange settlement so they can reach liquidity without concentrating assets or risk in a single venue.”

Technology providers are investing in products and services designed to solve some of these issues, from enabling off-exchange to streamlining execution, says Sporn. “The most useful providers are connecting execution, custody, settlement, collateral, and reporting rather than treating them as separate activities. Better APIs and automated workflows can reduce manual transfers, duplicate processes and reconciliation breaks. The goal is not another dashboard; it is fewer handoffs and a clearer view of risk across the full trade lifecycle.”

Equally important to accelerating institutional participation in digital assets is interoperability between traditional financial market infrastructure and emerging digital asset ecosystems. “It is critical,” says Sporn. “I believe most institutions are not going to rebuild their treasury, accounting, compliance, and risk systems simply to participate in digital asset markets. The infrastructure has to

connect with existing financial systems while also supporting blockchain-based assets and settlement. Adoption becomes much easier when firms can operate across both environments without creating an entirely separate control framework.”

“As tokenization expands, interoperability between traditional financial infrastructure and digital asset ecosystems is becoming increasingly important,” says Sporn.

There are certain core components that are critical to supporting institutional-scale digital asset trading. “Secure custody, reliable liquidity access, controlled execution, settlement, collateral management, real-time risk monitoring, and complete reporting are all essential,” says Sporn. “More importantly, those components need to work together. Institutional scale depends as much on resilience, governance, and segregation of duties as it does on execution speed or market access.”

Custody, collateral management and settlement are also central to reducing both operational risk and



The biggest friction in the trading lifecycle tends to occur between systems rather than within any one part of the trade



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“From an operational standpoint, institutions can’t justify running digital assets as a parallel operation outside their existing core banking, portfolio management, and risk systems.”



Andy Flury

unnecessary use of capital, says Sporn. “Institutions should not have to move assets onto a trading venue simply to access liquidity. Structures that allow assets to remain within appropriately regulated custody arrangements while supporting trading and settlement obligations can reduce counterparty exposure, limit asset movement, and improve collateral efficiency.”

And what of advances in automation, data analytics and AI? According to Sporn, automation is already helping with routing, reconciliation, exception management, and intraday

risk monitoring. Better analytics can give firms a clearer view of liquidity, pricing, and counterparty exposure across venues. “AI may add value in areas like anomaly detection and operational surveillance, but it needs to be deployed with clear governance, human oversight, and appropriate controls,” says Sporn.

The developments in tokenised assets, digital money and on-chain settlement have the potential to address long-standing market inefficiencies – reducing reconciliation, improving collateral mobility says Sporn. “The greatest benefit comes when the asset and payment legs can move through connected infrastructure with clear legal and operational certainty.” However, tokenisation alone does not solve market structure issues; it has to be supported by reliable cash settlement, strong controls, and interoperability with existing systems. In addition, greater consistency is still needed around regulatory treatment, custody, capital requirements, market oversight, reporting, and cross-border activity, says Sporn. “The industry also

has more work to do on resilience, cybersecurity, interoperability, and settlement certainty. Broader institutional adoption will depend on whether institutions can access digital asset markets with the same confidence, transparency, and control they expect in established financial markets.”

INCREASED COMPLEXITY

Sometimes there are unintended consequences from advances in technology. “If anything, better technology has only increased complexity in digital assets,” says Andy Flury, founder and president of Wyden, a Switzerland-based provider of digital assets trading technology. “Every new venue, custodian, or settlement rail adds another integration, data format, and reconciliation point, without the standardization traditional markets built through centralized clearing and dominant venues. Institutions still have to risk-check, reconcile, and report to the same standard as any other asset class, so the challenge is most often integration. Institutions are bolting an immature, fragmented market structure onto systems and compliance frameworks built for a mature one.”

Liquidity fragmentation is one of the most underappreciated frictions in this market, says Flury. “With no consolidated tape and no dominant venue, liquidity for the same instrument splits across dozens of exchanges, OTC desks, and brokers. In trading, this shows up as wider spreads, more slippage, and inconsistent execution quality.

