The role of big data analytics for achieving sustained business improvement in wealth management

For purposes of this white paper, “wealth management” refers to the discipline that encompasses financial services performed by licensed professionals on behalf of individual investors across all wealth tiers, including financial planning, portfolio management, estate planning, tax planning, debt and cash flow management, among others.
The wealth management industry is rapidly evolving amid unprecedented change brought about by a seismic shift in demographics. As baby boomers reach retirement age, they begin to pass on a generation of acquired wealth to their offspring and heirs, who are introducing new and faster-paced demands, compared with those of their parents. At the same time, firms are facing heightened competition and fee pressure from unconventional sources and disruptive technologies in terms of the traditional asset allocation advice model. In addition, the Department of Labor Fiduciary Rule (DOL Rule) adds uncertainty to these changes surrounding retirement client portfolios. Even if the DOL Rule fails to become law, it will leave in its wake a new focus on the importance of planning roles as a means to more clearly demonstrate that wealth management firms are acting in the best interest of their clients with requisite levels of transparency.

For some, the industry conditions may feel like a perfect storm. For others, they present a new set of opportunities to take advantage of the latest technologies and tools, including big data analytics, to achieve a competitive advantage and sustained business improvement in this dynamic and evolving business landscape. This white paper looks at these key changes and explores how wealth management firms are relying less on advisor intuition and more on informed decisions leveraging big data architectures and advanced analytics to:

- Acquire, grow and retain clients, such as through the use of algorithms to accurately predict client buying signals
- Increase operational efficiencies, such as through the use of algorithms to reduce the number of home-office “not-in-good-order” (NIGO) transactions
- Proactively manage risk and compliance, such as through the use of algorithms that can continuously learn to identify and predict key risks, such as client defection alerts before the event actually transpires
Significant industry trends giving rise to new opportunities

Shiftin$%g clie!nt demographics and preferences

The aging of the baby boomer generation and ensuing wealth transfers

Some 76 million baby boomers were born from 1946 to 1964, with the peak number of births occurring in 1949. The Social Security Administration estimates that, on average, an estimated 10,000 boomers die each day, or about 4 million each year. This generation now holds an estimated $3 trillion in assets that are expected to be in play until roughly 2030. According to EY research, 34% of beneficiaries stay with their parent’s advisor after receiving inheritance. In addition, only 39% of millennials, a generation who think differently about advice than their parents, use an advisor, compared with 62% of baby boomers.

The seismic shift in demographics triggers money in motion upon the passing of the client. This is attracting significant attention and effort by wealth management firms seeking to retain the families’ assets within the firm as those assets pass through generations.

New and faster-paced demands of the millennial generation

With regard to the changing generations, a substantial amount of the assets that will be passed down will be to the millennial offspring. Born after 1980, this group is unlike their parents in terms of attitudes toward their careers, finances and expectations of client experience. They have come to expect that their advisor knows them and can interact with them through any communication channel they choose, whenever they so choose. Not only is this group growing in number, it is also accumulating assets at an impressive rate. As millennials enter their prime earnings years and face the prospect of inheritance, they have the potential to become the wealthiest generation in history.

Wealth management firms are leveraging new technologies and big data analytics for more effective communications and opportunities; for example, sending the right message at the right time to ask their clients for introductions to their children as a way to ultimately retain the relationship once the wealth passes from their parents.

Agining of advisors and the need for succession planning

According to EY research, approximately 50% of advisors are over the age of 50 and 20% are over the age of 60, so expect large numbers of advisors to retire in the next 5 to 10 years. A recent EY survey found that advisors consider succession planning to be among the top business risks.

Wealth management firms are leveraging advanced analytics for succession planning purposes with algorithms designed for matchmaking to predict the most appropriate candidates to assume the advisor’s book once he or she retires. The model’s predictions can save a significant amount of time in terms of vetting advisors and helping to enable the satisfaction of the retiring advisor’s client once he or she retires.

The role of FinTech, digital advice and related service models

Robo-advisors brought the value proposition of FinTech to the forefront of the wealth management industry, offering personalized goal-based planning and digital investment advice with a compelling client experience that includes mobile access and paperless account openings. Adoption of digital advice capabilities by wealth management firms now ranges from client self-service to hybrid-service models with a blend of advisor engagement and digital advice, presumably at a lower price point than the traditional full-service model. The new blended-service models are requiring wealth firms to articulate the incremental value they provide over and above the digital advice platform capabilities.

Cognitive analytics combined with native language processing and enterprise search are helping Reps as PM models to rapidly identify new insights to outperform the traditional asset allocation models. In their own language, a Rep as PM can ask a question such as, which of his or her clients are the most sensitive to a decrease of X basis points in a particular index or security, and then take proactive steps in adjusting the client’s asset allocation.

DOL Fiduciary Rule legacy

An unintended legacy of the rule can be seen in the technology solutions that wealth management firms have developed to meet its compliance requirements. For example, a wealth management firm created an integration platform that links an advisor’s mobile phone with the firm’s customer relationship management (CRM) platform, only to find that advisor meetings and conversations with clients were largely not tracked in the CRM platform.

