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# FX In Focus- Setting your Desk up for the Future of Automated Trading

# Why now?

A combination of compressed margins, the need for increased efficiency, and the impact of COVID has catapulted automation to the top of the agenda for FX trading heads. Using technology to improve order processes, workflows and execution standards while reducing human error is a huge driver on the buy side, motivating institutions to step-up their pursuit towards a more automated FX flow.

As such, buy side firms are either looking to incorporate automation on the desk by starting on smaller, repeatable spot trades; or they are looking to take automation beyond spot by addressing the data, infrastructure and liquidity challenges for swaps, NDFs, outright forwards and options. At recent meetings within The Finance Hive, the buy side have made one thing very clear: automation is a strategic necessity for FX.

The route to automation is borne out of the necessity to increase efficiencies and enable traders to focus on the true value-add areas of execution. As FX order flow grows on a buy side desk, there are three paths a trading head can take:

1. Hire more traders
2. Invest resources to build in-house technology
3. Optimize FX workflows to enhance productivity

FX heads are now opting for the latter, looking to partner with specialized and experienced technology providers to implement solutions aimed at optimizing activity on the desk, freeing up traders to focus their time, skills and relationships on more complex transactions. An additional benefit of such technology is that it reduces the risk of human error and speeds up the repeatable areas of execution, driving improved efficiencies.

To better understand how US buy side leaders are embracing automation across their desks, The Finance Hive and 360T hosted a Digital Boardroom for a select group of head traders and technologists to brainstorm, benchmark and share experiences. This report provides some of the key takeaways from this buy side discussion and focuses on seven crucial themes:

1. Defining automation for FX trading
2. Overcoming the top 3 roadblocks to automation
3. The crucial building blocks needed to achieve your long-term automation goals
4. Critical controls and rules required
5. Measuring success through quantifiable and operational benefits
6. Moving beyond spot automation
7. Balancing the maintenance of counterparty relationships with automating vanilla order requirements

*"Even prior to the pandemic, many of the buy side firms that we partner with were heavily focused on finding ways to optimize their workflows and automate their FX activity, but subsequently it has rocketed up priority lists across the board. That's because the pandemic created the perfect storm of market volatility and operational disruption as firms were forced to suddenly adapt to trading from outside their usual offices.*

*In this kind of environment, the benefits of automation really came to the fore – having vanilla trades executed and then validated with benchmark data freed traders up to focus on handling the more complex flow on the desk while still ensuring best execution standards were met, while the rules-based nature of this technology reduced the scope for manual errors during a period of hectic and high-pressure trading. Our discussion with Hive Digital Boardroom attendees really highlighted that although the adoption of automated solutions has thus far been somewhat uneven amongst the buy-side, there is a common desire to implement more of them going forward."*

***Matt O'Hara, CEO, 360T Americas***

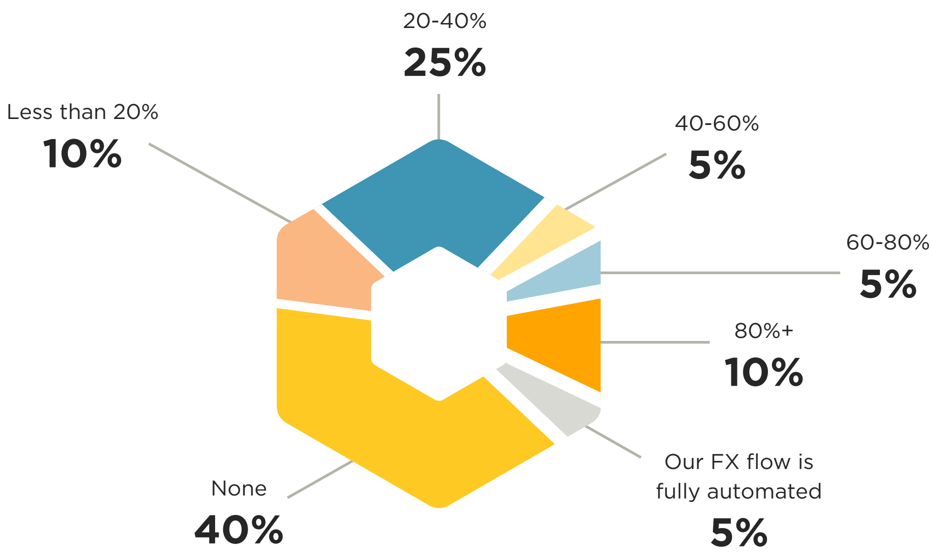
**Discussion moderated by:**

360T | DEUTSCHE BÖRSE GROUP

# Defining automation - where are we now and where can we go?

FX automation should be viewed as a journey not a destination. Buy side firms, both big and small, are all at different stages of automation as shown in our poll at The Finance Hive FX Digital Week, completed by 30 buy side US trading heads.

## How much of your FX Execution is currently automated?




The starting point for those just beginning this journey is actually not auto-executing trades at all. Instead, after the integration to either their third-party or proprietary in-house OMS, the focus is on the ability to set rules around elements of the workflow such as netting and blocking trades. Initially, firms will organize and stage orders based on these predefined rules but still execute them manually. From there the next stage is to use this technology to execute groups of trades with one single click once they have been automatically organized for the trader. And it is typically only after this stage of partial automation that traders will begin fully auto-executing trades, normally starting with vanilla trades which are commonly traded, repeatable and highly liquid trades with a large data pool, thus having the key characteristics for automation.