“In this environment, some institutions prefer to limit their market exposure, working with a single outsourced broker. However, while this approach may offer some surface-level risk mitigation, it limits control and access to trading revenues. Under regulations like the EU’s Digital and Operational



To some extent better technology has only increased complexity in digital assets

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“For a real institutional market to develop, the full market structure needs to be in place: spot, futures, options and, increasingly, perpetual futures. If one of those legs is missing, the market is structurally incomplete.”



Arnab Sen

Resilience Act (DORA), it also creates compliance risks by concentrating operations into a single provider,” says Flury.

As a result, many institutions are now looking for more sophisticated ways to access digital asset markets. “Smart order routing built across venues, rather than venue-by-venue, lets institutions pursue best execution without independently integrating and maintaining connectivity to each source. This turns fragmented liquidity into something that’s usable at any scale.”

From Wyden’s perspective, the biggest shift is away from point-to-point integration toward a unified operating layer sitting between institutions and the venues, custodians, and data providers they need, says Flury. “That removes much of the engineering overhead that used to be a prerequisite for launching digital asset services without outsourcing to a provider. Automation across the trade lifecycle cuts the manual handoffs that once required dedicated operations headcount to handle all pre-trade risk and treasury controls, and post-trade

settlement and reconciliation. And because much of this is now delivered as SaaS, firms can scale trading activity without scaling their operational footprint in lockstep.”

Interoperability between traditional and emerging market infrastructure is arguably the deciding factor in institutional participation in digital assets trading, says Flury. “From an operational standpoint, institutions can’t justify running digital assets as a parallel operation outside their existing core banking, portfolio management, and risk systems. If it requires a separate stack and separate reporting line, it’s a side project by definition.

“Interoperability lets digital assets tap into existing risk frameworks and feed the same downstream reporting rather than creating a second set of books. Where that exists, participation moves from pilot to production quickly, because the operational lift is incremental. Where it doesn’t, adoption is more likely to stall at the exploratory stage, because the integration work still needs to be addressed,” says Flury.

According to Flury, five components come up in every serious build-out: an execution layer with smart order routing across venues, custody that supports a multi-custodian model, post-trade automation for settlement and reconciliation, real-time risk management covering positions and counterparty exposure, and reporting that keeps one internal book of records consistent across every venue and account. “The harder requirement is getting these components to

function as one coherent system rather than five tools simply stuck together, including execution informed by live risk limits, settlement reconciled straight back into the internal book of record, and custody and connectivity managed centrally,” says Flury.

The direction of developments in tokenised assets and digital money is significant, says Flury, especially in terms of addressing or solving long-standing market inefficiencies. “Tokenised assets and digital money, such as tokenised deposits or stablecoins, open the door to settlement in minutes rather than the T+1/T+2 institutions have long lived with. This creates real implications for counterparty risk and capital efficiency.

“But ‘helping to address’ is probably more accurate than ‘solving’ at this stage, since regulatory clarity is developing market by market, and on-chain settlement still has to interoperate with legacy rails,” says Flury. “But we see real progress coming from institutions that are treating tokenisation as an extension and evolution of existing infrastructure, not a parallel system.”

STRUCTURALLY INCOMPLETE

Digital asset trading remains operationally complex for institutions because it requires far more than access to a trading venue or custody solution, says Arnab Sen, Co-Founder and CEO of GFO-X, a centrally cleared venue for digital asset derivatives.

“For a real institutional market to develop, the full market structure needs to be in place: spot, futures, options and, increasingly, perpetual futures. If one of those legs is missing, the market is structurally incomplete. Derivatives are particularly important because derivatives markets are always and everywhere larger



Better analytics can give firms a clearer view of liquidity, pricing, and counterparty exposure across venues

than spot markets. You can think of spot markets as the ownership layer whilst derivatives markets is where institutions hedge or express market views. They tend to be harder to institutionalise because they introduce counterparty risk, tenor risk, margining requirements and, in the case of options, more complex risk management,” says Sen.

