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ElectronicTrading presents

Algorithmic Trading: Attracting The Buy Side

A-TEAMGROUP

Whether they accept it or not, sell-side institutions are finding themselves in the unfamiliar role of information technology vendor. The adoption of algorithmic trading models by buy-side firms of all shapes and sizes is shifting trading strategies, and the technology infrastructure to supply and support them, from the realm of nice-to-have appendage to must-have service offering.

With more sell sides than ever offering both standard benchmarks and their own takes on old favourites, competition between algorithmic trading strategies is heating up. And it's not all about alpha. The buy side doesn't like surprises. What many fund managers are seeking from their sell-side suppliers is certainty of execution, low market impact and some degree of accuracy on hitting stated targets.

As a result, brokers and their technology suppliers are all working furiously to help differentiate algorithmic offerings, launching custom and so-called 'adaptive' algorithms, and taking great lengths to prove that their models perform as stated on the tin.

In essence, the world of algorithmic trading is entering a new phase as models' acceptance by the wider marketplace is increasing pressure on firms to perform and, to some extent, productize their offerings. Expect more innovation, more customization and more choice.

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Traders Eye Emerging Markets, European Market Transparency

By Don Finucane, Vice President of Product Management and OTC Data Services at Interactive Data

As algorithmic trading evolves, more firms seem to be using their systems to trade equities from across the U.S., European, Asian, Middle Eastern and Latin America markets. Interactive Data is committed to supporting electronic traders by providing them with consolidated low-latency global data that includes extensive level 2 data, as well as real-time and historical tick data. Following is a look at some key offerings from Interactive Data's Real-Time Services business that may interest clients.

Europe

In Europe, because no consolidated tape exists, many firms have had to face the challenge of consolidating data across Europe's growing number of execution venues and building that logic into their algorithms.

With the launch of Interactive Data's PlusBookTM, a new consolidated order book service for the European financial industry, firms may no longer need to build algorithms with the ability to determine the best price out of a range of markets. PlusBook provides a consolidated order book designed to help financial institutions gain a more complete view of global market liquidity by aggregating orders from multiple venues, including those based in the US.

Providing low latency access to streaming level 1 and 2 data, PlusBook has been designed to identify each trading venue by Market Identification Code (MIC) and, subject to client entitlements, covers the markets available on PlusFeedSM, Interactive Data's consolidated, low-latency digital datafeed. Venues for which a price is available via PlusFeed, but not part of the customer authorized entitlements, are identified as part of the consolidated view. Customizable features can allow end users to tailor the coverage provided to the venues most relevant to them.

PlusBook derives the sum of orders at a specific venue at a specific price, designed to provide financial institutions with an aggregate of offers from different venues which can help track market liquidity. Subscribing companies feed the consolidated order book data directly into algorithmic or automated trading applications, thereby optimizing trading strategies.

PlusBook can be integrated quickly and easily with PlusFeed, which delivers a broad range of global financial information from over 450 sources and exchanges worldwide, covering more than six million instruments.

Emerging Markets

As firms expand their trading into emerging markets, data coverage available through the low-latency PlusFeed has been expanded to include more emerging markets exchanges.

PlusFeed delivers extensive level 2 data for developed and emerging markets, and is designed to provide full depth of book and every tick of data. Interactive Data does not conflate any of its level 2 data, and offers customers the option of receiving all available updates.

Following are some of the emerging markets exchanges recently added to PlusFeed:

- Multi Commodity Exchange (India)
- Dalian Commodity Exchange (China) level 1 and 2
- Dubai Gold and Commodities Exchange
- Ho Chi Minh Trading Center (Vietnam)
- Hanoi Securities Trading Center (Vietnam) level 1 and 2
- Ljubljana Stock Exchange (Slovenia)
- Zagreb Stock Exchange (Croatia)
- Belgrade Stock Exchange (Serbia)
- Micex (Russia) level 1 and 2

Tick Data

Through its PlusTickSM services, Interactive Data provides a range of options from a fully managed, onsite database with streaming real-time tick data to end-of-day file delivery to help with:

- Back-testing algo strategies
- Transaction cost analysis
- Proving best execution
- Compliance and regulatory requirements
- Pre- and post-trade transparency

For firms looking for end-of-day tick data, PlusTick FTP is a daily file that delivers time and sales, minute bar and cross-reference data from over 60 global exchanges. For firms that require real-time streaming tick data, PlusTick Server is a deployed container that provides tick capture, storage and management of millions of real-time and historic tick messages at the client site.