While it may be easiest when setting up automated trading to only think about these types of trades, the advice given by our buy side members was to think longer term as the infrastructure used to set up automation initially will impact what can be built on further down the line.

*"It is about increasing workflow efficiency while maintaining best execution standards. Of course, we are not willing to sacrifice any aspects of best execution for the sake of efficiency gains, but if we can gain the same level of execution in a more efficient manner then we would look to take advantage of this and improve workflow efficiencies."*

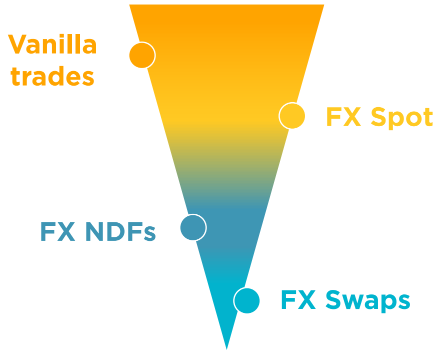
***Tomo Tokuyama, Director, Head of Trading, First Quadrant***

This first step on your automation journey will provide the foundation needed to eventually go beyond spot and look at automating more complex instruments. Once members who have experienced automation became comfortable with the process and their traders have embraced this, they could then become more advanced.

Automation can then be used across numerous facets of the execution process such as broker selection, trading protocol and execution paths, including utilising algos which will decide how to execute, the timing and best price.

The next step in automation is to now move this beyond vanilla trades and into more complex products as firms gain access to more reliable data sets, have the necessary technology in place, and most crucially have a trading team that have gained trust in automation, have the skill set to nurture this and use it as part of their trader toolset.

**Trades that lend themselves to automation:**




Current buy side levels of automation

*"The main driver here at T. Rowe Price is efficiency. Internal ticket volumes continue to grow over time as our AUM increases while our number of traders remains constant. Even excluding March of last year- where we saw almost double the tickets of the full-year average ex March- ticket counts have increased by one-third from 2017 to 2020.*

*On the buy side, we're not looking to increase headcount and are instead endeavoring to execute more orders in a more efficient and cost-effective manner with the same number of traders. As such, our automated trading system was and continues to be an integral part of our trading desk's performance, and its importance will only continue to increase moving forward."*

***Brendan McMurtray, Vice President, FX Electronic Trading & Market Structure Analyst at T. Rowe Price***

# Overcoming roadblocks - addressing the top 4 challenges for automation

Our buy side working group mentioned the below areas came up as initial barriers to automation:

1. The perception that you are putting a trader out of a job
2. Ability to implement automation within current legacy infrastructure
3. The view that data and TCA around automation is not sophisticated enough
4. Implementing this technology requires significant time and internal resources

### *"Automation compliments a trader skill set and improves their efficiency"*

The fear that automation can take over a trader's job and render human traders obsolete, while understandable, is entirely misinformed. The overwhelming view from our members is that jobs are not disappearing, they are changing and evolving as automation inevitably becomes a major part of FX execution. Those who have fully embraced automation did so with the purpose of using this tool as part of a trader's toolkit and have reaped numerous timesaving and efficiency benefits across the desk.

Without automation, traders commonly spend a lot of time on low-touch, repetitive trades which takes away their focus from the more complex trades where trader expertise is essential. These low touch-repetitive trades are ripe for automation which will allow your traders to use their knowledge, relationships and skills where they really matter. Over time, traders who have automated tools to assist them have gained trust in the rules and processes, leading to a natural evolution with 'smarter automation', enhancing the human-machine relationship, and opening doors to more sophisticated automation across a broader range of FX products. The more common fear amongst the buy side members now is the fear of being left behind by not incorporating any aspect of automation, meaning their trading desk does not operate as efficiently as the competition.

*“Change always takes time and trust is the biggest issue when it comes to implementing new platforms, processes, or in this case automation. The status quo is often-times the default and this needs to be challenged to move forward into an age where traders will attempt to provide as much value as possible.*

*The largest hurdle would be testing and getting to a certain level of comfort that automation is in place and working perfectly. There is always the threat of a ‘mistake’.”*

***Joseph Rothwell, Trader, Global Multisector Fixed Income, Manulife Asset Management***

### *“The road to automation is not as difficult as it looks when starting out”*

While legacy platforms that are based on spreadsheets may have been an FX trader go-to in the past, automation combined with digitalisation is changing how the buy side trade FX. The transition from older legacy systems to give way to automation is a natural evolution of the market that is designed to make the whole trading process much more seamless. Our buy side members have made it clear that, now more than ever, the FX market is open to embracing change and catching up with the pace set from their equity counterparts.

Our members were in agreement that they are able to adopt plug and play solutions that sit alongside their current infrastructure. The benefits that tight integration to OMS platforms have brought to the buy side have been the ability to automate anything from normal spot trading to NDFs, outright forwards, swaps and options, as well as serving as great risk management tools as operational risk and human errors have been eliminated.

