Orchestrating data analytics to enhance the investor experience

A Hedgeweek special report
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James Williams, managing editor at Hedgeweek, assesses how data analytics techniques can be used to personalise client experiences for investment managers.

The amount of data is growing exponentially. According to IDC, there were 16.3 zettabytes of information generated in 2017 alone; one zettabyte is 1 billion terabytes. However you cut it, that’s a huge number. One that is too large to comprehend. In simplistic terms, according to one industry professional “if every piece of data were a penny, it would cover the earth’s surface five times over”. Indeed, with Amazon and Apple both hitting the trillion dollar market cap mark, and Alphabet and Microsoft sitting at over USD900 billion, it is clear that the stock market values data as the most valuable resource, not oil or consumer products.

Against this growing tsunami, investment managers and service providers alike are looking for ways to ingest and make sense of it all. To find information that they can translate into insights and turn into knowledge, that if done correctly, could lead to improved business performance and enriched customer relationships.

Key to this is developing robust data analytic capabilities that help to identify the right data sets with which to achieve specific objectives. SEI, one of the industry’s leading global fund administration and operational outsourcing groups, has long been cognisant of the need to keep pace with technology to evolve its product offering; and in that regard, the power of data analytics has been central to its evolution, supporting investment managers not only on the operational side, but also to better understand their end investors.

With contributions from investment managers such as Arabesque, Adams Street Partners and Toscafund, this report will look at the use of data analytics from a back-end administrator perspective and a front-end investment and risk management perspective.
1.0 APPRAISING FUND MANAGER TRENDS

Colleen Ruane is the Director of Analytics at SEI Investment Manager Services. With a background in maths and engineering, Ruane worked as a senior systems engineer at Lockheed Martin before moving to ITG, an agency brokerage in New York. There, she worked as a member of the product management team on trading analytics; basically looking at how people trade and how they could better improve it through the application of various metrics and analytics.

“Although my work at SEI is focused on different outcomes, we apply a lot of the same principles and thinking about how to use data in different ways,” says Ruane. As she states succinctly, “we take data privacy and security very seriously, but understand that the more data we have available to us, the more insight we can derive, and the more value we can extract for the benefit of our investment manager clients”.

The way in which fund managers view data has changed over the last decade as society at large has become more digital, more connected, with seemingly every aspect of our lives monitored and presented back to us as data points – from the number of steps we’ve walked that day to the next best retail item or holiday offer we weren’t even aware we needed.

It is, in every way, a data-driven world. And fund managers have had to adapt accordingly, not only to improve the way they manage their portfolios but how they operate their businesses at a firm-wide level. In times past, managers were spoon fed reports created by counterparties. That no longer cuts the mustard. Increasingly, with so much data at hand, fund managers – alts in particular – are incorporating uncommon data sets to do their own analysis and develop synthetic benchmarks.

“Managers have started to recognise the potential in the vast amounts of data they had collected over the years, and began to place more emphasis on extracting value from that data. Larger firms are building their own data warehouses and data lakes, collecting data on their end-to-end investment process, hiring analytics teams, and generally investing in their data strategy.

“As such, what we see today is a greater focus on using data analytics to try to create a more complete picture of their investment process,” comments Ruane.

‘Quantamental’ – the new buzz word

Although quant funds have long been obsessed with data and generating trading signals out of market noise, fundamental asset managers have increasingly upped their game and made moves to combine their traditional, highly discretionary investment approach with quantitative investment methods to give rise to a new type of strategy: ‘quantamental’. It is the latest portmanteau to be applied to finance.

As Bloomberg reported recently, big names such as BlackRock, Third Point LLC and Tudor Investment Corporation are all adopting quantitative data-driven processes to find that most ephemeral of things: market alpha.