The upcoming version of PlusTick Server, due out summer 2009, will have enhanced tick history storage capabilities and will support both level 1 and 2 equities data.

Algorithmic Trading: For and By the Buy-Side

By Vincent Burzynski, Chief Product Officer, Global Trading, SunGard

Up to the present time, outside the community of trading-focused hedge funds and specialist high-frequency traders who have undertaken their own developments, algo trading has been predominantly viewed as a sell-side product, provided as part of the overall range of brokerage services by sell-side firms to the buy-side.

The growth of algo take-up over the last several years in both the US and Europe has been impressive, and the field continues to evolve rapidly. It is worth highlighting some of the significant developments of the past year or two, which have been impacted in particular by the post-crisis market turbulence and, in Europe, by the increasing fragmentation of markets since the introduction of MiFID:

• Doubts about the universal effectiveness of certain standard approaches, which unsurprisingly have turned out not to fit all market circumstances equally well – and now what happens to VWAP benchmarks in an increasingly fragmented world?

• The integration of smart routing into algo trading processes – an execution or benchmark algo engine having decided the 'when' for a trade, the smart router determines the 'where'.

• The overall complexity of the above, leading many smaller brokerages to 'outsource' their algo provision to Tier 1 firms, some of which have been aggressively marketing these capabilities to sell-side as well as buy-side firms.

• Increasingly wide availability of the major brokers' algo offerings via the networks and platforms of the major trading ISVs and EMS providers.

In the light of these developments it is interesting to reflect on where we might move from here – will algo trading increasingly become a high-added-value service, ultimately provided by relatively few brokerage firms, or might there be ways in which it can become more 'democratized'?

> We see this beginning to happen. Smart Order Routing has already been successfully packaged by ISVs across many client implementations, though more can be done to make it available on an ASP/SaaS basis

Both the buy side and smaller brokers have powerful incentives for this direction: the brokers will naturally want to win back the provision of added value that they have (arguably dangerously) ceded to their larger competitors, while sophisticated buy-side firms can gain flexibility, unique trading advantage and significant brokerage cost savings by taking at least part of their algo destiny into their own hands.

For both communities, the strength of this incentive will increase as algo trading continues to become more prevalent – remembering also the natural growth multiplier of an algo (now often followed by a smart router), which almost always produces multiple trades from a single original order.

A Necessary Enabler

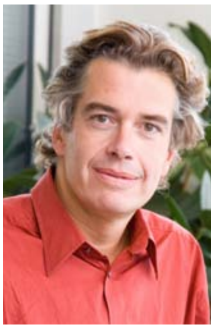
A necessary enabler for this broadening of algo development capability is a degree of 'commoditization' in some of the algos and also in the underlying development platforms. There is an opportunity here for ISVs and software service providers to move algo development out of the rocket-science laboratory and into the everyday world of replicated (though customizable) packaged software.

We see this beginning to happen. Smart Order Routing has already been successfully packaged by ISVs across many client implementations, though more can be done to make it available on an ASP/SaaS basis. SunGard has also worked with numerous clients on both the sell and buy sides to integrate algo trading platforms into their operations. These usually run specific implementations of benchmark and execution algorithms, developed using a workbench (Tactics Studio) that is specifically adapted for the purpose of trader-driven development. Again, the next step is to take the operational complexities out of the process by providing all of these capabilities as ASP services.