*“One of the biggest challenges we have faced came down to inflexibility with legacy automated trading technology. Our current system is an in-house built and maintained infrastructure that was designed and deployed from late 2012 to 2015. While this system has carried us through our first several innings of automation, it lacks key functions in terms of its ability to be dynamic in the face of changing market conditions, flexible rule sets, and integration with TCA and analytics.*

*Case in point would be the fact that our system’s rejections more than doubled from February to March of 2020 and didn’t meaningfully subside until August. Increased flexibility, coupled with cost-efficiency, is why we’re working on migrating the platform to a vendor-hosted solution right now.”*

***Brendan McMurtray, Vice President, FX Electronic Trading & Market Structure Analyst at T. Rowe Price***

*“Like a lot of our peers, development of technology spend and implementation is the biggest challenge. Once automation is set up, it should be ‘set it and forget It’ with periodic maintenance and oversight. However, getting to that level requires a build out of time, effort and cost that may not be a priority for everyone.”*

***Joseph Rothwell, Trader, Global Multisector Fixed Income, Manulife Asset Management***

### *“Building an enhanced data structure is the key ingredient for long-term success”*

When looking at automation for spot products, it is without doubt that the data is frequent and granular enough to facilitate automation and drive decision making, hence why this is the best starting point in FX. However, it is when looking beyond spot that the data and analytical capabilities become more challenging. It has been difficult to view reliable automation beyond spot over recent years as usage of automation has grown, however a combination of more tech-savvy asset managers who collect more granular layers of data, alongside innovation with third party providers with new non-spot data sets means that those at the top end of the automation spectrum are now making automation in swaps, NDFs forwards, options and blocks a reality.

A key building block for this is to enable access to round-the-clock reliable swap data, that is accumulated over a significant period of time which can provide full transparency across the curve for your key currency pairs. The knock-on effect means you can analyse your swap and forward trades with much more certainty, enabling you to create rules-based scenarios in which automation can take over, again taking away the repeatable, low touch trades from the trader and freeing up time for more value-add tasks.

*“For us, the biggest challenges have been building on the automation we have, such as the next steps and the path to take for automation. We currently use automation for what we consider low value trades; we now want to look at where we go from here and the next step. I do not see this challenge as an execution issue, but a workflow issue- it is a challenge to define what aspects of our workflow need to be amended or improved to facilitate automation, or whether we need to explore entirely new solutions, either buy or build, that will enhance workflow efficiencies and ultimately the execution process.”*

***Tomo Tokuyama, Director, Head of Trading, First Quadrant***

### *“Partnering with the right technology provider significantly reduces the internal lift required”*

The fact is that implementing automated technology solutions for the first time inevitably requires buy side firms to invest their time and attention. However, our buy side members stressed that by choosing the right technology provider firms can keep this investment to a minimum whilst also ensuring a quick time to market and seamless integration process.

Key considerations for the group included partnering with providers that are able to quickly and easily integrate to their OMS, who have specialist experience introducing this technology into buy side FX workflows, that are willing to work in a highly consultative manner throughout the implementation and who are committed to ongoing investments in their technology to ensure that they remain at the forefront of innovation.

*“Automation is a big, catch-all term that can refer to lots of different things, and so one of the key hurdles that we help buy side firms to overcome is understanding exactly what this means when applied to their own unique workflows. It’s important to develop a deep understanding of where the specific pain points are within each firm’s FX trading operations and then help those firms to examine how and where automation can be applied to address these.*

*In our experience, buy side firms really want to be educated, they want to know what is possible with this technology, what solutions are available to them today and then they want to also explore how they can gain comfort and confidence in these tools, how data can be used as a means of validating these tools, how the integration process with the OMS platform works, etc.*

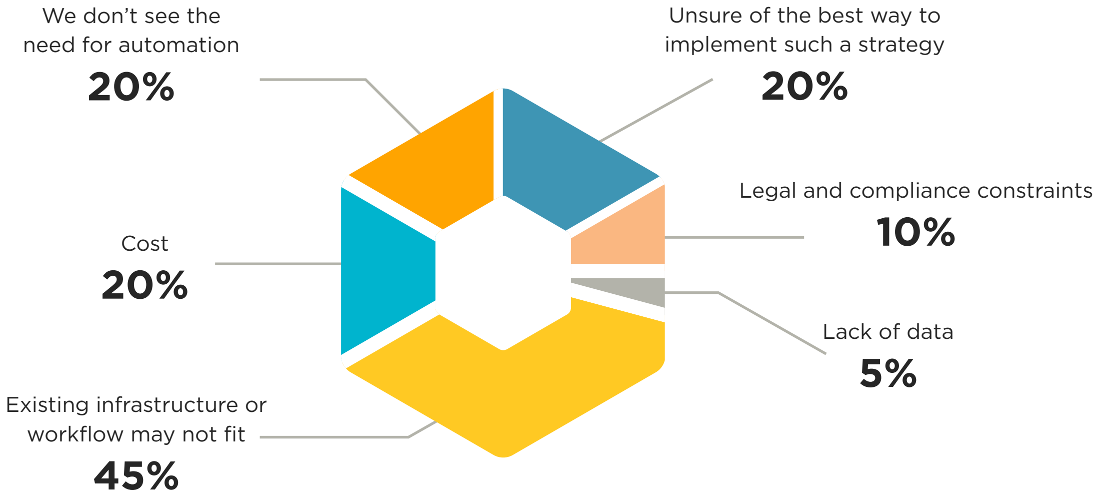
*The problem is that this can all seem like a big, daunting challenge, but the reality is that it doesn’t have to be. When we partner with buy side firms we help them deconstruct all the various aspects of implementing automated solutions and then figure out how to apply it to their business in an incremental, piecemeal way.”*