Data scientists and computer engineers from an array of non-financial industries are being hired to crunch data and apply an alchemist’s skill of turning the financial market equivalent of base metal into gold. The overall aim of this is to enhance the investment process and improve returns for end investors.
Machine learning tools and the latest artificial intelligence solutions are beginning to be absorbed into the front-office and as Ruane explains: “Information represents an edge, an advantage in the market, and if you’re not taking it into account you are likely going to suffer relative to your peers. There’s already something of an arm’s race for information and the ability to process and make sense of it as quickly as possible. Some fund managers have done a decent amount of work in this respect.”

Huw Roberts works in fixed income research/sales at London-based Quant Insight, a technology platform that has been developed over six years in collaboration with experienced investment managers, data engineers and leading academics from the Astrophysics Group at Cambridge University. In short, QI ingests high quality data and translates it into macro overlays for investment professionals across more than 3,000 securities.

The problem portfolio managers have today, he says, is not that there’s a lack of data but rather too much. “All this information requires an actionable idea at the end of it,” says Roberts. “We don’t bamboozle people using lots of alternative data sets. All we do is take macro factors and via machine learning and algorithms, strip out the key factors at play in the market, right here right now. We filter all that noise to help traders develop actionable trade ideas.”

**Unstructured data sets**

Much has been made of the potential benefits to using alternative data sets. But taking a slapdash attitude to using them, just because it is ‘on trend’, is not going to benefit anyone over the long-term.

“For investment managers, every dollar spent on trading costs is a dollar that is subtracted from overall returns,” says Ruane. “There are ways to use trading,
portfolio, and other third party data sets to improve a manager’s approach to trading and to improve the decisions that an individual trader makes during the course of a day. Even down to the way the trader interacts with the portfolio manager and receives and acts on instructions.”

Ruane points out that whilst not all fund managers are necessarily embracing the idea of alternative data, some are embracing the idea of using machine learning and AI to improve their investment process.

“Maybe you’re not necessarily going to use signals from geolocation data, but I think we will definitely see more managers working out how to lessen the burden on their investment analysts, and potentially capture more value from unstructured data sources at the same time.

“If we can provide the tools to process and aggregate unstructured data accurately and efficiently, that will then allow analysts in the front-office to work more productively in other areas and allow information to get processed more quickly and more efficiently.”

Some fund managers are yet to be convinced by the benefits of applying AI and machine learning to the investment process in the belief that systems can be ‘gamed’. Once you know how signals are being harvested by ‘quants’ you can engineer signals (‘false flares’) to send markets in all sorts of directions.

“You can, in effect, send decoy signals to either distract from what your desired investments are or manipulate markets in an old fashioned pump and dump fashion,” argues Dr Savvas Savouri, Chief Economist and Partner at Toscafund Asset Management.

“If machines are being taught to think like humans, but much faster, they will be exposed to the same apophenia – connecting unrelated phenomena – as we are. Programme a machine to look for patterns and it will find both real causalities as well as mere coincidences.”
2.0 APPLYING DATA ANALYTICS TO IMPROVE THE CLIENT EXPERIENCE

Hypothetically, the majority of dollars spent by fund managers related to AI and analytics will go into the investment side of the business, making sure the portfolio management team has all the investment tools required to make the best investment decisions. SEI is looking for ways to apply analytics and AI to create value from data separate from the investment process and is working with asset manager client partners to prove out several concepts.

Generating new insights

“At SEI, we focus on three things with regards to our data, analytics and AI strategy,” says Ruane. “The first is generating new insights for our clients, the second is improving our product offerings, and the third is improving operational efficiency across the board. We’ve collected a lot of data over the years in our role as an administrator. That data has been used for reporting, for statement generation but beyond that, it hadn’t really been leveraged to any large degree.

“We started to think about the clients’ processes and asked ourselves how we might be able to help them use that data in a way that would be of real and unique value to them. We master and maintain a good deal of information on their funds and their investor base, including demographics and trends in behaviour, when investors are redeeming, when they’re subscribing, and so on.

“In terms of generating new insights, we see an opportunity to work with managers to use fund and investor data to help improve retention and acquisition, while of course prioritising data privacy and respecting restrictions on data access.”

This focus has been supported by the Boston Consulting Group (BCG). In a recent annual report, BCG indicated that tomorrow’s asset manager will increasingly use technology to serve and retain investors – to prioritise client service well beyond solely investment performance – and integrate digital tools and data analytics across all aspects of their business, from investment and talent management to operations, technology, strategy and product mix.

SEI’s approach is analogous to the 360-degree customer experience that customer-facing platforms such as Amazon deliver. Amazon collects myriad information on customers and uses that to deliver a personalised experience on the website, driving up customer engagement and satisfaction.

“They know everything about their customers and they are able to give them a better experience as a result,” says Ross Ellis, Vice President and Managing Director of the Knowledge Partnership in the Investment Manager Services division at SEI.

We have a fair amount of data on our clients and their clients. For those interested clients who’ve given us authority, we can then master that data, make sure it’s cleansed and as well managed as possible, and then build some descriptive analytics around that data to tell our clients what trends are emerging.”

Ross Ellis, SEI
“That is essentially the value proposition we are thinking about. We have a fair amount of data on our clients and their clients. For those interested clients who’ve given us authority, we can then build some descriptive analytics around that data to tell our clients what trends are emerging: i.e. what types of investors are behaving in different ways, how investor demographics are changing over time, etc.”

Armed with those insights, investment managers could better understand how investors have behaved in the past. They may learn some new behavioural insights from different classes of investors and want to predict which investors are most at risk of redeeming.

**Product enhancements**

“We’re also committed to using data and analytics to improve our products,” says Ruane. “That applies across the board and it’s all about giving a better user experience to any client who interacts with our technology, services and solutions.”

One example of this is SEI Trade. The solution streamlines the end-to-end processing of investor activities, allowing investor relations teams, in particular, to review, approve, track and take delivery of subscription documents, KYC / AML requirements and supporting documentation. “By digitising the subscription documents, you reduce the risk of human error, you can do KYC much faster, meaning the manager gets their funding faster and can get their product to market weeks sooner. Additionally, the more data generated allows us to continually improve and enhance the application. In every way, it is a positive solution,” says Ellis.

**Operational efficiency**

Efficient operations generate better client experiences. SEI is looking for opportunities to implement analytics and AI to help clients achieve better efficiency and reduce risk across the operational process. It has initiated a few proofs of concept to see how these can ultimately benefit its clients and its clients’ clients.

A surprising amount of the business of running a private/alternative fund still relies on processes that are somewhat manual. Forms, PDFs, email exchanges are all used too often to generate data required for processing. SEI is looking at analytical solutions to improve these types of processes and digitise certain workflows to improve efficiency and streamline the management of unstructured content.

Ruane says that SEI is looking at different types of OCR, natural language processing and search enabled by machine learning, all coupled with smart workflow management “to determine what processes we can automate, where we can eliminate human intervention and email exchanges in certain workflows, and how we can digitise the delivery of data into reference data management systems.

“We believe we can use machines to perform many of these tasks and we are looking at various ways of how to achieve that accurately and at scale.”

The SEI Trade product is an example of a solution to some of these workflow problems as it relates to the investor onboarding process by digitising the forms and workflow associated with the process, resulting in structured and clean data generated by a streamlined experience from the outset. As adoption increases, the investor experience will continue to improve.

**Analytic foundations**

There is no “catch all” solution to generating value through the power of data analytics. It is, in many respects, an iterative process, especially when looking to develop an AI solution. Key to this is to study and understand the data and make sure that the data is properly and consistently available.

“Too often I think people try to implement AI without having the right data in place or without having a strategy to ensure the data is clean and robust,” says Ruane. “We make sure we have the right data available at all times, that it’s well governed and well understood by our analytics team.

“We also have to understand business objectives, and how they translate to data. That might involve using some basic descriptive statistics and visualisation tools to calculate various metrics and then determine which ones are really important. Clean data and good
business understanding generally lead to a better result. We spend the necessary time getting the data clean and putting descriptive statistics in place.

“Then we go down the diagnostic route of trying to answer: ‘Why did we achieve a specific outcome? Why does the data look this way? Why did we miss a benchmark?’

“Sometimes that means looking at the data in a different way. Sometimes it means adding more data and aggregating it from different sources. Only then can we start to determine where we might put in place some predictive analytics that are going to improve efficiency or reduce risk.”

3.0 DATA ANALYTICS IN THE FRONT OFFICE

A quant perspective
Arabesque Partners is a specialist environmental, social, and governance (ESG) quant fund manager that uses self-learning quantitative models and big data to assess the performance and sustainability of globally listed companies.

Its investment technology processes over 100 billion data points to select an investment universe of equities, integrating ESG information with quantitative strategies.

The power of data analytics is very much at play here. The Arabesque Systematic Fund, a global equity fund, combines sustainability values with a sophisticated fundamental and quantitative stock selection process. The learning algorithm assesses a universe of 3,000 stocks and uses a rules-based model to construct the portfolio.

“On a monthly basis, we look at a number of years of data where we apply an exponential weighting mechanism to each stock,” says Dr Andreas Feiner, Head of ESG Research and Advisory. “What we are trying to find out is which system out of a universe of 1,600 systems best describes the behaviour of a stock. Each system takes in data for a number of years and learns every month with the new data that is available.

“The second step is how best to describe that behaviour. The algorithm uses sophisticated statistical analysis in order to find which four of the 1,600 systems should be used to describe the behaviour of a stock over the course of one month.”

The algorithm does this for all 3,000 stocks and based on the strength of the buy signal, it eventually whittles that number down to 100 stocks, which then make up the composition of the portfolio. Feiner is quick to stress that while this is a highly quantitative strategy, there is no predictive analytic techniques being applied. This is using data analytics for today’s marketplace, not tomorrow’s.

“Predictive analytics in the front-office? I think that’s the Holy Grail,” says Feiner. “Making predictions in financial markets is still very poor. Systems and algorithms are built by people. I’m sure at some point in time, some predictive element in the front-office will be possible but for us, at Arabesque, we want to understand what is happening today. It’s similar to riding a wave. Predicting where that wave will come is an interesting endeavour but you might be wrong.”

That aside, the Arabesque team is separately exploring the possibility of AI and is preparing to launch a new fund strategy.
Yasin Rosowsky, Head of AI Research at Arabesque, comments: “The potential of AI technology in portfolio construction and management is vast. Through unprecedented computational power, advances in machine learning and the ever growing collection of data, ‘the machine’ is getting better at understanding the enormous and complex relationships exhibited in financial markets, paving the way for these self-learning mechanisms to optimise the decision-making of the investor.”

Yasin Rosowsky, Arabesque Partners

Adams Street Partners is one of the industry’s leading PE managers. It has USD34 billion in AUM and established the industry’s first PE fund-of-funds back in 1979. Tobias True is a Partner and member of the firm’s Portfolio Construction Committee. In his role, he applies the firm’s advanced analytics capabilities to support activities related to setting investment strategy and risk management.

“Funds who report on companies use different formats and the depth and breadth of reported data varies greatly,” he says. “It has always been a challenge for anyone to systematically capture that data in a form that they can learn from.

“Another challenge is that it often tends to be low frequency and high latency data in many cases. Once we can solve these challenges and gain access to more data, I see it being really useful, using data in aggregate for portfolio construction and risk management. It will require a broad and deep set of data to see patterns and learn over time,” explains True.

As Adams Street invests in managers and monitors its various portfolios, it is mindful at all times to develop as good a data management strategy as possible, despite the limitations referred to above. True confirms that the use of data analytics and learning from data it has access to has been “a very helpful supplement to our fundamental analysis when reviewing qualitative data and making investment decisions”.