Big data analytics defined

Senior industry executives are starting to recognize the potential to develop insights and leading indicators from traditionally dark data in the form of unstructured text such as CRM notes, email correspondence and voice transcrips.

Unstructured data does not fit well in traditional data warehouses that are based on relational databases. Furthermore, data warehouses are not designed to handle the processing demands posed by such large sets of data that need to be updated frequently or even continually.

Big data represents large pools of structured and unstructured data that can be rapidly brought together and exploited with analytically based models and algorithms used to discern patterns. These can yield predictive insights and prescriptive recommendations, which in turn enable wealth management firms to make more informed business decisions.

As a result, a newer class of technologies has emerged. Hadoop is the technology of choice, serving as the nucleus within an open-source software framework that supports the processing of large and diverse data sets across clustered systems.

The importance of data in big data analytics

Analytically inclined organizations believe that the right data is being captured, validated and governed on an ongoing basis. As wealth management firms rely more on data, their awareness of data in the organization – where it is, who has it, what’s available, how to find what one needs – has to grow as well. With greater awareness, however, comes greater responsibility. Curating data, for instance, once the exclusive purview of business intelligence units, is increasingly being required of general managers. Similarly, a greater number of general managers are being called upon to participate in data governance and compliance activities.

That said, the industry is not without data challenges. The most common data challenges stem from applications such as CRM dictating how data is organized and stored. Data is prepared into specialized schemas to serve each respective application. Each application has its own dedicated silo, and the result is a proliferation of silos and no single version of the truth.

The typical wealth management firm has hundreds of data silos throughout its organization requiring an evaluation of the overall effectiveness of mastering a single version of the client and the firm’s underlying data architecture – fundamental building blocks that in turn enable algorithms to run much faster and embed accurate insights into the business processes as events happen.
Advanced analytics models

The wealth management industry has largely adopted advanced analytics models that are designed to produce specific types of insights in a wide array of models. The following are examples of the industry’s adoption of analytics models with a representative industry use case example. Diagnostic analytics is a form of advanced analytics that examines historical data and content to answer the question “Why did it happen?” It is characterized by techniques such as drill-down, data discovery, data mining and correlations. 

Predictive analytics is the practice of extracting information from structured and unstructured data sets to determine patterns and predict outcomes and emerging trends. Predictive analytics forecasts what might happen in the future with an acceptable level of reliability expressed in terms of hit rates, and includes what-if scenarios and risk assessment.

Prescriptive analytics is a type of business analytics that focuses on finding the next best course of action for a given situation and belongs to a portfolio of analytic capabilities that include descriptive and predictive analytics.

Cognitive analytics is the simulation of human thought processes in a computerized model. Cognitive computing involves self-learning algorithms that use data mining, pattern recognition and natural language processing to mimic the way the human brain works.

Machine learning algorithms

A common analytical technique known as machine learning is applied in many of the use cases deployed across the industry.

In machine learning, a computer program or algorithm continually “learns” from experience, changing weights of variables that help influence the desired insight and improving the integrity of the prediction or hit rate (projection of confidence level) with respect to proving a hypothesis.

Selecting the right algorithm is the responsibility of a data scientist who has deep expertise in the understanding the requisite data sets required to produce the desired insight and apply the appropriate algorithms to prove or disprove the stated hypothesis.

Machine learning techniques defined

• Supervised learning: Model and predictions (hit rates) are perfected over time through a training process referred to as continuous learning. Supervised learning models are deployed in many of the industry’s leading use cases.

• Semi-supervised learning: Model must learn the data structures to organize the data, as well as make predictions.

• Unsupervised learning: Data is not labeled, and the model is developed by deducing structures and building rules.

Machine learning algorithms can be trained and applied based on the specific use case requirement, the hypothesis to prove and the desired insights to be gained. For example:

• Scanner algorithms can be designed to spot certain conditions with different levels of workflow intervention.

• Cognitive search and analytics combines structured and unstructured data with machine learning algorithms through

Examples of Industry use cases leveraging various model types

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Use-case approach for proof of value

Before investing resources in big data appliances and analytical tools, invest time conducting interviews and workshops with the business leaders and subject-matter experts within your firm. Ask about their current pain points, challenges, the data they rely on, the data they don’t have but wish they had and the business opportunities for which predictive and prescriptive insights from advanced analytics can help them make more informed business decisions. This is an opportunity for the technical team members to better understand the types of decisions the business makes and how those decisions ultimately affect revenue and customer retention, among other things.

Next, transform the interview and workshop findings into use case concepts that outline:

• The opportunity in terms of value-added to the business decision-making process, current state pain points addressed (i.e., high client attrition rate), etc.
• The desired insight in terms of output from a diagnostic, predictive or prescriptive analytical model
• Structured and unstructured data, respective sources and frequency of updating the model
• Historical data required to backtest the model and prove a hypothesis against events and outcomes that actually happened
• Future state workflow and action steps, if the insight is to be embedded into the business processes

The use case hypothesis can be backtested working with historical data that studies and detects patterns in the data and the variables that contributed to the outcome. Algorithms can be trained to continually adjust to new data and reweight the variables that drive the hypothesis to its highest hit rate. This approach has come to be known as a proof of value.

