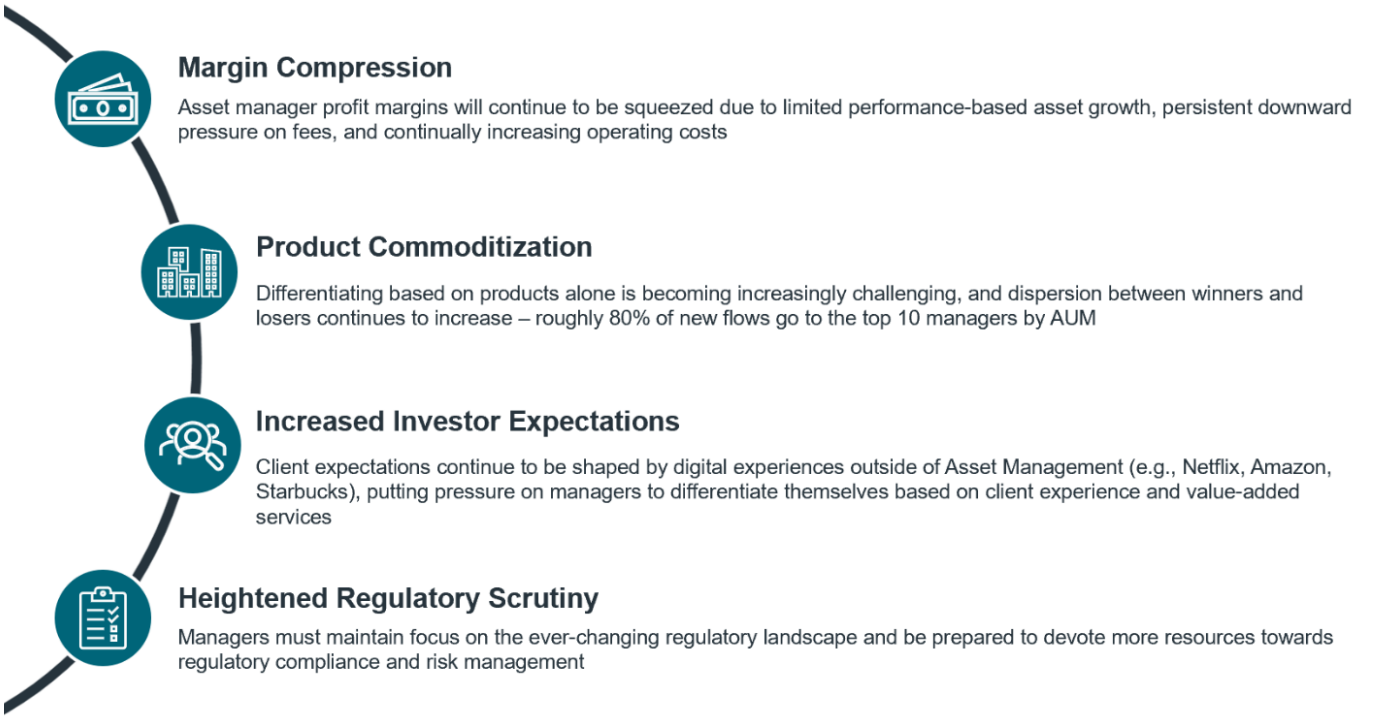
Setting the Stage: Why invest in data science and analytics now

The winners of yesterday are not the winners of tomorrow. Until recently, the asset management industry reaped the benefits of market conditions that drove dramatic growth and negated the need for managers to move away from business as usual. Throughout the 2010s, outsized market returns allowed many managers to rely on market performance for organic AUM growth and neglect investing in their data science and analytics capabilities as a means of driving informed and efficient business decisions. Strong economic fundamentals and low interest rates pushed markets to record levels, and global AUM increased significantly, mitigating the impact of many of the prominent trends (**Exhibit 1**) that continue to beleaguer the asset management industry. However, with rising market uncertainty and the proliferation of accessible data, we've reached an inflection point of – if not investment – introspection. Can we sustain business as usual? Unequivocally not.