The greatest barriers to adoption arise across the full trading lifecycle, according to Sen. “Onboarding remains fragmented across venues, jurisdictions and regulatory regimes; execution is dispersed across exchanges with different market structures, contract specifications and credit models; custody and settlement introduce challenges around private key management, balance sheet exposure, collateral mobility and the movement of assets across venues and chains; and reporting must satisfy evolving regulatory, audit, governance and surveillance expectations.

Institutions are not looking for a single-point solution. Operationally, they need the entire framework to work together: custody, execution, clearing, collateral, settlement, reporting, market surveillance, treasury and risk management. There is no silver bullet. If only one or two of those requirements are solved, large institutions will still struggle to connect.”

This is particularly true for banks and other firms managing third-party money, says Sen. “They face very high regulatory and operational hurdles before connecting to a new venue, especially through internal ‘new business’ approval processes. Regulation is necessary, but it is not sufficient. A venue needs a credible tier-one regulator, but it must also integrate with the way institutions already operate: their back-end providers, front-end OMS and EMS systems, pricing distribution channels, market abuse surveillance providers, banking

partners, risk systems and post-trade workflows. Banks will not bend to a venue’s requirements; the venue has to bend to theirs. This creates a significant moat for any platform that can genuinely meet institutional standards.”

In addition, if you consider capital implications, for banks, access to a Qualifying Central Counterparty (QCCP) is critical because it enables significantly lower regulatory capital for centrally cleared exposure under the Basel framework, says Sen. “Clearing through a QCCP reduces counterparty credit risk and allows banks to potentially benefit from preferential capital treatment. As a result, QCCP status is a key determinant of market liquidity and participation. The banks are generally reluctant to clear through CCPs that do not provide capital relief.” While the technology underpinning digital assets is relatively mature, institutions continue to require the same standards of control,



Liquidity fragmentation remains one of the most significant challenges in digital asset markets

transparency, resilience and risk management that they expect in traditional financial markets, says Sen. “The difficulty is not simply technology; it is building a market structure that institutions can trust, connect to, and scale.”

Liquidity fragmentation remains one of the most significant challenges in digital asset markets, says Sen. “Trading activity is dispersed across offshore exchanges, regulated venues, OTC desks, market makers, custodians and multiple blockchain ecosystems, each operating with different liquidity pools, jurisdictional frameworks, settlement processes, credit arrangements and contract specifications. This creates higher execution costs, inconsistent pricing, greater operational complexity and increased counterparty exposure for institutional participants.”

The challenge is particularly acute in derivatives, says Sen. “Many crypto-native exchanges perform too many functions within a single integrated

model, combining execution, custody, clearing, settlement and sometimes lending within the same platform. This creates significant counterparty risk and insufficient checks and balances compared with traditional market structure.

“It also makes it difficult for large institutions, especially those managing third-party money, to connect directly. Most need to trade through a prime broker or regulated intermediary, but those intermediaries themselves may be unable or unwilling to connect to venues that do not meet institutional standards for governance, segregation, client asset protection, insolvency treatment and risk management,” says Sen.

A number of solutions have emerged to address fragmentation, including smart order routing, liquidity aggregation tools, off-exchange settlement networks, institutional connectivity providers and technology platforms that aim to reduce the need to pre-fund assets across multiple venues, says Sen. “These tools can

help improve execution access and reduce some operational overheads, but they do not fully solve the deeper market-structure issues. Off-exchange custody and settlement may reduce direct exchange exposure, but they do not by themselves solve the balance sheet, leverage and capital efficiency challenges that institutions face. Likewise, there is no such thing as a CCP able to “clear” positions across multiple venues, meaningful netting and compression remain difficult where contract specifications differ across platforms,” says Sen

The industry has shown that the technology can work, but we are still some distance from a genuinely institutional-grade liquidity model,” says Sen. “Significant challenges remain around standardisation, interoperability, collateral mobility, cross-border compliance, post-trade processing, credit intermediation and workflow integration. Scaling digital asset markets to the levels of efficiency, resilience and automation seen in traditional financial markets remains a journey.”