***Matt O’Hara, CEO, 360T Americas***

# The crucial building blocks - how to set yourself up for success

Over the past few years, the quality of offerings around automation has advanced as the pool of data and FX volumes have increased, going hand-in-hand with the desire for the buy side to increase automation across the desk. As stated in the poll below, the biggest challenge for the buy side has been the concern that automation may not fit into their current workflow.

## What are the main barriers to implementing automated trading tools in FX?




*"The building blocks necessary will be dependent on the view within each firm, and within each trading desk. There is a lot of room for growth in the low-touch automation, but firms need to adopt the processes and devote the time, energy and spend in order to get it done the right way.*

*Thought leadership is required when discussing the changes and making the change to implement in the front-office, while adhering to the necessary requirements for middle-office and back-office downstream impacts."*

***Joseph Rothwell, Trader, Global Multisector Fixed Income, Manulife Asset Management***

## Data

Many firms dictate that trades should only be executed automatically at certain times of day, and if they are within a certain threshold of the market mid-point. For spot trades, our members were in complete agreement that there is no lack of data, with access to good quality historic feeds and external data sources. By contrast, high-quality data feeds for non-spot products have only recently become available, meaning that it has historically been much trickier for the buy-side to access data for these instruments.

*"Analytics and data are crucial, not only for safety checks such as pricing tolerance, but also, to optimize execution decisions. By the time you employ data in these higher-order decisions, the moment to begin collecting data has long since passed.*

*This is critical to get right very early in your automation journey to ensure your data sets are statistically significant and robust to changing market conditions. Peer universes can help in this regard to a certain extent, but the most valuable data is your own given your business model will align with others to varying degrees.."*

***Brendan McMurtray, Vice President, FX Electronic Trading & Market Structure Analyst at T. Rowe Price***

*"Strong pre trade data, strong post trade data, and strong peer data, and then really identifying the objectives of each trade- which trades need handholding, which trades can generate extra value, they different types of trades from different PMs. All of these things and objectives need to be clearly defined if you are serious about fully automated flows."*

**Tomo Tokuyama, Director, Head of Trading, First Quadrant**

However, as some buy side firms have already automated the majority of their spot FX trades, they have naturally turned their focus to building a data flow that can enable automation beyond spot. To do this, buy side members gave the advice for those starting out to set a long-term plan for their automation goals, establishing from the outset what products they want to automate beyond spot, thus building a data foundation that can feed their automation goals from the beginning.

This involves a combination of obtaining historic data over a long period of time for non-spot trades, as well as partnering with third-party vendors who can provide a reliable non-spot data source, helping the buy side obtain a reliable mid-point in these areas, and confidently auto-execute based on these pre-defined tolerances.

*"It's honestly hard to overstate the importance of utilizing high-quality data sets to underpin automated trading tools. At one level, this data is vital for ensuring that no trades are executed outside of a pre-defined tolerance from the market mid. At another it is important for benchmarking trades and demonstrating best execution, something that is always top of mind for buy side traders these days. And having more accurate data embedded in their automated trading solutions also makes it easier for firms to meet their internal audit and compliance requirements."*

*"At 360T we've seen concrete, quantifiable examples of the importance of having high quality data embedded within automated solutions. One such instance was during the peak period of volatility in the FX Swaps market last year – firms that were using our award-winning Swaps Data Feed (SDF) to fuel their automated trading were able to execute consistently at the market midpoint even as spreads blew out wide, while point-and-click RFS traders disappeared from electronic platforms, being instead forced to execute via manual, opaque channels which might not have been consistent with their best execution requirements."*

***Matt O'Hara, CEO, 360T Americas***

## Customization and flexibility

The common view from our buy side members has been that third party providers have not historically offered the levels of customization which the buy side require. Whether you are looking to address this internally, or you are looking to work with third party providers, it is critical that you can work with an easily configurable system which offers a customized workflow solution. The goal is to trade smarter, faster and more cost efficiently across the trade lifecycle which differs for every firm, thus the requirements will differ from just one standard offering.

It is also essential that you are able to consistently build on and develop your capabilities by measuring the performance of automated trading on a regular basis. You can then feed these results back and tweak your rules and controls to improve performance and get more out of your providers. Without these capabilities, it will be more difficult to further innovate and build for the future.

## OMS and EMS

With market data underpinning automation, an OMS and EMS is crucial for collecting both pre- and post-trade data for you to feed into your in-house TCA and future automation. All of these systems need to be interlinked and have the ability to gather all your past performance data for your EMS to use to come up with future recommendations.

Additionally, you will need to use your OMS to set thresholds when a deal comes through which will then decide for you whether you need to manually trade, RFQ or auto execute a trade. Ensuring you have an OMS system that is agile, can adapt to new automation trends and can enable you to tweak your thresholds is crucial as you think about your long-term automation goals. It is much easier if you have a flexible system that can adapt and bolt on new offerings and understanding this from the beginning means you can be much more flexible when you run into challenges.