Exhibit 1: Headwinds Facing the Asset Management Industry



As the volume and variety of data accessible to the asset management industry continues to increase, the use of data has become table stakes for managers seeking to differentiate themselves. Despite this, many managers have struggled to effectively harness the value of their data and are only now investing in the foundational capabilities that are needed to develop intuitive, data-driven insights. This is where data science and analytics – the discipline through which firms process, examine, and manipulate data to draw actionable insights – is critical. Data science and analytics enables managers to turbocharge core business functions such as portfolio construction, prospect/client management, and resource management. With the overwhelming amount of data now at a firm's fingertips, data science and analytics is the key that allows asset managers to sift through the noise and use data to guide users to accelerated, better-informed decision-making.

With low growth and subdued market returns expected over the near-term, managers must maintain strong investment performance, sales, and client retention to preserve growth while continuing to optimize costs across the organization. Ultimately, industry leaders will distinguish themselves through the speed, efficiency, and depth with which they can leverage data to make insight-driven decisions and take actions necessary to drive their businesses forward. By investing in data science and analytics capabilities now, asset managers can build a foundational toolkit that will help them navigate the near-term industry and market headwinds while setting themselves up for future success.

Establishing a Foundation: The pillars of a successful data science platform

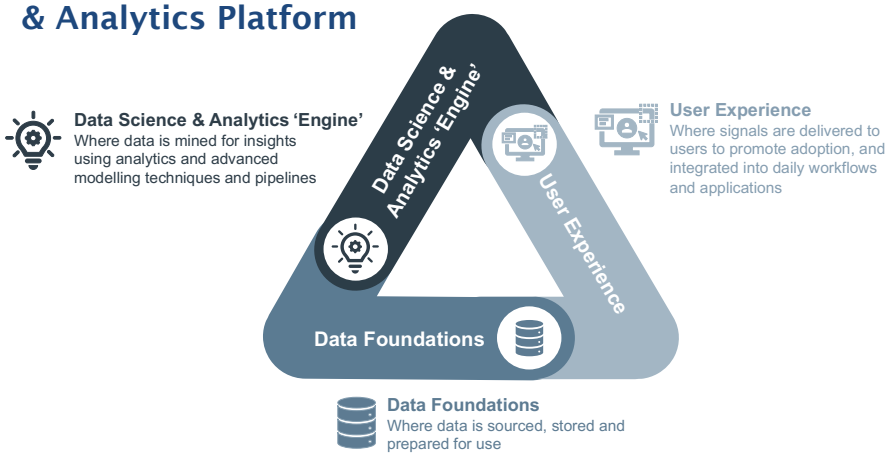
As managers build out their data science and analytics capabilities, it is important to start with the basics. Before investing in state-of-the-art technology and models, firms should step back and ensure that they have established

each of the key building blocks of a successful end-to-end data science platform. The three crucial components managers must consider are:

1. **Data Foundations:** Infrastructure, processes, and governance standards which ensure that data is efficiently and securely collected, stored, and maintained
2. **The Data Science & Analytics 'Engine':** The technology, techniques, and models that are used to process and mine data for insights that can be applied to drive accelerated business management decision-making
3. **User Experience:** The delivery of key insights and signals to end users using front-end applications and tools in a manner that promotes adoption and integration into daily workflows

