ARX Business Model Investment Series (2022), Vol.1, No. 1, pp. 19-28

Asia-Pacific Research Exchange

Business Model Investment Series

Artificial Intelligence in Investment Management — Elevating Client Relationship and Return

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Abstract

This article aims to examine some of the potential areas that investment managers can use Artificial Intelligence (AI). After looking at some of the current and future AI applications within the investment management space, the article then provides a framework for identifying High-Value Use cases and deploying AI solutions.

Keywords: Artificial Intelligence, Business model, business strategy, sector analysis, stakeholder analysis.

Let's be honest. An investment manager's clients probably won't care about the fancy AI tools the investment manager is using. The client will care only about four things:

1. Risk-adjusted returns
2. Consistent excess returns (alpha)
3. Timely responses, advice, and high-touch service
4. Getting richer

To this end, investment management firms can use artificial intelligence to **manage risks**, **extract investment insights** from alternative data, and **automate analysis & client reporting**.

We will first look at current and future AI applications in investment management. We will then look at how investment managers can identify high-value AI opportunities, set up for success, and co-create solutions with AI start-ups.

Integrating AI & Fintech into Investment Management

While incumbent investment managers may use statistical analysis in their investment selection process, a true embrace of fintech and AI tools is still far off. Experimenting with new technology is often considered risky. Why risk breaking something that doesn't need fixing?

This mindset has given younger institutions a head-start in adopting advanced fintech and AI tools for core investment decision processes.

To remain competitive, incumbent investment managers can partner with fintech firms and implement AI tools for investment analysis, risk management, and administrative tasks such as report generation:

- **Risk Management:** using machine learning to manage investment & portfolio risk
- **Investment Insights**: applying machine learning & computer vision to alternative data to predict things like retail store performance, commodity supplies, and general economic activity
- **Analysis & Reporting:** using natural language processing (NLP) to generate tailored reports for clients and summarize earnings calls & annual reports for analysts

There are clear benefits to applying AI to these use cases. Improved risk management and data insights results in better investment outcomes. Using AI to automate analysis & reporting saves time and money for analysts. Offering tailored, on-demand reports for clients adds an element of high-touch service, increases trust, and improves client satisfaction.

Managing Investment Risk with Machine Learning

BlackRock, a leading investment management firm, offers Aladdin, an operating system for investment managers to manage portfolio risk exposure with greater precision.

Used by over 200 institutions (including BlackRock), Aladdin claims to have in-built machine learning tools to monitor and reduce portfolio risk. Aladdin can automatically monitor more than 2,000 investment risk factors per day (such as interest rates & foreign exchange rates) and simulate portfolio performance under different economic scenarios.

Investment management firms using Aladdin can augment the skills of its human portfolio managers. Human experience coupled with AI processing power can construct, test, and re-balance portfolios more effectively than either a human or AI could do in isolation.

Investment Insights from Applying AI to Alternative Data

Everyone analyses traditional investment data from SEC filings, the news, Bloomberg, etc. The odds of an analyst finding insights from this data that everyone else has missed is low.

Investment managers are increasingly turning to alternative data sources for investment insights. Examples of alternative data include **satellite imagery** and phone **geolocation data**.

Forecasting Retail Store Sales Using Satellite Imagery

This figure presents the parking lot satellite image of the Target store located at 4500 Macdonald Ave, Richmond CA 94805. The image was captured by RS Metrics on September 19, 2016 at 11:03am. The red line outlines the boundary of the parking lot associated with Target and the red dots indicate the occupied parking lot spaces. For this case, RS Metrics identifies 540 parking lot spaces with 146 of them filled.

Source: Quartz

Satellite images of a retail store's car park can act as early forecasts for retail sales and same-store sales growth.

The image above shows a satellite view of a car park next to a Target department store. