Systematic hedge funds: Bringing the case for buy-and-build to the front-office

IN ASSOCIATION WITH

Broadridge

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Introduction: Finding the right edge

Systematic hedge funds differentiate themselves through technology. While discretionary fund managers raise funds on the strength of their ideas and knowledge of markets, a systematic fund's intellectual property lies to a large extent in the technology it deploys.

Historically, that has led to a tendency among systematic hedge funds to develop their own technology infrastructure. The greater control and flexibility that inhouse systems provide to any financial firm is attractive, whatever function they are used for. For systematic hedge funds, this has traditionally been even more important.

This rule has become less clearly defined in recent years. More executives are becoming comfortable with outsourcing middle and back-office functions, as the quality of third-party offerings increases and processes become commoditised across functions such as reconciliation, valuation, accounting and compliance.

But these links in the tech stack do not drive alpha, making the case for outsourcing them clearer cut. For front-office technology, the tendency to stay inhouse has remained much stronger. While costly and time consuming to develop, the argument has remained that systematic funds differentiate themselves from their competitors in the front office. But attitudes are starting to shift, with a more nuanced picture emerging on how fund executives construct their front-office tech.

To examine these changes in greater detail, Acuiti has partnered with Broadridge to survey or interview 50 systematic hedge funds to explore how attitudes to front-office technology are changing, where firms are investing and where the pinch points are in front-office technology today.

The findings show there is a strong argument for systematic hedge funds to look to third-parties for front office technology development.

However, it is not a simple case of ditching inhouse development in favour of outsourcing. Rather, we found that executives are more interested in mixing inhouse and outsourced tech as part of their offerings — taking a buy-and-build approach to save costs and complexity, leveraging third-party expertise but at the same time retaining control over proprietary elements.

Changing approaches

The case for building front-office technology inhouse is straightforward — systematic funds have complete control of producing the systems that run their trading strategies and can react much faster to adapt those systems when needed. These systems are the lifeblood of a systematic fund and define its trading style and identity. As such, they are not best suited to the limitations of the off-the-shelf software.

There are a range of reasons, beyond protecting IP, why it is often seen as impractical to fully outsource front-office technology.

These start at inception. When building up a systematic fund, founders need flexibility in their coding options. It is essential to have the same programming language in the development phase as in the production phase. Which language is used often depends on the preferences of the team. Developers often appreciate being able to change programming language during development if necessary (from Python to C + +, for example).

This desire for control and flexibility lies behind many developers' resistance to outsourcing, even if the vendor platform offers a high degree of customisation.

Interviews showed that a lot of this resistance to customisable vendor platforms comes from developers' perception that they will spend the same amount of time re-coding the vendor's platform as they would building the strategy from scratch.

However, that desire to control the entire technology set-up has evolved. Our survey found that only 30% of the funds we engaged now build all of their front office technology inhouse. The majority — 58% — have a mix of outsourced and inhouse development with the rest operating a buy-and-build strategy.

The survey showed that the main deciding factor that influenced hedge funds' decision to outsource or develop front-office technology inhouse was latency. Firms who said that latency was critical to their trading strategies were far more likely to develop technology inhouse, regardless of AUM.

Interviews suggest that this is due to the higher price that lower latency funds pay for outages. A few minutes of outage can cost millions for a high frequency trading strategy. While developing inhouse doesn't eliminate the risk of outages, it does give firms greater control over resolving and correcting the problem.

But what is clear from this survey is that significant numbers of systematic hedge funds are open to outsourcing within the front-office, a trend that interviews suggested had gathered momentum in recent years.

The challenges of launching a new fund

As part of this study, we asked respondents who had started their own funds what they found the most challenging when doing so. Fund founders cited finding skilled staff and raising initial funding as 'very challenging' — 45% of respondents said this to be the case. While less of the network saw sourcing front-office technology as a major challenge, it is still evidently far from being a resolved issue for many fund founders.

On a scale of 1 to 5 with 1 being no challenge and 5 being very challenging, how much of challenge did the following pose when starting your fund (question asked to founders only)?

The Broadridge view:
Smoothing the path to launch

Founders starting a systematic hedge fund face multiple challenges. Working with a development partner for the front-office can smooth the path to launch. Third-party solutions can go beyond simply addressing technology. The top tier systems will come with high quality support staff, which can both ease hiring pressures and alleviate concern over risks like outages. At Broadridge, we work with clients to develop front-office infrastructure that meets their specific needs while reducing the cost and operational complexity of building inhouse.

Why the shift?

The survey indicates this shift is more complex than executives simply changing their approach to third-party solutions to fit the same path as middle and back-office tech, where outsourcing has been widely accepted for some time.

Functions like reconciliations, while crucial to the smooth operation of a fund (and very costly if it goes wrong), do not drive profitability.

Third-party software for such middle and back-office functions has become more commoditised and of a dependable enough quality where outsourcing has become a cost-efficient and relatively risk-free option for funds.

Front-office technology is unlikely to ever fully follow this path, given that high-quality trading strategies, almost by definition, cannot be fully commoditised. For these functions to be outsourced, a different type of platform will be needed that offers greater customisation for its users.

The drain on costs and time that inhouse development can cause has created an opportunity for high-quality, customisable vendor offerings - if they can sufficiently address fund concerns over control of the development process and ultimately, IP.

These considerations are particularly important for newer funds, with lower AUM and financial firepower.

It is not uncommon for alumni of the big-name systematic funds to leave and start their own shops, only to be surprised by the expense of developing the infrastructure to drive their trading strategies on more modest budgets.

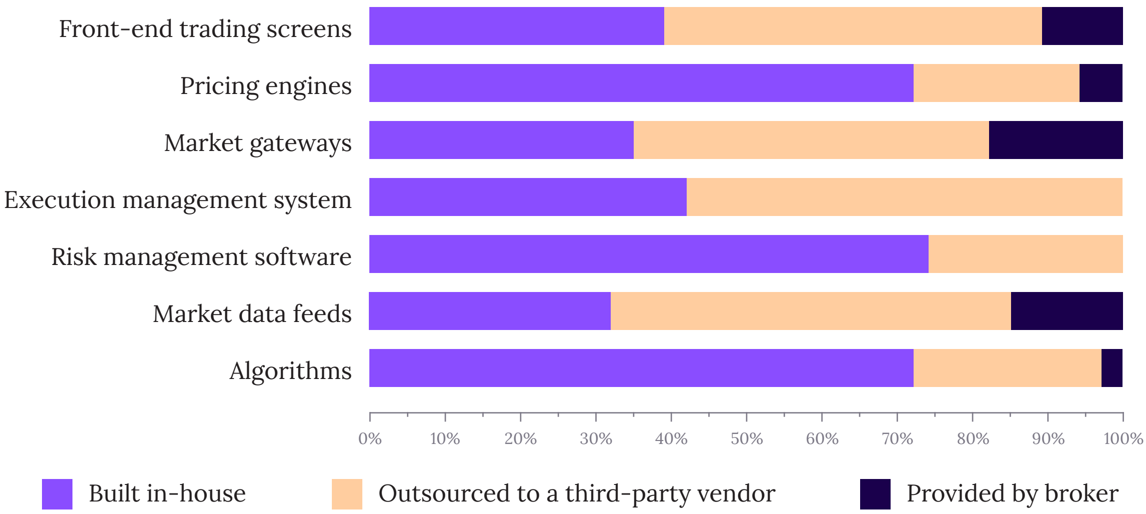
Breaking down the front-office

The findings of this study suggest that when systematic fund executives do outsource for their front-office, they tend to take a compartmentalised attitude, with some parts seen as more suitable for outsourcing than others.

When it comes to building inhouse, funds were most likely to do so for risk management, algorithms and pricing engines. The functions that funds were most comfortable outsourcing to a third-party vendor were execution management systems, market data feeds and front-end trading screens.

Funds were more likely to go to a broker for market gateways and market data feeds, although in both instances inhouse and vendors were still seen as favourable.

Which of the following front office technology functions have you built in-house or outsourced to vendor/broker?



Interviews supported the comfort that start-up funds feel over outsourcing execution management. The quality of systems is generally seen as high-quality and an easier part of the technology stack to outsource, giving fund executives more room to focus on fitting their trading strategies.

There was also a common view that execution management — including execution algorithms — could be brought inhouse later in the fund's life if desired — but outsourced or broker-provided solutions were of a reliable enough quality to serve operations well as the fund established itself.

It should be noted however, that execution algorithms was one area where the influence of latency was particularly pertinent. Unsurprisingly, higher frequency strategies were much more likely to develop their own algorithms, given the importance of quick execution to their edge.

Survey respondents also showed themselves comfortable with outsourcing front-end trading screens. This is a well-served, relatively low risk part of the front-office to go to vendors. In addition, there have been significant advances in buy-and-build and customisation offerings in this area.

Flexibility with sourcing options was also common for hedging. Interviews showed that fund managers were often happy to run non-optimized hedging programmes as they started up. Unlike in their trading strategies, which require complete control over development, fund executives were more confident that off-the shelf software could serve delta-hedging sufficiently.

As with execution, there is an attitude that hedging could be brought inhouse or customised later in a fund's life, as fund managers better fitted the programme with their strategy.

This attitude was less a verdict on the quality of third-party software and more related to fund managers' having better knowledge of their trading strategies and therefore being able to fine-tune a hedging strategy more effectively.