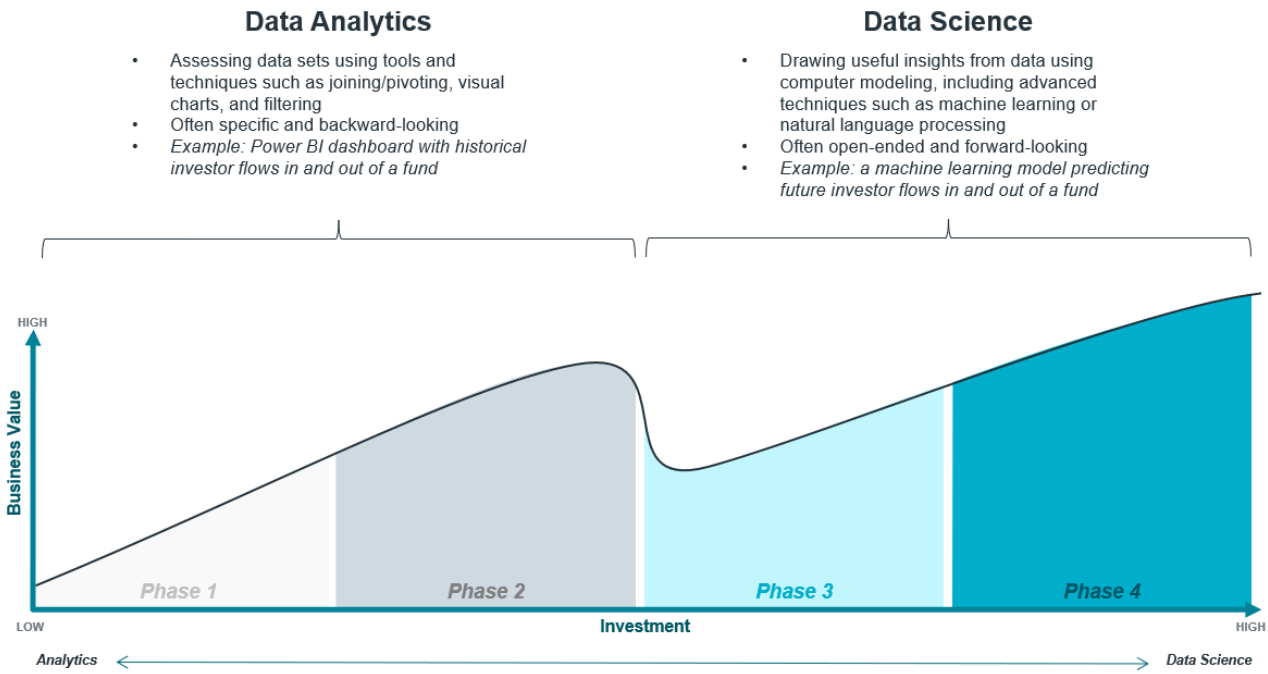
Though the 'engine' will be the core focus of this paper, asset managers must invest time, money, and resources across all three components to establish a successful and well-integrated data science platform. Even the most advanced analytics and data models render questionable outputs without credible data inputs or the right means to provide end users with an experience that demonstrates value and drives adoption.

Exhibit 2: Three Key Components of a Data Science & Analytics Platform



As a firm progresses along its Data Science & Analytics Journey (**Exhibit 3**), there is no "one-size-fits-all" approach and each of these core components act as a lever that can be outfitted to an organization's specific needs, abilities, and ambitions. To determine the appropriate level of investment across these levers, a firm must evaluate its objectives against the costs and resources required to a) maintain its current capabilities and b) move to the next stage of its journey.

Exhibit 3: The Data Science & Analytics Journey



Asset managers are often eager to integrate highly advanced techniques or models to automate or accelerate daily workflows. However, it is important that firms recognize that, at certain points along the Data Science & Analytics Journey (specifically between Phase 2 and Phase 3), the immediate benefits may not be proportional to the investment required. Take, for example, a Head of Distribution evaluating whether to sponsor efforts to build advanced machine learning models that could be applied to accelerate client prospecting. In the near term, this project may yield a limited ROI when factoring in 1) the investment required to bolster necessary data foundations, such as data mastering and stewardship, 2) new skillsets required to operate these technologies, and 3) the shift in