*"Having automated trading technology that is both safe and flexible is foundational for making automation a reality. First and foremost, checks and controls need to be in place, such as pricing tolerance checks, to ensure execution performance is at least as good as non-automated trading and know when not to automate order flow. Going hand in hand with this, the system needs to be robust enough to accept configurations based on numerous order and market factors. Finally, automated trading technology needs to be able to accept a variety of inputs, including order characteristics, market data, and analytics, to optimize execution decisions."*

***Brendan McMurtray, Vice President, FX Electronic Trading & Market Structure Analyst at T. Rowe Price***

## Maintaining control - customizing your rules to suit your trading style

*"The most important thing is to improve best execution, while decreasing manual risk. No matter what route of automation you take, you must be able to prove best execution and prove that there you are decreasing manual risk. If your automated trades are performing worse than your manual trades, or increasing risk of error you have an issue. The most crucial rules as a starting point for us are based on size and trade objectives for example."*

**Tomo Tokuyama, Director, Head of Trading, First Quadrant**

Every buy side desk aims to tackle automation in a different manner, as such the rules need to be customizable to individual needs and not just based on notional size. Members who have reaped the benefits of this have done so by accumulating historic trade data including type of trade, time, price and counterparty over a longer time period such as 90 days, as well as combining external data feeds which gives them the confidence that the data and transparency they have meets their tolerance requirements. In the case of exceptions where a trade does not meet the key acceptance rules you set, a notification can appear on the trader's screen meaning it can either be manually worked or fed back into your auto execution under different factors, helping a trader gain trust in the process.

The historic trades of currency pairs amongst our members were the most common safety net to decide how and when the buy side automate their trades. Ultimately, this reduces the number of touches a trader has on a trade, while retaining their control and involvement when needed, thus increasing trading desk efficiencies significantly.

The buy side firms in attendance recommended following the rules mentioned here as a base for your automation journey. Starting out with these rules, alongside key 'acceptance rules' which decide whether a trade should be automated or not, will enable you to gain trust and set out your roadmap for more automation in future.

With these controls in place, you will then be able to step in with human intervention when needed, customize your automation to meet your needs at any point, and ultimately quantify your automated trades, comparing them with like-for-like human executed trades in the past and measuring performance.

### Essential Acceptance Rules

- ✓ Type of FX product
- ✓ X number of quotes received
- ✓ X number of counterparties involved

### Essential Automation Rules

- ✓ Time of day
- ✓ Size of trade
- ✓ Range from mid
- ✓ Region
- ✓ Currency pair
- ✓ Available counterparties

*"Ultimately, when it comes to automation, ensuring risks and execution outcomes are no worse than non-automated pathways is the cardinal objective. As such, having pricing tolerance checks in place to ensure that execution performance is at least in-line with expected performance based on currency pair, trade size, and market conditions is critical. By the same token, you need to know what you can automate versus what not to automate, using rule sets to divide your flow accordingly.*

*The main order and market characteristics that will feed into this are the underlying purpose of your FX trade, FX product, currency pair, trade size, time of day, and available counterparties. While these factors are not exhaustive, they can be used to partition orders to ensure that the trades you do automate have the best chance of having the trade be automated successfully and achieve the objective of performance that is at least in-line with expected performance."*

***Brendan McMurtray, Vice President, FX Electronic Trading & Market Structure Analyst at T. Rowe Price***

Automation should be seen as something that can enhance a trader toolkit and give them the necessary means to focus their skills and expertise where it is truly needed- on the higher value, less liquid currency trades. Therefore, when utilizing automation, most buy side firms stated their traders were still heavily involved in risk monitoring and deciding how and when to go to market. While this can be automated, there is a lot of judgement in this area thus making automation a little more difficult to achieve and, in most cases, retaining the human touch was preferable.

When netting, the trades should be completely segregated away from execution meaning a trader can either work them manually, or auto execute them under a completely different rule set.

Of course, market conditions are not static and therefore it is vitally important that buy side firms have the flexibility to easily review and adjust their automated trading systems, including tweaking the rules and controls based on past performance and market changes. In particular, members stressed the importance of focusing on the following:

- ✓ Tolerance checks- ensuring you are collecting the data for all FX products (not just spot) to help you reach an accurate mid-point to meet best execution mandates.
- ✓ Benchmarks- ensuring the data you have is creating the right benchmarks for future trades.
- ✓ Algos- customizing your parameters for future trades and constantly tweaking and evolving these as you become more sophisticated.
- ✓ Volatile trading days- evaluating your automated trading performance during times of market stress, assessing consistency and performance vs. mid, and making changes based on this.
- ✓ Compliance- ensuring the data you have embedded is accurate to make it easier to meet your compliance goals.