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TRADING

Beyond the latency race:

Why faster reasoning will shape the future of electronic FX options trading

As HFT firms expand into FX options, the market is entering a new phase of electronification. Yet the competitive dynamics of options trading are fundamentally different from those of spot FX or equities. Speed still matters, but successful decision-making also requires traders and systems to reason across volatility, expiry, strikes, liquidity, margin, credit and changing model assumptions. In this article Varqa Abyaneh, Founder and CEO of Opetek explores why the next frontier in electronic FX options trading will be defined not simply by lower latency, but by the ability to analyse complexity and reach better decisions faster and how AI can provide the decision support needed to achieve this.



Varqa Abyaneh

The arrival of high-frequency trading firms in FX options may suggest that the market is entering another latency race. Speed will remain important, but the principal bottleneck in options is different from spot FX, equities and other products whose workflows are more easily standardised.

In spot FX, equities and other more standardised markets, firms gained an edge by processing information faster, updating prices and executing orders more quickly. In FX options, the decision itself is more complex. Traders must first judge whether to take exposure through an instrument whose value and risk depend on strike, expiry, the volatility surface, liquidity and changing market conditions. They must then interpret that exposure through models whose outputs depend on assumptions.

The next phase of electronification will therefore not be defined solely by faster execution. It will be defined by reducing decision latency, the time required to turn data, analytics and judgement into a defensible course of action. The first phase moved information, prices and orders faster. The next will help market participants reason better and decide faster.

WHAT THE FIRST WAVE OF ELECTRONIFICATION SOLVED

The electronification of spot FX and

equities addressed a relatively clear set of frictions. Prices that had once been distributed through voice channels could be streamed electronically. Liquidity could be aggregated across venues. Orders could be routed, matched and executed automatically. Firms could respond to market information at far greater speed and scale.

This transformed the economics of trading. Automated pricing engines allowed market makers to update quotes continuously. Execution algorithms reduced the cost and inconsistency of manual order handling. Greater competition and transparency contributed to tighter spreads, while electronic records reduced operational risk and made activity easier to monitor.

The competitive advantage increasingly lay in shortening the path to receiving information. Firms invested heavily in market data, network infrastructure and execution technology to remove delay. In many cases, the relevant decision rules could be defined in advance and applied repeatedly as market conditions changed.

This did not eliminate judgement from spot FX or equities. Traders still had to decide when to provide liquidity, how much risk to warehouse and when market conditions required intervention. But more of the workflow could be standardised, encoded and automated.

The first wave of electronification was therefore highly effective where the central challenge was moving prices, information and orders faster. FX options present an additional problem. Their price and risk depend on many interacting variables, so the analysis cannot be reduced to a simple predefined sequence. Traders must reason across models, assumptions

Beyond the latency race: Why faster reasoning will shape the future of electronic FX options trading

and changing market conditions before deciding how to act.

WHY FX OPTIONS ARE DIFFERENT

FX options are harder to electrify because the decision cannot be reduced to a single price or signal. The value and risk of an option depend on several dynamic variables at once, and those variables interact.

A trader must assess the spot and forward market, the level and shape of the volatility surface, the strike and expiry of the option, expected liquidity and the cost of hedging. The same trade may also look different depending on inventory, client flow, credit usage, margin consumption and the assumptions embedded in the pricing model.

These inputs do not sit neatly in one place. Some are drawn from live market data, others from pricing and risk systems, research, web, and internal chats. Some can be measured directly, others require interpretation. All of them can change while the decision is being made.

This creates a very different workflow from one in which a pre-defined rule can be applied repeatedly. A trader may begin with a hypothesis on volatility, test how that hypothesis behaves across different market regimes, and then revise the hypothesis or abandon the idea altogether. The method of analysis changes as the problem becomes better understood.