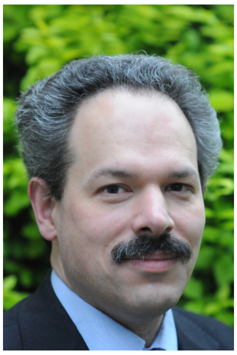
Not All or Nothing

The decision whether to work in house or to buy from a broker is by no means an 'all or nothing' scenario. As mentioned above, the algos and smart routers of the major brokers can also be reached via integrated front-ends and DMA links across the order routing networks of SunGard and the other major providers.

We envisage a flexible and open-architecture approach in which an asset manager or broker can optimize which parts of its algo/smart routing strategy it chooses to implement in-house or in ASP, while accessing external brokerage services for others. This seems likely to be the best route that the industry can adopt for delivery of cost-effective services to investors.



Harry Gozlan, founder and CEO, Smart Trade Technologies



Nick Idelson, Technical Director, TraderServe

Ask the Experts

Algo Trading: Attracting the Buyside

The use of algorithms has been embraced by the mainstream. To what factors do you attribute their broad appeal, and are there particular buy-side firms that are best suited to their use?

Gozlan: I think there are several factors that trigger the broad use of algos by the buy-side community, depending on the category of the buy-side firm and considering that algos can be classified in four categories : alpha seeking ; best execution ; market impact ; and cross-asset execution. Of greater importance, I believe, is the need to achieve best execution in a deeply fragmented market, and secondly, to reduce market impact. This concerns most of the buy-side's trading, including non-listed activities coverng Fixed Income and Foreign Exchange.

The aim of high-frequency trading firms is to generate direct profits from their alpha-seeking algorithms. For these hi-frequency groups, owning a stake in a venue and controlling the way the engines are built and interact with their algos has been a key to being successful.

But consider this : You could reverse the question and ask, « could we run a buy-side business today without using algorithms? » In equities, probably not, but in other markets like OTC instruments, the answer would be yes. However, in the rapidly changing Foreign Exchange markets, the answer would be no. As for cross-asset trading, perhaps the burden lies on the sellside 'invited' by buy-side firms to provide them with multi-asset or even cross-asset trading capabilities.

Idelson: Different considerations drive the demand for algorithmic trading on the sell and buy sides, although the sell side will try to service customer demand by delivering packaged product to generate customer loyalty. The primary appeal from the buy-side perspective is that for a firm with a successful trading strategy the single best ROI is often the introduction of an appropriate algorithmic execution strategy to generate execution price improvement.

When assessing which buy-side firms benefit the most, clearly trading frequency is an important factor. The direct contribution to profits of good algorithmic execution increases with trading frequency to the point where at very high frequencies the execution strategy can become as important as the underlying trading strategy. However, even firms with long-term trading strategies, which may have produced at most only daily baskets to make small adjustments to their trading positions, are recognising the key advantages of algorithmic execution. The increases to annualised returns can be significant and provide a marketable edge over competitors.

Additional synergies are available for those buy-side firms that also employ algorithms in their trading strategies, as well as as for execution and smart order routing (SOR). It's worth noting that a significant number of firms do employ algorithmic strategies for parts of their trading and that they cover a spectrum stretching from low-latency non-vanilla arbitrage through to long-term statistical models.

What are the key elements being used by algorithmic strategy providers to differentiate their offerings for the buy side?

Gozlan: Obviously, this is a broad-based question requiring a detailed reply. It could be latency, offering co-lo hosted facilities. Or design and modeling tools for the algos, including simulation and back-testing of applications. Or packaging under one UI-accessible interface. Or integration with OMS and post-trade systems. Or purely providing algos that can do better than the competition. Or, last, the cost or the classical access to some fundamental research in the case of brokers.

As we've learned at Smart Trade, our differentiating elements include the flexibility and design of the various combinations of rules-based aggregation, smart order routing and crossing features that our engines enable, in an extremely open, fast and secure way – the opposite of a fixed-packaged application.