*"It's crucial to understand that introducing automation doesn't mean relinquishing control. This technology is designed to augment the abilities of the trader on the desk, not replace them. As such, there needs to be a high level of customization around how the rules for staging and executing trades can be configured. A basic system where trades under a certain value in specific currency pairs are just sent out to the market immediately is using a blunt instrument when what's actually required is a scalpel.*

*Instead, buy side firms need to look towards more sophisticated solutions that enable them to dictate that a given trade should only auto-execute if there's a minimum amount of liquidity in the market, or if a certain percentage of their bank basket is quoting within a specific timeframe.*

*Optionally, they might want to predetermine that trades should only auto-execute at specific times of the day, something that in our experience buy side firms have found very useful when they have trades coming in from other time zones but don't have an overnight desk ready to handle them. Indeed, having so many parameters determining execution and the ability to stagger trades out to the market effectively allows buy-side firms to build their own algos, something that can be particularly beneficial when trading non-Spot FX products where such tools are less readily available to buy side firms today."*

***Matt O'Hara, CEO, 360T Americas***

# Measuring the success of automation

*"A firm with consistent flow of tickets and trading will prove more "successful" and are probably those that are currently using a high-degree of automation. For those that don't see an immediate need to deliver more capacity for the traders, automation will be a step towards the future of trading and allow these traders more time to interact with PMs, peers, and provide more value in the larger, more impactful trades to the underlying strategies."*

***Joseph Rothwell, Trader, Global Multisector Fixed Income, Manulife Asset Management***

**Quantifiable benefits- TCA and Best Execution**

TCA is absolutely crucial for benchmarking your automation and turning your data into useful information. Collecting this data and feeding it into your pre-trade cycle will give you much more transparency of markets, but more importantly will ultimately enable buy side firms to automate more FX flow. The more pre-trade data you can obtain - from post trade pricing, currency sizes and broker selection for example - will enable you to create rules and set a benchmark for your automated execution.

To establish and use TCA for automation, the ultimate goal is to take real-time TCA and incorporate this into your next investment decision, which is of course difficult to achieve. Currently, the best alternative to this is to undertake regular reviews using best execution data and looking for any anomalies, which will inform you how reliable your automation has been.

In addition, costs and freeing up operational time have proved to be a major benefit, and this can be quantified through your TCA over a period of 1-3 months. Undertaking such detailed analysis enables you to hone trader skills on the key areas of the investment life cycle where they can add most value, and give you clarity on how much time people should be focusing on certain trades.

**The eight benefits of automation:**

- Increased control
- Increased trading efficiencies
- Increased speed
- Reduced operational risk
- Reduced human error
- Consistent performance
- Improved trading outcomes
- Improved audit trail

## Two methods to enhance counterparty performance and relationships

Broker selection through algos is a huge piece of the puzzle and has been proven to provide huge efficiency gains and time-saving benefits to those that have implemented a process for this. Those that have done so have built their broker selection process based on past data and their counterparties' historic performance, which is split by specific currency pairs and limited up to a maximum size. Any trades that come over this size threshold and outside the selected currency pairs will take the high touch route with trader intervention.

One of the challenges with automation centres around the impact this will have on counterparty relationships, however the common view from members is that automation has in-fact enhanced both the relationship they have with their counterparties, plus the performance of those who they work with. The two most common strategies that have enabled the buy side to enhance their broker relationships with the use of automation include:

1. 1. Ranking your brokers by tiers one, two and three: This means you are still using all your counterparties, and you are giving tier 2 and 3 brokers the opportunity to improve performance over time to 'move up tiers'. Human traders do struggle to beat machine generated lists of providers. This is all based on past performance and statistical conclusions.

2. Partnering with technology providers offering outsourced liquidity management services. By leveraging the expertise of such providers buy side firms can gain efficiencies by segmenting flows, help minimize information leakage and ensure that they see the best pricing available. This more sophisticated approach to curating liquidity tends to result in deeper, more meaningful relationships between buy side firms and liquidity providers.

Additionally, automation should not only allow you to be able to focus on the bigger, higher value trades, but it should also allow your trades to be more selective with your counterparties, establishing who are the best partners in the market in terms of cost, spreads, market impact, time of trade and right through to information security. This means you can decide who you want to show your trades to, the value you are getting from your counterparties and allows traders to shift their time and focus to both improve their relationships with the street, and more importantly provide you with a better cost analysis and ultimately more returns for your clients.

*"Efficiency can be measured by looking at the percentage of overall tickets and number of tickets executed by non-automated means over time, and value-add can be quantified by looking at TCA performance changes in high-touch flow as automation is employed. As traders are cleared up to spend more time on more complex and/or illiquid orders, they can add additional value, improving liquidity management with the sell-side and securing additional cost savings for clients through unencumbered decision-making.*

*Where execution decisions are guided via TCA, it is key to establish a feedback loop where the quality of recommendations are evaluated against your objective function, which is typically cost-minimization (or savings maximization). Only then can the models be improved towards their optimal state."*

***Brendan McMurtray, Vice President, FX Electronic Trading & Market Structure Analyst at T. Rowe Price***

## Operational benefits: Efficiency and morale

It is without doubt that one of the major benefits of automation is the ability to trade faster and more efficiently. For those that have already automated the majority of their spot FX workflow the benefits were clear; trader morale had significantly increased as the mundane tasks were automated, and they were performing much better and more efficiently in the value-add areas.