“If we are looking at a relatively new manager we can make certain inferences using data that represents funds or companies of a similar profile dating back over a long period of time - we’ve been investing in private markets for 45 years. “This helps us think through distributions of potential outcomes and sources of risk/return that might not be totally obvious.”

A contrarian view
Toscafund relies on a large number of market analysts to develop investment ideas but in Dr Savouri’s opinion, the application of AI in the front-office is not something that he feels adds value.

When one’s strategy is harvesting data using an algorithmic ‘black box’, he says, you are essentially telling investors: “trust the machine but I can’t explain how it works since you wouldn’t understand the complexity”.

“Compare this with traditional fund management, where portfolio managers spend as much time updating investors in plain speak as to their actions, as they do on portfolio adjustments,” argues Dr Savouri. “The arrival of physicists into finance makes me think of Richard Feynman’s adage ‘imagine how much harder physics would be if electrons had feelings’.”

It has always been a challenge for anyone to systematically capture reported data in a form that they can learn from.”

Tobias True, Adams Street Partners

The fundamental-focused manager
A lot of the data analytics debate tends to naturally gravitate towards quantitative fund strategies but the ability to improve one’s investment decision-making equally applies to private equity managers. The only sticking point to this is that the sources of data tend to be much more limited and heterogeneous than that used in traditional markets.
Capital markets are not efficient precisely because the agents investing are not entirely rational. In his view, you simply cannot write an algorithm to imitate irrational exuberance.

"If anything, AI will exaggerate herd-like behaviour since most algorithms will resemble one another closely – flash crashes will become all the more common as AI grows. My concerns over AI in no way mean I dismiss Bayesian learning, which has been around for centuries and which technology works extremely well with."

Data analytics & risk management
True explains that as the world continues to evolve around the use of data and the ability to map out different relationships, it has led to an evolution of the process in terms of how Adams Street uses data to gather insights and come up with hypotheses.

"It has helped us enhance our ability to manage risk in our portfolios and to construct different portfolios. Data analytics has been a critical supplement to our bottom-up research by helping us construct top-down portfolios."

"If we have a portfolio with too much exposure to an industry or source of risk, we can’t just go out and rebalance it tomorrow like we could in the public markets. We therefore use data to think one or two steps ahead to help us (optimise) the way we allocate capital,” remarks True.

The more investment teams – hedge or PE – can use data analytics to better understand the sources of risk and return, the better able they can set expectations for what they think will drive performance.

This can be done in two ways: firstly, by understanding what is happening in the portfolio today, looking across different managers/securities and economic lifecycles across the world. Secondly, by analysing large data sets to look for patterns.

"If we can look back at data from the 1970s when interest rates were rising and understand how markets behaved, that can help us understand companies today and work out, at the portfolio level, what patterns we should hypothesise on, from an investment perspective,” says True.

Focusing on the ‘here and now’ to generate macro signals to inform one’s decision making is really the central premise of the QI platform. What is the point of trying to predict the future price of a stock, an index, if portfolio and risk teams don’t understand what is driving movements today?

“You need an algorithm that can mathematically demonstrate what are the key macro factors that are influencing the price action of a chosen asset,” says Roberts. QI’s algorithms do this by stripping out the noise to pin down in isolation what are the macro factors that are driving a portfolio manager’s trades.

"Is the FTSE 100 being driven by FX moves, growth expectations or more by fears over China’s GDP growth or the level of the VIX index?

“What we do at the security level also works at the fund level. A fund manager can come to us with a time series of their portfolio holdings and we can model that to provide a macro view of the entire portfolio. Last year we ran an analysis of a well-known global AR fund for a UK asset manager, and all the top drivers were Europe: i.e. an expectation of higher European inflation, higher European growth, tighter European credit spreads, higher euro spot price. Basically, any money invested in this fund was a bet on European inflation. It’s all about giving managers a macro risk perspective.”