Still, no matter who the vendor may be, they must position their offering differently for the buy-side than the sell-side, but the underlying technology, if open enough, could very well be the same.

Idelson: The sell-side is understandably most concerned with demonstrating regulatory compliance with best execution. In the U.S., this can lead to a narrow focus on achieving the statutory minimum best execution, while in Europe MiFID requires periodic review and measurement of the best execution policy.

This results in vendors needing to provide not just straight OATS-compliant reporting but drill-down tools for examining trading by customer and market. Ideally, the algorithmic platform should also supply transaction cost analysis (TCA) tools, which allow 'fingerprinting' of the cause of each order slice and resimulation over actual traded history to allow the algorithmic execution strategies to be properly assessed and improved. Pure backtesting of algo execution strategies cannot properly assess market impact and while necessary for development purposes is not a good way to evaluate real-world performance.

All this often distracts from using algorithmic execution as a true execution improvement tool. It is a challenge for a sell-side-focused algorithmic trading platform vendor to repackage its products to meet the real requirements of the buy side, but many are trying to embrace this.

Key factors for buy-side firms do vary partly by size of firm and asset classes employed, but common issues include improved execution prices to boost performance of existing trading strategies, and the ability to minimise information leakage and disguise order flow.

For those firms with onsite rather than collocated technology ability, a 'Zero Latency' mechanism can help compete on a level playing field. This approach moves maintenance of multiple order slices at multiple price levels across multiple execution venues into a trade controller (providing automated order state management and synchronisation) discrete from the execution strategy itself. Orders can be executed in the market ahead of institutions with much higher-speed market access by intelligent management of queued order slices pre-placed in the market both at and away from the best bid and offer.

When moving on from conventional algorithmic execution strategies to customised strategies, trading firms often look for ease and speed of development independent of the platform vendor and the means to maintain secrecy for in-house strategies. Vendors typically address this by allowing their platform to call or be called from external processes and by providing frameworks of primitives to cope with real-time event handling and trade processing. Some vendors also supply graphical interfaces, which can simplify the algorithmic execution strategy development process while maintaining flexibility.

Is beating the benchmark important, or are buy-side practitioners more interested in consistency and hitting specified targets?

Gozlan: I think the latter, actually. Beating the benchmark is their job, of course. What effective algorithmic trading solutions should provide is the ability to embed in various ways the logic enabling each buy-side firm to hit specific targets, first in terms of precision of execution and reliability in the trading patterns overall, and then having the cleverness to beat the benchmark.

I don't believe that trading providers can pretend to offer the buy-side the same systems to everyone to systematically beat the benchmarks. Only custom behaviour, based on each firm's characteristics, can enable you to achieve this goal.

Idelson: In general the buy side wants alpha. If the return of their existing strategies can be boosted by the use of algorithmic execution to generate simple execution price improvement, that is usually a more important goal than specified targets.

That is not to say that any additional risk is acceptable. But well-designed algorithmic execution platforms offer integrated risk management to detect and prevent this. This point is well demonstrated by the common desire of buy-side firms to want to move on from the packaged algorithmic trading strategies provided by the sell side These strategies are often target-based, as typically this allows demonstration of compliance with an agreed execution policy and therefore can be a safe option for a sell-side firm offering.

How is the growing fragmentation of liquidity, particularly in Europe, impacting the design and use of algorithms?

Gozlan: Greater agility and speed are needed. Typically, passive orders have to be managed in a very dynamic manner, different from aggressive orders. This is where a lot of the ticks in the execution can be saved. With the appearance of dark pools, the search for liquidity is also more complex.

To this extent, algos cannot manage all of the execution optimization process. At some stage, they need to rely pn a very thorough liquidity management system in order to manage the states of these complex execution processes, beyond the algos themselves.

Idelson: The most effective algorithmic trading platforms encompass smart order routing functionality, which allows algorithmic execution to cope with multiple execution venues including dark pools.