The Broadridge view: Outsourcing the front office

Broadridge's Prop Trading platform, Tbricks, is a highly automated, modular platform that can scale up across global markets and asset classes. The platform enables users to leverage more than 300 customisable apps to trade equities, derivatives, and FX across over 100 venues globally. The platform is used by over 200 prop trading firms, banks and systematic hedge funds, offering them low latency and high throughput with automated multi-asset trading strategies and risk management.

Where are the pinch-points today?

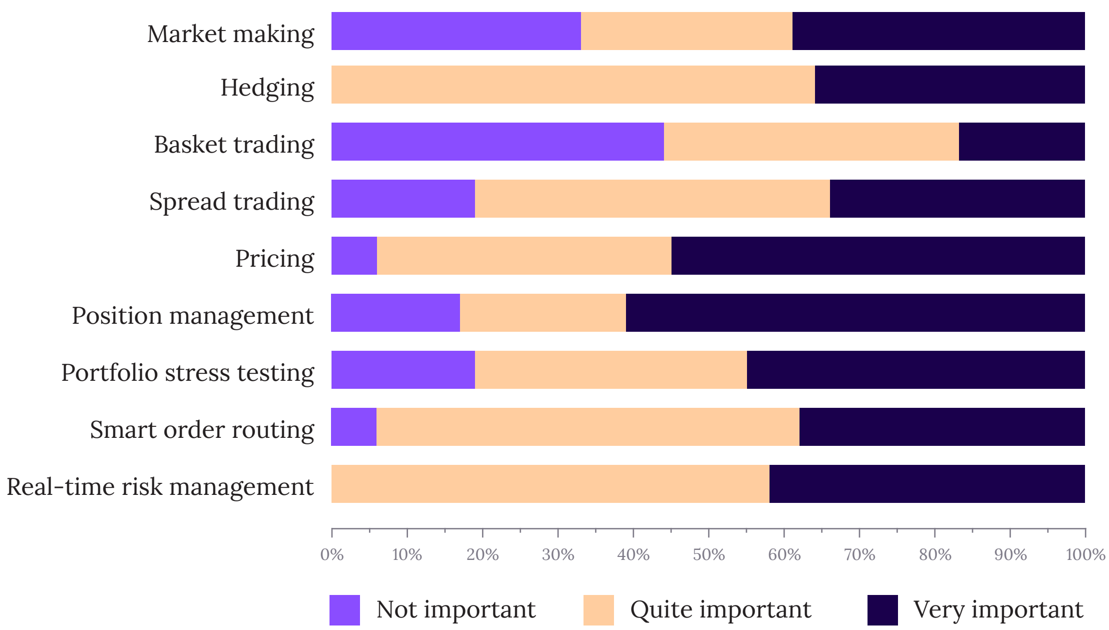
In a competitive landscape, fund managers need to operate with the most optimized front-end technology possible. Given the sophistication of trading strategies and techniques that their systems run, it can be a challenge to fire on all fronts. The survey findings confirm this, with respondents citing a number of their front-office functions that were not fully optimised.

Pricing is a crucial part of the front-office to get right, but as shown in the graph on the next page shows, under a third of survey respondents see their pricing technology as fully optimised — despite the fact that over half see this process as very important to their operations.

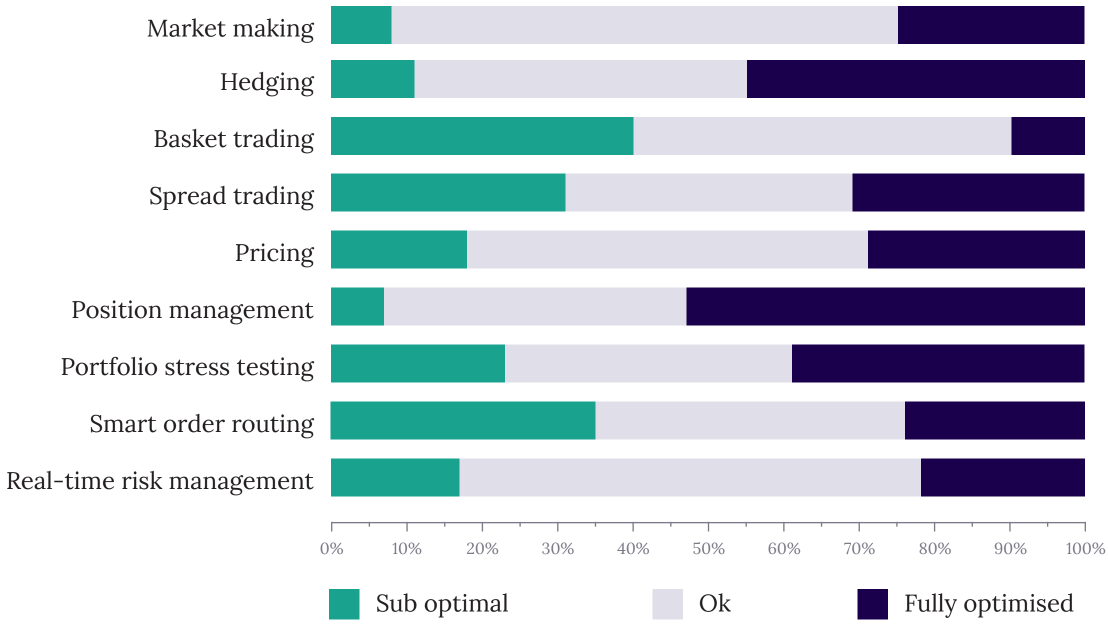
The survey found a preference for inhouse development of pricing engines but interviews added some nuance to this finding. For price libraries, the quality of third-party offerings for vanilla options, for example, is now high. Where executives require more than a simple off-shelf product is for more exotic products, where greater customisation is necessary. For many, standardised software will not suffice here, and interviews showed that funds' development teams want the capacity to build on top of vendor price libraries. This could be a route to better optimising this function.