That is one reason why FX options have retained more manual and expert-led workflows than spot. The bottleneck is not only access to information. It is the time required to bring fragmented inputs together, choose the right analysis and convert the result into a defensible trading decision.

In practice, this creates several forms of friction. Bespoke analysis takes time. Relevant information sits across disconnected systems. The volume of market data can exceed what any individual can process. And the assumptions behind a decision are often difficult to inspect or reproduce afterwards.

In FX options, the challenge is therefore not simply to execute a known decision faster. It is to reach a sufficiently good decision before the market changes.

WHAT REASONING MEANS IN TRADING

Reasoning in capital markets is the process of combining evidence, calculations, assumptions and constraints to reach a decision.

It begins with information. Live and historical market data, news and research, pricing models, risk analytics, positions and internal context. Reasoning, however, is not simply the accumulation of more inputs. It involves determining which inputs matter, how to turn those inputs into evidence, which analytical methods to apply, and how to interpret the resulting outputs.

This is where modern AI represents a meaningful change. Its value does not lie only in processing more information or performing calculations more quickly. It lies in the ability to adapt the method of analysis to the problem, selecting relevant evidence, choosing appropriate tools, testing alternatives and refining the conclusion as the analysis develops.

Reasoning capability can sit within the large language model itself, particularly in newer reasoning models designed to decompose and solve complex problems. It can also be created through orchestration, where an LLM coordinates market data,

analytical tools, pricing models and other systems through a multi-step process. The distinction is important and deserves separate treatment. Here, the focus is the market consequence rather than the model architecture.

What matters here is that reasoning AI differs from a conventional analytical pipeline. A fixed system follows a predefined sequence of rules. A reasoning system can change the sequence, revisit assumptions and pursue a different line of analysis when the evidence points elsewhere.

For FX options, this creates the possibility of supporting parts of the decision process that have historically depended on manual analysis and expert judgement. The opportunity is not to replace the trader, but to help the trader move from fragmented information to a better-supported decision with greater speed.

THE ELECTRONIFICATION OF REASONING

The first era of electronification accelerated the movement of data, prices and orders. The next can accelerate the analytical process that sits between information and action.

That process is slowed by four recurring sources of friction. First, bespoke analysis takes time to produce, particularly when traders or quants must manually code, test and run scenarios. Second, the relevant inputs are fragmented across market data, pricing systems, research, and internal communications. Third, the volume of information creates cognitive overload, making it impossible for a human to identify what matters most to the decision with confidence. Fourth, the assumptions and analysis behind a decision are often difficult to inspect or reproduce afterwards.

Reasoning AI can address each of these constraints within a single workflow. A trader could ask a complex market question and have the system gather the relevant data, call pricing and risk models, incorporate research and internal context, test alternative hypotheses and present the resulting trade-offs.

This is different from automating a fixed sequence of tasks. The system can adapt the analysis as the problem develops, moving from interpretation to quantitative testing, revisiting assumptions and selecting different tools where required.

The result is a shorter path from question to conclusion, fewer breaks between systems and less time spent assembling analysis manually. It also gives the trader a clearer basis on which to review the evidence and exercise judgement.

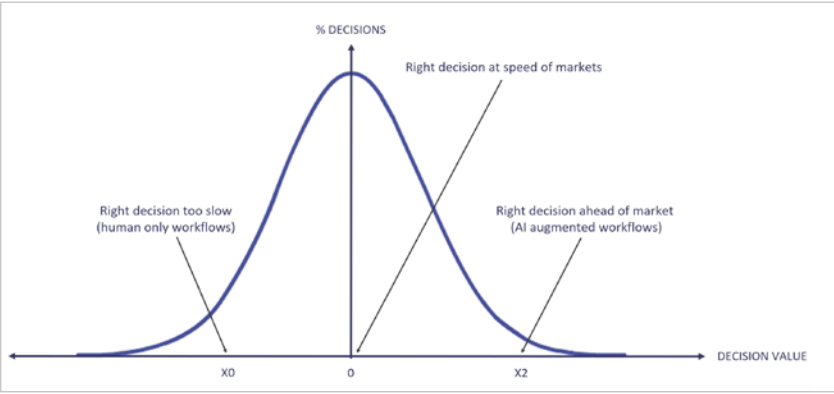
The objective is not autonomous decision-making for its own sake. It is to compress the distance between a complex market question and a defensible course of action.