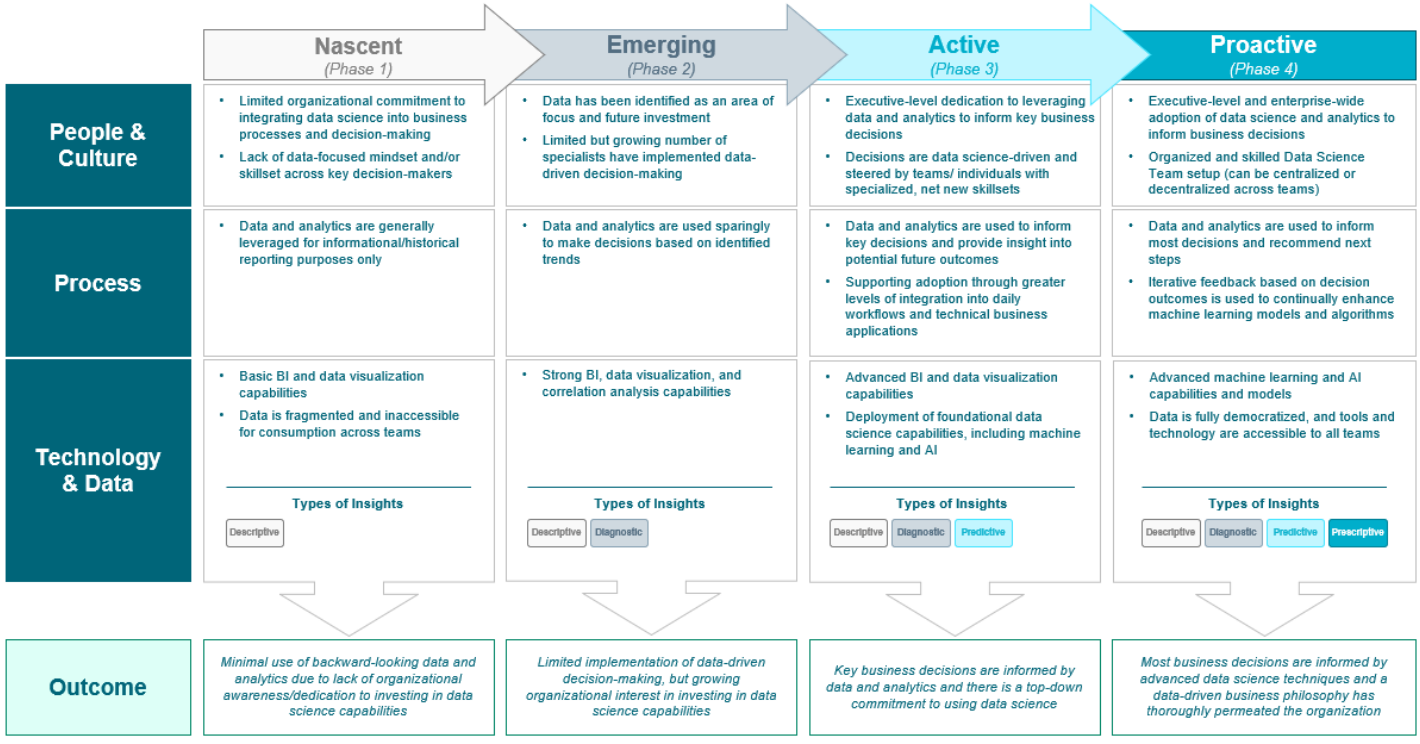
organizational thinking necessary to cultivate trust in any data science-driven outputs. In this scenario, analytics and well-visualized dashboards may provide sufficient value without the need for significant investment in advanced technology, data, and resources. Over the long-term, however, basic analytics and visualization will only go so far. While the ROI of these initiatives may not be immediately realized, investing in data science and analytics now sets the team up for future success, allowing them to apply these capabilities at scale in the future, unlocking immeasurable potential.

Moving from one phase of their journey to the next can be an arduous task, but managers can anchor themselves around the concepts of data foundations, the data science & analytics 'engine', and user experience to guide the prioritization of their data science roadmap. Ultimately, ensuring alignment across these components is critical, and efforts are needed to develop a well-structured operating model involving each. The starting point for these initiatives begins with the heart of a firm's data science capabilities - the 'engine.'

Positioning for Success: Key features of an effective data science & analytics 'engine'

The data science & analytics 'engine' acts as the conductor that processes an organization's data and enables insights to be drawn from that data that will ultimately be delivered to end users. From formulas in spreadsheets to advanced algorithms, this is where the heavy lifting is done. For this reason, assessing the current state of the 'engine' across People & Culture, Processes, and Technology & Data should be the first step for asset managers looking to properly assess the current positioning of their data science and analytics platform. In general, we see clients fall into one of the stages outlined in the Data Science & Analytics 'Engine' Maturity Model below (Exhibit **4**).

Exhibit 4: The Data Science & Analytics 'Engine' Maturity Model



Where a ***nascent*** asset manager may sporadically use manually generated spreadsheets and basic client engagement statistics (e.g., number of client meetings held) to focus its sales efforts, a ***proactive*** manager will determine which prospects to prioritize and the optimal sales strategy to employ based on analysis conducted using machine learning and advanced modeling.