For other functions, those building inhouse were more likely to report sub-optimal set-ups

How important are the following processes when evaluating front office technology for your business?



Of those that are very important to your business, how optimized are they in your current technology set up?



in smart order routing, pricing and hedging. Basket trading was considered sub-optimal across the board.

Basket trading is an illustrative example of where customisable third-party offerings could provide solutions to sub-optimal operations. A more commoditised product could suit a bank flow trader that just wants to hedge the large volume of positions that he takes on with a more efficient tool than submitting 10 different orders.

But for a systematic hedge fund, this is an opportunity to differentiate and create alpha. The survey found that neither inhouse nor outsourcing are fully-optimised however, making it time to consider alternative approaches to this element of the front-office.

Unsurprisingly, firms that built inhouse had tended to fully-optimise processes that they considered very important to their operations. However, those functions that were deemed quite important were significantly less optimised than for firms that outsourced.

This suggests that there is a compromise that firms knowingly or unknowingly accept when choosing to develop all functions inhouse. Executives therefore should analyse which functions are better outsourced, even if they favour an overall approach that focuses on inhouse builds.

Conclusion: building the case for buy-and-build

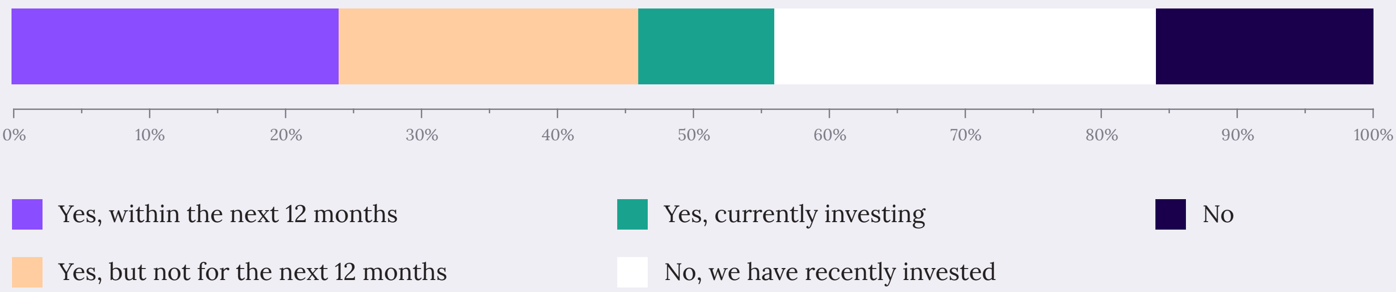
This study suggests a growing but nuanced case for a buy-and-build approach to front-office technology for systematic hedge funds.

Over the past decade, as the offerings of third-party vendors has grown, hedge funds have become more open to outsourcing in the middle and back office. This is now spreading to the front office.

The survey found that a majority of fund executives were either investing or planning to invest in their front-office technology, indicating that now is a good time for many to re-evaluate how front-office technology is sourced and built.

Flexibility and control will be key. Our findings suggest a future where fund managers outsource some elements of their front-office while keeping others inhouse. For this to happen though, third-party solutions will have to offer a high degree of customisation. Funds need to react rapidly to market and operational shifts and that requires the highest possible level of control over systems.

Are you planning a significant investment in front office trading technology?



Owing to the high level of intellectual property in the front office, hedge funds have historically been reluctant to outsource in this area. However, a buy-and-build approach, enabled by recent advances in third-party offerings, offers hedge funds, especially new launches, a means of building top quality technology infrastructure quickly and effectively while maintaining control over their IP.

This means flexibility on capabilities such as coding but also well-equipped support staff that are responsive to the objectives and challenges of trading modern markets. Through buy-and-build infrastructure, hedge funds can build the specificity of inhouse models, while also offering the cost efficiencies traditionally associated with outsourcing.

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