THE VALUE OF A GOOD DECISION DECAYS WITH TIME.

More analysis can improve confidence, but markets continue to move while that analysis is being produced. Volatility shifts, liquidity changes, new information becomes available, and opportunities disappear.

A correct conclusion reached too late may therefore have little value. The relevant question is not only whether a decision is right, but whether it is reached while the opportunity still exists.

As the graph illustrates, decision quality cannot be considered independently of decision speed.



Additional analysis may improve the quality of a conclusion, but beyond a certain point the value of that improvement is offset by the time taken to produce it. The objective is not to maximise analytical completeness. It is to reach the best available conclusion while the decision can still influence the outcome.

This becomes harder as the volume of information increases. Markets now generate more data than any individual can process. As Nobel laureate Herbert Simon observed, “A wealth of information creates a poverty of attention”. The constraint is increasingly not access to information, but the ability to identify what matters and act on it in time.

Reasoning AI can create value by prioritising relevant evidence, accelerating analysis and shortening the path from information to action. Competitive advantage will increasingly belong to firms that can make better decisions at the scale and pace required by the market.

FASTER REASONING MUST REMAIN TRUSTED

Speed without control is not enough.

Traders need to understand what information, assumptions and calculations support a conclusion. AI-generated analysis should be reviewable and reproducible, rather than accepted simply because it sounds persuasive.

AI-generated analysis should leave behind an inspectable record of the data used, assumptions made, tools called, calculations performed and conclusions reached. Numerical analysis should be reproducible, while qualitative reasoning should be traceable to its supporting evidence.

The analysis must also fit within existing risk, governance and control frameworks. Human responsibility remains central, particularly where decisions have material trading or risk consequences.

The next phase of electronification must therefore combine depth and speed with transparency and control. AI should strengthen experienced judgement, not obscure or replace it.

FROM FASTER EXECUTION TO FASTER JUDGEMENT

Spot electronification compressed the time required to distribute prices and execute orders. FX options demand a broader and more adaptive analytical process before execution can occur.

Reasoning AI can shorten the path from complexity to conviction by helping traders interpret evidence, test ideas and reach defensible decisions faster.

The next phase of FX options electronification will not be defined only by how quickly firms can act. It will be defined by how quickly they can understand enough to act well.

Rethinking the modern brokerage tech stack

By Jon Light, Senior Director of Product Management at Devexperts

BROKERAGE OPERATIONS



John Light

Liquidity bridges are, arguably, the most important and overlooked pieces of FX brokerage infrastructure. This may be partly due to how they originally emerged as relatively simple middleware between legacy trading platforms and liquidity providers.

But as the industry has evolved to adopt different business models and execution practices, connecting to multiple LPs, and offering greater asset variety to a much more diverse client base, the demands placed on this cornerstone of brokerage infrastructure have changed.

As functions like bridging and aggregation increasingly merge with risk management, intelligent order routing, and analytics; the traditional FX technology stack is being rethought.

Modern brokerage systems must handle pricing, liquidity aggregation, matching, order routing, execution, internalization, hedging, exposure management, real-time monitoring, data management, and reporting, among other things. And the systems responsible for handling these needs must be able to communicate with each other seamlessly for brokers to be able to respond to the overwhelming complexity of modern trading practices.