Finding the right talent
It might sound enticing to beef up one’s operations with data analytics teams to support the investment team but this is far from straightforward. Sourcing talent is a
There’s a sense that it’s becoming an arms race, to some degree, with respect to data science. Even managers who are much more fundamentally driven feel that they need to build out their data analytics and technology teams.”

Evan Stone, Foley & Lardner

significant challenge as the largest fund managers with the deepest pockets snaffle the brightest and best engineers and data scientists. It takes real resources to build up that analytics capability.

“Large managers have the resources, small managers are not being targeted by investors for their analytics capabilities, so it could be that those in the middle will suffer the most,” comments Evan Stone, Partner, Foley & Lardner LLP.

Stone refers to a couple of billion dollar hedge funds he recently spoke to who told him they were putting all of their resources into hiring data scientists and software engineers. The same types of people that companies such as Google, Amazon and Uber are seeking.

“There’s a sense that it’s becoming an arms race, to some degree, with respect to data science. Even managers who are much more fundamentally driven feel that they need to build out their data analytics and technology teams, but it’s expensive. Mid-sized managers just don’t have the resources or talent to compete in this brave new world,” he adds.

One has to be careful to hire talent whose analytic skills will bring genuine value to the investment team.

Toscafund’s Dr Savouri gives talks at places including the department of financial engineering at University College London. He remarks that the audience of maths, physics and engineering PhD students are all being enticed by quant hedge funds, “but none of them think it important to have studied macro-economics; which should be considered as crucial to finance as biology is to medicine.

“Would you trust a surgeon who didn’t study biology even if he were the world’s greatest chemist?”

“Regardless of job function and industry, based on recent hires we’ve made, the ability to think clearly about data structures and look at different cross-sections of data sets is a critical skill that probably wasn’t fully appreciated even five years ago,” suggests True. “That doesn’t mean the person needs to be a programmer or a data scientist.

“Also, from a top-down risk management perspective, it is important to be more literate in terms of data management. Even for someone doing manager research and qualitative-type work, the ability to interpret, manage and interpret large data sets is key.”
4.0 FORWARD VIEW: THE ‘AMAZONISATION’ OF INVESTMENT MANAGEMENT…?

If SEI, and others succeed in delivering new insights to managers using predictive analytics, it could have the effect of pushing fund investing into a new realm that mirrors, to some degree, the personalised client experience à la Amazon.

“We hope so. This is no longer just about managing data in your CRM. There is a whole orchestration of analytics and third party data sources behind those customer relationships and we are hopeful that the more we think about this, the more we socialise these ideas with our clients and the more work we do, we can get to a place where we change the way the alternatives industry interacts with investors.

“Our hope is that we can follow in the footsteps of other industries,” says Ruane. This is already changing the way that SEI operates and how it views itself. It is increasingly playing a consultative role in how people consume analytics and interpret them.

“While league tables and awards reference the term ‘fund administrator’, we’ve tried to disassociate ourselves from that for a few years now,” admits Ellis.

“It diminishes all the other work we are doing and how we view our clients. We have provided back-office solutions for three decades now but we aren’t just cutting NAVs and going home. The more software-as-a-service (SaaS) we do, the more visualisation-as-a-service (VaaS) we do, all of which is non-administration work, the more client assets we will have flowing through our platform that are unrelated to the back-office world.

“The Google’s and Amazon’s of the world changed the way that people consume data. Our clients are no different. They use these platforms so they are used to a certain, high level of customisation and immediate feedback.

“As every client is unique, every structure is different, and every strategy distinctive, we have deliberately made our solution customisable and flexible, yet built on a bed of data security, industry best practices and institutional quality robustness. That’s what we are pushing for with the data analytic capabilities we are building.”

“Understanding what a client or investor wants is crucial to delivering an individualised solution. And as we like to say: ‘you don’t get results that are off the charts when your solutions are off the shelf.’”