Due to the growing number of MTFs and dark pools, the design of algorithmic platforms, execution strategies and particularly their SOR components now needs to be flexible enough to quickly and easily add new execution venues.

In Europe, at least the sell side is likely to drive the platform vendors further in this direction, since it will become difficult to periodically review best execution policies (a MiFID requirement) without access to multiple execution venues.

What are the new considerations when developing today's models? Have adaptive algorithms proved useful to buy-side practitioners, and in what ways?

Gozlan: They're using some real-time information, such as current latency to all trading destinations, whether they're brokers, dark pools or exchanges. Close proximity to execution venues will clearly impact the likelihood that traders will hit the target price as expected .

Looking at this another way, the measurement of hit-ratios enables you to measure the quality of each trading destination, meaning the percentage of missed hits on each venue.

Other post-trade statistical information, such as the number of tickets/trades per order, will also have an impact on the overall execution cost management of your strategy.

Idelson: It is increasingly important for modern algorithms to cope efficiently with substantial and growing volumes of order book data. This creates challenges of its own for the platforms. Vendors need to produce architectures capable not only of handling sophisticated models that can generate ongoing price improvement, but to do so using distributed processing and ever lower latencies.

Algorithmic execution strategies can take into account substantial tick and order slice market impact histories to adapt to current trading conditions. Controlling this adaptation is vital to prevent unintended consequences, so parameter variation rather than wholesale change in algorithm is a more usual course.

A normal practice would be to use transaction cost analysis to review market impact and adjust execution strategies explicitly. Review and improvement of algorithmic execution strategies should be considered an important business process key to maintaining a firm's market edge in execution price improvement.

What kinds of performance information are buy-side users of algorithmic models requiring?

Gozlan: Most algorithmic trading technology today comes from either the sell-side or third- party platforms that offer a fully packaged (but hard-to-change) application, often hosted and provided through an ASP model.

The footprint of standalone engines, such as a smart-order router, or in some specific cases crossing engines, is still rather small but this has begun to change due to the increased demand for a higher level of independency from brokers and third-party trading platforms.

In several cases, implementing your own algo-trading solution can be beneficial by being able to control and personalize strategies involved in the trading process.

Idelson: This varies widely, often with size of firm, traded sector and the firm's internal risk management processes.

The most general statistic used to assess price improvement is implementation shortfall against generation time of trade. This is a relatively clean and simple benchmark compared to other post-trade statistics.

Transaction cost analysis and market impact studies are increasing in popularity.

In general, firms express interest in proof that the algorithmic execution strategy, whether developed in-house or by a third party, is performing in line with its mandates and execution policy and without the introduction of any unexpected risk.

Having differentiated throughout between sell-side and buy-side firms over their interest in best execution reporting and compliance, virtually all firms are interested in reports sufficient to meet their regulators' requirements.

How equipped are buy-side customers from a technology standpoint to take advantage of algorithmic trading capabilities? What has been buy-side firms' appetite for third-party or outsourced trading technology platforms that enable algorithmic trading?

Gozlan: Today, it's mostly outsourced usage. However, specific to your question, the use of SORs to dispatch liquidity between brokers, or between brokers and trading platforms – even though they'ew offering different degrees of SOR capabilities to the market – is a very clever way to control its liquidity, execution and improve returns on execution. In truth, a SOR sitting « on top » of the brokers' SOR can prove extremely efficient.

Idelson: It is commonplace for buy-side firms, particularly those that already have established IT infrastructures for trade generation, to attempt to FIX/DMA-enable their existing software at an order or order-slice level. While this may be an economic use of in-house developers, the results are usually disappointing. Without a separate execution algorithm and platform capable of managing the real-time data and implicit synchronisation of trade slices with the execution venues, price improvement is often marginal or non-existent.