Rethinking the modern brokerage tech stack

Due to a combination of evolving trader mores, and increased vendor competition, the industry is being forced to reconsider the modern FX brokerage technology stack and to decide how to piece together its various layers in a manner that guarantees competitiveness and avoids future bottlenecks.

INCREASED COMPETITION, LOWER PRICES

Parallel to this, there's also been an explosion in vendors, each with their own areas of specialization. This increase in competition has led to a race to the bottom in terms of pricing, and the strategic expansion by vendors into related infrastructure that can be bundled into more attractive packages.

We've seen companies that were originally platform providers bringing their own bridges to market and backend vendors venturing into platform provision. This suggests that as competition compresses pricing, the "all-in-one" approach is gaining ground among technology providers.

ARE LIQUIDITY BRIDGES CREATED EQUAL?

This raises the question of whether bridging technology has become commoditized. Are we dealing with an interchangeable component that can be thrown into a package to sweeten the deal, or can one vendor's technology offer a competitive advantage over another's? As with much in life, the answer is rarely a simple binary.

Indeed, the very idea of a bridge as a simple link between brokers and their LPs is insufficient today. Beyond being a connector, today's bridges incorporate a variety of crucial features that include risk monitoring, price analysis, and decision logic that are more like liquidity aggregation, execution, and risk management layers, rather than simple bridges.

One of the ways that vendors are seeking to differentiate themselves is by packaging liquidity aggregation and bridging technology with risk

management software, as this pairing covers many of the features the dealers using it require.

Essentially, we're not just comparing bridges, but rather a collection of systems designed to monitor exposure, segment and route orders (A/B/C-book), intelligently distribute flow (by price, depth, past performance, relationships etc.), with low latency, while being easy to customize, and also providing team members with useful analytics and control. So, no, not all bridges are created equal, but today this is more to do with the assortment of other systems they're necessarily connected to.

ALL-IN-ONE OR BEST-OF-BREED?

In the past, the question was whether to outsource technology needs to third-parties, or to develop in-house. This issue has been put to bed in recent years as it's become increasingly clear that the overheads and technical debt accrued by in-house solutions run contrary to the core competencies of most brokerages. Today, the burning

question is whether to stay within a single vendor ecosystem, or to mix and match "best of breed" solutions.

The above question is complicated further by the fact that, unless you're dealing with a new entrant to the space, brokers have their own legacy systems and existing relationships, so these businesses are often forced to add new pieces of technology to their stack on a case-by-case basis, which is why apples to apples comparisons are often difficult to make.

Even for an idealized brokerage that's a blank slate, there are trade-offs between sourcing key infrastructure from a single vendor or piecing together different best-in-class components. These trade-offs must be weighed by decision-makers who have a long-term view of the business's needs and goals.

For example, all-in-one solutions tend to have lower latency than disparate components connected via APIs, while being both simpler to manage and quicker to deploy. On the other hand, vendor lock-in, and lack of specialization in certain components may be a concern for brokers.

The pick and mix approach means that a brokerage can be constructed in a highly customized way, with each component being specifically fit for purpose. It also offers the business in question the flexibility of multiple relationships that can be leveraged to get the best deal. However, despite this, disparate components increase complexity and management overheads and are generally more costly.

WHERE'S THE BRAIN?

For modern brokers the technological brain of their respective infrastructures is a collection of back-end systems that must work in concert in order



For modern brokers the technological brain of their respective infrastructures is a collection of back-end systems that must work in concert

for the venues in question to be able to manage both internal and external risk, and to facilitate the execution of trades in a seamless way at the current best price available to the end client.

The ratio between front-and back-end tech has, over time, moved in favor of a very thin slice on the front-end, essentially just a trading UI, with back-end systems swelling to incorporate many more intelligent features.

In this article, we've focused more on the union of risk management, aggregation and order routing technology that instantly validates whether a client is within their limits, decides on how to execute the order, finds the best LP to forward it to, and then updates the system, all in fractions of a second.