While finding the most innovative solutions is often a point of focus for managers, the maturity of a firm's data science & analytics 'engine' hinges on more than just its technical and analytical capabilities. Cohesive efforts across people, processes, technology, and data are required to develop, promote, and sustain the 'engine' and effectively integrate data science and analytics into business management practices. Without properly aligning each of these elements, an organization will lack the necessary means to achieve its objectives.

To this end, firms looking to ascertain the current positioning of their data science & analytics 'engine' and set themselves up for success should consider each of the following:

1 | People & Culture – Organizational Structure & Skillsets:

Human capital is a fundamental piece of any data-driven organization. Without appropriately skilled resources, managers will not be able to effectively synthesize and extract useful insights from their data. While simply identifying data science and analytics "champions" may suffice for managers at the beginning of their Data Science & Analytics Journey, we are increasingly seeing managers with more advanced data science capabilities setting up dedicated teams of data science and advanced analytics experts. Beyond individual skillsets, organizational structure also plays a major role in the development and adoption of a data-driven business philosophy across a firm. The potential for knowledge sharing, distinct functional needs across the organization, and resourcing/cost implications are key examples of factors that must be considered when determining whether to centralize or decentralize data teams or centers of excellence.

2 | Process – Design & Execution of Data Science Use Cases:

Like many transformational initiatives, the Data Science & Analytics Journey often begins with prioritizing opportunities based on ease of implementation and business value - for example, selecting between a prospect scoring model versus a natural language news summary application. This often involves assessing competing priorities with limited resources to determine the largest areas of impact. Once identified, the development journey must be well-defined and documented with clear stage-based criteria from development through implementation and deployment. Asset managers often leverage a standardized execution playbook to meet organizational specifications and incorporate lessons learned from prior initiatives. This should be paired with a start-up mentality to fail fast and fail often to support continued internal innovation. Lastly, the journey does not end once a use case is developed – managers should employ mechanisms to gather constant feedback to enable continuous enhancements and innovation.

3 | Technology & Data – Tools & Techniques:

Technology and data sit at the core of an organization's data science and analytics initiatives, and managers must ensure that they have access to the appropriate technology and data to generate insights in line with their objectives. As a firm's capabilities mature, so will the technology and tools the firm requires. Where a simple business intelligence tool once made sense, a more advanced statistical computing tool may be a better fit when dealing with more advanced analytics or machine learning models. Recently we have seen more mature organizations look to implement out-of-the-box analytics tools which provide flexible environments for feature engineering, model scripting, auto-ML, etc. While advanced, these organizations often still need to solve for middleware challenges, such as integrating data sources, orchestrating pipelines and batches, and re-training models with live feeds. Across many organizations, the layer between end user applications (UX) and the underlying data foundations is the least mature or scalable, particularly where complex legacy stacks persist.

Managers must also continually evaluate available data sources, whether that be from untapped proprietary datasets or third-party data vendors. Once a firm understands the types of data at its disposal, it can reconcile this against the types of insights that it can generate and put to use. As detailed in the table below, there are four primary types of insights that managers can leverage: Descriptive, Diagnostic, Predictive, and Prescriptive.

Exhibit 5: Primary Types of Data Insights

	Descriptive	Diagnostic	Predictive	Prescriptive
Goal	Focused on identifying trends within historical data using data visualization and simple dashboards	Focused on identifying correlations between multiple factors within historical data	Focused on identifying expected outcomes using machine learning models trained on historical data	Focused on informing data-driven decisions using machine learning models and advanced algorithms
Core Question	What happened?	Why did it happen?	What will happen?	What should we do?
When should you use it?	When your team wants to better understand and get a holistic view of the data you own and recognize trends within your business	When your team wants to understand what factors played a role in historical outcomes and derive correlations to identified trends	When your team wants to get ahead of what will occur and plan out their actions based on expected outcomes	When your team wants to improve their decision making and receive recommendations based on intended outcome

The most mature organizations will have the ability to leverage all four types of insights, where appropriate, to paint a comprehensive picture of 1) current positioning, 2) what can be expected in the future, and 3) the optimal path

forward. However, different functions (i.e., Distribution, Investments, Operations, etc.) may find that certain types of analytics add more value than others. For example, while predictive analytics may be of immense value to a Research Analyst looking to forecast a company's financials, diagnostic analytics outlining the reasons behind an increase in the number of custodial reconciliation breaks may suffice for a Head of Operations. Ultimately, the specific problems that each function is looking to address will determine the complexity of data and analytics that are most valuable at each point across the value chain.