Better results are usually obtained by using third-party algorithmic trading and smart order routing platforms. The platform selection decision depends upon the buy-side firm's current methodology, technology, future plans and algorithmic expertise. In our experience, firms are best to agree a small-scale proof of concept with an algorithmic trading platform vendor with well-defined success criteria to ensure that the platform selected meets the firm's real-world needs. This can also help a busy buy-side firm to establish cost-benefit before contracting for a full platform deployment.

There is definite buy-side appetite for the right platform – with varied support level requirements – provided it is perceived to fit that organisation's needs. It would be fair to say that enthusiasm for third-party platforms varies depending upon the success of other third-party projects within the firm in question. Outsourced algorithmic platforms appear to have gained in popularity, but for many buy-side firms having hands on their technology remains axiomatic.

How far have they embraced OMS/EMS platforms and smart order routing systems? Do you foresee use of SOR algorithms to seek out and execute liquidity between brokers?

Gozlan: I believe that major progress can be realized by offering a hosted deployment of their privately owned SOR and algorithmic platforms, connected to their OMS, brokers and venues in a secure, low-latency set up, controlled totally by their strategy teams.

This is very different from using an ASP version of an algorithmic trading platform or service and would combine the outsourcing of the heavy duty infrastructure as well as the flexibility and sharpness of a self-controlled liquidity management systems. In fact, Smart Trade is currently developing such an offer.

Idelson: Penetration of OMS/EMS across the buy side is very variable. Smaller firms often attempt direct FIX/DMA-enabling of their existing trade generation technology as the first step from daily baskets towards algorithmic trading, rather than install an OMS/EMS. Larger buy-side firms frequently do install OMS/EMS as the most practical way to operate trading desks, enforce compliance and handle reporting.

Conventional EMS smart order routing modules have tended to be inflexible and of limited use to the buy side – this is understandable when latency is taken into consideration. If the buy-side firm is using onsite technology, as most do, the latency via the EMS and telecoms to execution venues is frequently relatively poor.

The zero-latency approach, which can be so successful in levelling the playing field with larger firms and managing higher physical latencies for algorithmic trading, is harder to apply in the case of smart order routing without risking at least some overcommitted trades.

That said, dark pool probing SORs are virtually certain to grow in popularity as fragmentation increases – in fact, while higher latencies for typical buy-side firms do complicate conventional SOR between transparent execution venues, this factor may be of more limited impact in the case of dark pools.

What are the next major developments in terms of encouraging the buy side's use of algorithmic trading?

Idelson: Buy-side firms are gradually understanding the advantages of algorithmic trading technology. Price improvement adds to the bottom line and provides one of the best ROIs for many firms. Deploying algorithmic execution strategies on the buy side provides key advantages:

- use of execution strategies that fit the buy-side firm's trading and can optimise price improvement rather than aim for arbitrary benchmarks in an attempt to show an actual or assumed minimum best execution.
- Disguise of trading activity. Execution algorithms typically use randomisation and other techniques to a stay 'below the radar'. With a buy-side algorithmic trading platform, the order slices remain with the originator until stealthily committed to market, minimising the spread of information to the market.
- To level the playing field with the sell-side and larger firms, platforms that provide automated order state management independent of the execution algorithms allow for 'zero latency' trading where large numbers of order slices can be left resting at execution venues and thereby be close to the front of the queue as the price moves.

The continued spread of algorithmic trading throughout the buy side has hitherto been more evolution than revolution and led by buy-side firms seeking execution price improvement, thereby raising both returns and profit while generating a marketable edge.

As take-up of algorithmic execution strategies becomes commonplace amongst the buy side, late adopter effects are likely to become key drivers. Asset allocators already conduct extensive due diligence, which includes trade execution methodology and regulators are demanding ever-greater transparency.

As disclosure increases, most buy-side firms will need to demonstrate competitive trade execution mechanisms, which will increasingly be synonymous algorithmic execution strategies.

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- **Fully control your technology development priorities and delivery plans.** We empower your developers by employing an open framework that includes configuration GUIs, APIs and common message exchange to enable collaborative development, as well as integration of customer-developed features.
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