But this brain isn't just limited to execution and risk. A host of other client segmentation and behavioral analysis tools have also gained ground. These allow brokers to obtain a granular view of their client base, tailor communications to different segments, and interact with them in real-time depending on what activities they're engaged in on the platform.

While latency isn't as much of an issue for these features, it does greatly increase the complexity and interdependency of back-end systems. For the price of this complexity, brokerage teams are now able to utilize the massive amounts of data their businesses generate in a manner that simply wasn't possible even a few years ago.

In some ways, this means the modern brokerage hosts something like a distributed brain, one area concerned with liquidity aggregation, risk management and execution (the "bridge" being integral to this), and another concerned with client intelligence (feeding into marketing, sales and retention initiatives), as well as other "lobes" involved in back-office accounting activities, compliance, and reporting.

APIS CONNECT THE LOBES

With this in mind, it becomes clear that most modern brokerages will necessarily have to pursue a hybrid approach in which certain best of breed solutions that are crucial to the overall brain as described above will have to be selected and integrated with others.

THE VERY IDEA OF A BRIDGE AS A SIMPLE LINK BETWEEN BROKERS AND THEIR LPS IS INSUFFICIENT TODAY





APIs that are left open and comprehensively documented by their respective vendors, are increasingly important

CRMs are a case in point. This is a specialist component, as critical to the smooth-running of a modern brokerage as is the blend of liquidity and execution technologies outlined previously. And the vendors with expertise in the former are rarely the same as the ones with expertise in the latter.

For this reason, APIs, and specifically APIs that are left open and comprehensively documented by their respective vendors, are increasingly important as they allow systems to be integrated in ways that serve each individual business, and also allow firms to perform their own custom integrations.

This hybrid approach has gained ground in recent years, with the combination of unified platforms, risk management, aggregation and execution technologies offering the speed and reliability that this crucial layer demands, while other mission critical parts of the brain can be sourced and integrated according to the organizational needs of each business.

BOXES TO TICK

So, considering all this, we can discuss a few boxes to tick when sourcing these various technologies. Open APIs are one of these items on the account management and client intelligence side of things.

Another item is the ability of brokers to customize, modify, and retain control over how they segment client groups, devise and evolve their order routing rules, and apply differential pricing to different client groups, as well as the ability to implement these changes in business logic rather than in code.

AI probably deserves a section in its own right as the absence of AI tools isn't a deal breaker in and of itself, at this point, but this is a rapidly developing situation that's changing from one quarter to the next.

In terms of handing over business-critical processes to AI, the industry is still divided on this. The growing demand for hands-off automation contrasts with certain understandable reservations due

to the massive risks involved in handing over control of routing, execution, and risk management to artificially intelligent systems, rather than having them serve as dashboard telemetry for human teams.

Our own approach has been to focus more on what AI can do to better understand client needs, providing human teams with a more surgical understanding and reach at scale, as this holds great potential to unlock efficiencies and new approaches to client outreach that can level the playing field, making smaller outfits much more competitive.

In the long run, AI will probably be the technology that necessitates yet another rethinking of the brokerage technology stack due to how helpful it can potentially be in a wide variety of both client-facing and back-end use cases. At the moment, this is a moving target. A great deal of experimentation and real-life testing is currently taking place, without any objective best practices having been settled on as yet.



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We've Got Answers

www.fxspotstream.com



FXSpotStream provides a multibank FX streaming and a matching service supporting steaming of pricing in FX Spot, Forwards, Swaps, NDF/NDS and Precious Metals Spot and Swaps. Clients can access a GUI or single API from co-location sites in New York, London and Tokyo and have the ability to communicate with all Liquidity Providing banks connected to the FXSpotStream Service.

FX infrastructure and
intelligence from one
institutional source

FairXchange

CobaltFX

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TradeTechFX

Connecting credit across the market



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Product Features:

- Horizon
- Horizon Core
- Horizon AI
- Horizon Algo
- Horizon Liquidity
- Dynamic Credit
- Connectivity
- Post-trade Solutions
- Optimisation