Bringing it to Life: Understanding use cases for data science & analytics across the value chain

Within the asset management industry, the application of data science and analytics has predominantly been associated with Research and Investments functions - the popularity of quant strategies among investors has waxed and waned over time, and many alternatives managers have looked to gain a competitive edge by incorporating alternative data sources into their investment process. **In fact, Alpha's 2022 Data Operating Models Research has found that, while the use of data science is becoming more common in other functions across the asset management value chain, close to 70% of responding managers have already explored use cases for predictive and advanced analytics for Investments purposes.**

As the importance of data-driven business management continues to be a point of emphasis, many firms are now actively working to leverage data science and analytics as a competitive differentiator, not just within the Front Office, but across the entire asset management value chain. From Investments, to Distribution, to the Middle- and Back-office, asset managers are finding innovative ways to use data and analytics to improve their business processes across all functions.

Investments

Asset managers looking to use data science and analytics to enhance their investment process have a wide array of options. We've seen managers gain valuable insights throughout the investments lifecycle by:

- Utilizing data science and analytics to efficiently gather research or extract insights from alternative datasets (e.g., credit card transactions, online browsing activity, etc.)
- Incorporating sentiment analysis into investment decisioning and portfolio construction
- Producing and examining ex-post risk and attribution analytics and enriching internal risk models
- Isolating behavioral trends that PMs, analysts, and traders can exploit to improve alpha generation on the margin

Ultimately, data science and analytics can be applied to the investment process in a multitude of ways to enable faster and better-informed investment decisions. Heading into a period of low growth, incorporating data science to enhance the investment process could be a boon for managers looking to optimize performance and gain a competitive edge.

Distribution (Marketing, Sales, & Servicing)

Amidst the uncertain macro environment, Distribution teams have the unenviable undertaking of maintaining sales and retaining clients in a rapidly changing and increasingly challenging competitive landscape. As the asset management industry evolves and managers look to differentiate themselves based on more than just their products, activities that fall under the purview of Distribution – namely, providing an exceptional client experience – are becoming even more critical. Complicating this even further is the fact that client expectations are now being shaped by non-asset management digital experiences, such as the ease-of-interaction with applications offered by the likes of Google, Netflix, or Amazon.

To navigate these hurdles, leading managers are turning to data and analytics to augment their distribution model and draw the actionable insights necessary to optimize their distribution efforts. Sample uses cases include:

- Conducting trend analysis to identify client assets at risk of redemption
- Deriving preferences and interests to tier/segment clients and prospects
- Examining client activity data to forecast client needs and behaviors and generate actionable signals for sales and service teams

This data-driven approach has enabled these managers to offer clients and prospects a better-informed, more proactive engagement model. As industry and macro pressures mount, the ability to generate accelerated insights and effectively apply them for client and prospect engagement purposes will continue to be a key differentiator within the distribution space. Managers that choose not to leverage data science and analytics, will be surpassed by those

that are employing data-driven decision making to better understand client demands and offer personalized services at scale.

Operations, Compliance, & Risk Management

The ever-increasing complexity of product offerings, asset classes, regulatory requirements, and risk management needs continues to put pressure on asset managers' middle- and back-office teams. These functions often require the ingestion and processing of large, unstructured datasets, such as expansive collections of regulatory rulesets or transaction data. As a result, asset managers have an incentive to apply data science and analytics to help automate activities, where possible, and mitigate the resource-intensive burden of maintaining and managing the processes and data required to support these functions at scale. Examples include:

- Automating the review of trade activity against compliance guidelines
- Monitoring liquidity/concentration risk within funds
- Extracting terms from legal documents to utilize as structured data for client obligations management
- Evaluating and reducing false positives for compliance scans (e.g., AML)

Amid cost pressures and a need to increase operational efficiency, investing in data science solutions for the middle and back-office can significantly accelerate time-intensive tasks and enable managers to reallocate their resources as necessary.