It is clear that those trading teams ahead of the curve have embraced automation on their desk, future-proofed their trading teams and improved morale on the desk as the traders use their skills where they really matter, and significantly improve their performance in the process. Two of the major areas discussed with our buy side working group beyond analytical factors were portfolio construction and pre-trade liquidity analysis:

1. 1-Portfolio Construction: When the equity or fixed income Portfolio Managers evaluate their portfolios and the cost of adjusting these, the cost of FX can now be incorporated and spread across as much of the currency portfolio as possible, thus reducing risk.

2. Liquidity analysis: Automating the liquidity analysis pre-trade, before the portfolio construction. If you can see certain signals pre-trade through liquidity analysis automation, you can establish how aggressive you should be and the price you should be hitting. This can be automated with thresholds for different currency pairs, when a trade gets stage, and if anything breaches these parameters you can look into why it is breaching and how you can better manage the trade.

*"Quantifying best execution is more execution is straight forward- this is measured through our TCA. But defining the success of automation is not as straightforward. Ultimately, comes down to how many manual steps in your workflow you have been able to fully automate, thus improving your workflows. One way of looking at this is measuring trader hours and analysing how long your team is spending on trading now vs. before you had automation.*

*The biggest sign of improved efficiencies is the evidence that the trading team you have are doing more with their time, spending less time on trading without compromising the quality of Execution your desk. Additionally, we have found that our traders are focused on other things outside of trading, so their value add comes in other areas such as working closely with the research team about trade idea generation, working closely with the research team and spending more time on value-add tasks as their time is not consumed by trades that are automated. This shows a clear business case for automation and how it can act as a cost saving efficiency."*

**Tomo Tokuyama, Director, Head of Trading, First Quadrant**

*"With automation there's the obvious time saving of not having traders mindless clicking to execute vanilla, low-value trades, but this obviously needs to be quantified in order to justify the implementation of this technology. We've seen firms do this by comparing their historical costs with their costs after implementing automated solutions, and the difference really can be substantial. This is because their traders are now spending more time analyzing who the best counterparties are for specific trades, when is the best time to trade a given currency pair, how the market impact will vary depending on which channel they execute through, etc."*

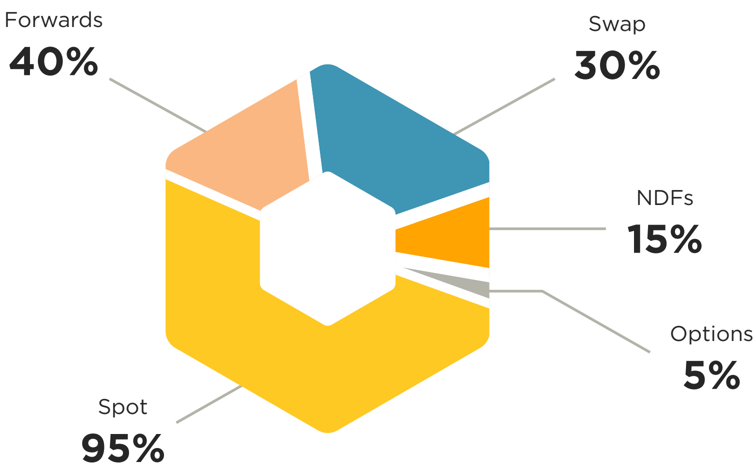
*"Additionally, instead of calling up the dealers to get prices these traders are instead talking to them about all these different elements that are impacting the pricing on-screen, with the end result being that this relationship deepens and as the understanding of what goes into this pricing grows so too do the overall trading returns. Some of the firms that we've partnered with to automate their FX trading really have seen huge cost reductions because this technology has ultimately enabled their traders to make smarter, more informed decisions."*

***Matt O'Hara, CEO, 360T Americas***

# The next step - moving beyond spot

Buy side heads made it clear that the next stage for FX automation is moving to swap NDF, outright forward and options trades. As shown in our poll below, the majority of FX heads already have some form of automation for spot trades, however the story is very different for other areas of FX.

## Which of the below FX assets do you currently have some form of automation for?




As automation takes hold of FX, the buy side are looking for cost and efficiency gains in the swaps market in particular. There are areas here which do not incur much spread and are small in relation to their fund size, as such a natural next step for automation. As you look at this as your next step, you need to consider the percentage of AUM in the portfolio, the size of the swap trades, and whether it has a benchmark associated with it; only then can you turn to automation as an efficiency solution.

You also need to ensure you have access to transparent data metrics for spread costs and swap points over a significant period of time, which can then lead you to creating specific rules-based scenarios (separate to your spot business) around these trades. Those at the forefront of innovation are now realising these benefits.

"First off, firms need to evaluate their book of business to identify their opportunity set when it comes to non-spot automation. For some, like ourselves, deliverable short-dated security funding and cash management trades will represent the largest and lowest hanging fruit, but for others, swaps, forwards, and NDFs will make up the majority of their flow and be in pairs and sizes commensurate for automation.

Once you have endeavoured to automate your non-spot flow, the key is to ensure that you have accurate market to perform pricing tolerance checks and monitor market conditions. While data is widely available and largely commoditized in the G7 spot market, forward points and NDF pricing are more challenging given that reliable data is not as widely available."