Consumption and acting on the insights by the business community are not automatic. In many cases, financial advisors will revert to intuition but use the insights as a sounding board in their decision-making.

An additional dimension of the proof of value is presenting the insight in a data visualization tool that the business users can quickly comprehend. Based on a combination of variables and respective weights, a client (investor) may signal an impending departure, but with the benefit of visualizing the client’s behavior over time, an advisor may be able to realize that the behavior that triggered the alert is an aberration.

The value of the analytic insight can be lost if the business user does not understand the combination of variables and respective sources of valuable, untapped dark data that has traditionally not yet been exploited with analytics.

Capturing the complete voice of the client across all engagement channels can provide valuable insights regarding the context of the client’s sentiment regarding particular matters such as service issues captured in a call center voice transmission or viewpoints expressed on social media concerning a particular political matter.

Client sentiment analysis models are trained to capture and analyze key words and phrases that result in a predefined sentiment rating of positive, neutral or negative.

A client call to the service center expressing concern about a missing dividend check could produce a negative sentiment based on key words and phrases.

Examples of advanced analytics use case synopses

1. Call center voice analytics for client sentiment analysis

Background

Wealth management customers are increasingly choosing to engage with their advisors via a variety of voice and text-based channels, such as email, web chat and social media, among others. These represent sources of valuable, untapped dark data that has traditionally not yet been exploited with analytics.

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In this particular use case, given the nature of the negative sentiment, an alert is sent to the advisor and COO of the wealth management firm.

Actionable steps upon receiving an alert:

• Senior management can take immediate action to investigate the matter and ascertain whether the issue is systemic to the entire client base or an isolated occurrence.
• The advisor can immediately call his or her client and work out a solution if necessary, thereby deepening the relationship.
• The advisor and management team are provided with additional insights to review sentiment trend analysis by customer, product or service.
• Capturing and recording the call center rep’s sentiment expressed during the conversation with the client can provide additional coaching insights for the call center manager when developing the rep’s performance evaluation.

2. Cognitive inability alert: Monitoring potential signs of cognitive decline in seniors

Background

Regulators are paying particular attention to the rapidly rising rate of dementia and Alzheimer’s cases, asking financial advisors to look out for any signs of impairment and inform next of kin of any relevant observations.

• Cognitive inability alerts: Identify patterns in a client’s behavior, such as redundancies in the nature and frequency of inquiries and missed appointments that could be a sign or early warning of a client’s cognitive impairment
• Elder abuse alerts: Identify changes in normal patterns, such as a sudden increase in the number or amount of an elderly client’s monthly withdrawals that could signal the possibility that the unusual transactions were unauthorized.

Actionable steps upon receiving an alert:

• Cognitive inability alerts: The financial advisor can consult with in-house compliance members and decide when and whether to contact the client’s next of kin with observations.
• Elder abuse alerts: The financial advisor can contact the client to confirm transactions and account activity.
Summary

Tapping into traditionally unstructured (dark) data, such as client meeting notes locked inside a CRM application and email correspondence, while combining that data with a firm’s traditional structured data, present an exciting opportunity for wealth management firms to apply analytical models that can garner new insights leading to more informed business decisions.

Both wealth management firms exploring the potential of adopting advanced analytic models and firms with an existing competency and experience with big data analytics must understand the value that advanced analytics can yield in terms of business user acceptance and the potential for monetary gains. This should be against the time, effort and costs for developing and maintaining the models on an ongoing basis.

A risk-based step approach designed to test for value before proceeding to the next level of spend has been successfully adopted in the industry using the following key steps:

1. Partner with the business community to identify and prioritize use cases based on business value and implementation effort to obtain stakeholder buy-in before proceeding
2. Either stand up an open-source Hadoop environment or partner with a provider of big data and analytics infrastructure for the requisite technology components and tools
3. Conduct an initial proof-of-value sprint up front that proves or disproves the hypothesis and provides a learning environment for ingesting, curating and indexing new data sets that learnings can help accelerate future sprints
4. Recognize that initial hit rates in the backtesting environment may be less than expected. Take the time to understand the variables that influence the models the most and apply the higher weights to the most influential variables. Machine learning algorithms learn over time and will continuously adjust the weights as conditions and variables change
5. Take time to understand the business community’s key requirements for successfully adopting the analytic model output and the potential for initial skepticism of the model’s accuracy. Demonstrate how a prescribed workflow enables creative visualization and action upon the insights with the market’s leading data visualization tools
6. Lastly, consider the impact that managing the quality of entirely new data sets will have on the firm’s existing data governance operating model and whether changes and/or new or expanded data stewardship roles will be necessary
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