Starting off Right: Initial tips for building a data science & analytics enabled asset manager

We encourage all asset managers starting their Data Science & Analytics Journey to consider the following tips and tricks:

- **Crawl, Walk, Run:** We advise asset managers to employ a "Crawl, Walk, Run" approach to executing on their data science and analytics initiatives across the value chain. A more methodical approach provides firms with the opportunity to be thoughtful about where and how data science and analytics fits within their organization. This allows a manager to first prove out value with individual use cases and more simple techniques, rather than striving for state-of-the-art capabilities or undertaking overwhelming enterprise-wide engagements.

- **Build with specific questions and use cases in mind:** At the outset of the Data Science & Analytics Journey, it is important that a manager first develops a clear understanding of the problems it is looking to address. This will allow the manager to take a more targeted approach to executing against its strategic roadmap and better prioritize its data science initiatives based on time, effort, investment required, and potential value added. Examples of some of the common business questions that we've seen managers look to address using data science and analytics across the value chain can be found in **Exhibit 6** below:

Exhibit 6: Common Business Questions Across the Value Chain

Investments	Distribution	Operations, Compliance, and Risk Management
• How can we pinpoint behavioral biases impacting our investment decisions? • How can we improve our portfolio risk metrics & models? • How can we proactively rebalance our sector allocation? • How can our trading desks optimize trade execution and counterparty selection?	• Which client accounts are most at risk of redemption this quarter? • What collateral or capabilities can we proactively bring to clients to demonstrate value? • Which prospects have demonstrated a strong interest in specific products? • How can we optimally segment/tier our prospective clients?	• How can we monitor and manage activity across the lifecycle of a trade? • How can we easily identify and address potential trading misconduct? • Which accounts are at risk of breaching IMA terms? What is driving this? • How can we accelerate and increase efficiency of our reconciliation efforts?

- **Identify the Champions:** Most managers at the beginning of their data science journey may notice siloed data initiatives within their organization. However, sporadically placed across the organization, there are generally key 'data champions' who initiate these efforts and continually experiment with how they can use data science and analytics to further optimize day-to-day activities. Firms that identify their 'data champions' early can drive change by strategically positioning these individuals across the organization to promote adoption.

- **Lead by Example:** Instilling a data-driven mindset across the organization requires a cultural shift and is a critical factor in promoting adoption of new technologies and processes. Underpinning all cultural change is

leadership buy-in and alignment – this requires senior leadership to not only 'talk the talk' by reinforcing the business benefits of data science, but also 'walk the walk' by using data to drive decision-making. **Alpha's 2022 Data Operating Models Research has found that senior sponsorship is generally a key predictor of the success of data initiatives, and gaining buy-in across all levels of an organization is vital to integrating data science and analytics into daily activities.**

Data can be a critical asset and key differentiator for asset managers looking to accelerate data-driven decision-making and improve business management. However, the value of a manager's data cannot be fully realized without the application of data science and analytics to draw out useful and actionable insights. Alpha FMC has extensive experience working with asset managers to explore where and how data science and analytics can empower their business. For more information on how Alpha FMC can help your organization, please contact us.

Natalie McIntyre – Director

Natalie is a Director, Head of Technology Services and a member of the Management Committee in North America. She has led large scale transformation programs and advised clients on business strategy, distribution management, investment operations and M&A due diligence for both retail and institutional asset managers. Most recently, Natalie has been on the forefront of leveraging Data Science to drive digital sales and generate investment alpha. Prior to joining Alpha, Natalie managed distribution operations and business intelligence at Bridgewater Associates.

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Sam is a Manager based in Alpha's New York office with over 8 years of experience in the Asset & Wealth Management industry. He has managed and delivered on a wide range of engagements spanning across data & analytics strategy, target operating model design, technology implementation, and growth strategy.

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Kerri has over 7 years of consulting experience working with Asset Managers, Asset Owners and Wealth managers to deliver technology-led transformations across distribution, investments and operations with Canadian and US clients. Her more recent experience covers data science and analytics strategy, distribution strategy, target operating model design, implementation and change management.

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