***Brendan McMurtray, Vice President, FX Electronic Trading & Market Structure Analyst at T. Rowe Price***

"When it comes to automation our advice is always to start with the simple trades, validate the benefits of this in a quantifiable manner, and then move to more complex trades. Inevitably, this means starting with vanilla trades, often in G10 Spot FX, but in our experience, this always leads to buy side firms wanting to automate their non-Spot activity too, and in fact these products usually represent the biggest pain point within their workflows. And once again, the key here is having the right data."

"That's why 360T has invested a significant amount of time and resources in recent years to develop our unique Swaps Data Feed (SDF), which offers full granularity across the curve from O/N out to two years in over 40 pairs, providing Swaps Market Data in 1,800 crosses in G10, LM and NDF currency pairs. Directly integrated with the pricing engines of more than 20 top Global FX banks, it includes standard calendar dates and broken/turn dates and all the rates are filtered and sanitized through algorithmic sanity checks. Now because the SDF is fully integrated into the 360T technology stack, firms are able to use it to fuel their automated trading activity, even for non-Spot FX products."

***Matt O'Hara, CEO, 360T Americas***

# The future of FX automation - conclusions from our contributors:

"As an industry, we are still in the early stages of automation, where the key objectives are safety and efficiency. As more firms adopt automation, encouraging technological and analytical innovation and disruption, I think we will advance into a new frontier of augmented trading where systems extend human abilities by collecting data, making and recommending trading decisions, and learning from these decisions in a virtuous cycle.

Companies in other industries, such as mega-cap tech, have already advanced to these stages of automation. Take the popular navigation app, Waze, for example. This tool ingests a combination of user and traffic data to recommend the optimal route to take, measuring its estimated time of travel against realized outcomes to improve decisions moving forward. Over time, the system has and continues to recognize and adapt to changing patterns within its input data set, but limitations still exist here that a human can improve upon. Local knowledge of your route might drive you to reject Waze's recommendations or changing conditions may not be picked up by Waze quickly enough.

At the outset of CIOVID restrictions in the US, for example, commute times for essential workers during "rush hour" dropped, and the system did not pick up on this quickly enough. These themes around data availability and changing conditions apply to any area of automation and particularly resonate within automated trading."

***Brendan McMurtray, Vice President, FX Electronic Trading & Market Structure Analyst at T. Rowe Price***

"From the perspective of the buy side, I see certain size limits and/or necessary trades being done consistently in an automated fashion. Of course, this will be dependent on the firm. However, in an era of lean staffing and multi-asset traders, it seems like the necessary adjustments for firms managing their own trading will be to automate the low-touch business that is required, such as covering or hedging underlying securities transactions.."

***Joseph Rothwell, Trader, Global Multisector Fixed Income, Manulife Asset Management***

"I look at the current capabilities as a step-by-step process. But the real future is fully automated spot G10 vanilla trades, where the workflow will be as such that it goes into the OMS, straight through to the EMS, and machine learning will run on top of this, automatically suggesting best execution routes or seamlessly executing trades in the best way possible by using specific algos, working the market or STP orders. This obviously impacts the role of the trader but they will always remain a crucial element of the trading desk.

We will need our traders to manages rulesets and programmes much like a pilot in a cockpit. If things go wrong the trader still needs the skillset to do things manually just like a pilot would in controlling a plane. These skillsets will always remain essential as ultimately machines sometimes do not work."

**Tomo Tokuyama, Director, Head of Trading, First Quadrant**

## Summary from a solution provider - 360T

"The trend here is clear, and it's towards more automation, not less. As such, firms that are not currently looking at how this technology can be applied to their FX trading operations risk falling behind their buy side peers. Fortunately, the attendees of our Hive Digital Boardroom seemed fully cognizant of this fact and it seems that this segment of the industry is more broadly ready and willing to adapt to a more automated trading environment.

To thrive in such an environment, it's important for buy side firms to partner with the right technology provider, and there are numerous different considerations that need to be taken into account when making this choice. For starters, they need to find a technology provider who understands that there's no "one-size-fits-all" solution when it comes to automated trading and that the unique elements of each firm's workflow need to be thoroughly understood. Hence, it's important that the technology provider is able to function in a highly consultative manner to help pinpoint which tools will be most effective to help that firm achieve their stated goals.

Then the technology needs to be up to scratch. This means providing automated trading solutions which enable traders to create completely custom rule sets that can then be applied to their FX trades, and even configured to individual funds within an account. This technology is only as good as the data underpinning it, so it is also important to thoroughly examine the data feeds utilized by the different offerings available today.

However, it's also important to think about what happens tomorrow. Whilst automating Spot FX trades is a relatively straightforward process, the ultimate goal has to be to apply this technology across other instruments and so buy side firms need to partner with providers that can support this. To this point, it's also important to consider how committed to continued innovation that provider is. Those with a proven track record of consistent innovation and technological enhancement are more likely to be able to respond to evolving needs of their buy side clients.

Finally, the last thing to consider is the level of experience that each technology provider has working with buy side firms to implement tools for automated trading. Inevitably, those who have more of this will be better placed to ensure a seamless integration experience and guide firms through their automation journey step-by-step."

***Matt O'Hara, CEO, 360T Americas***

## Digital Boardroom Attendees:

GMO

Vanguard

FIRST QUADRANT

Fidelity INTERNATIONAL

ACADIAN

Dimensional

T.RowePrice

Manulife

MFS

FRANKLIN TEMPLETON

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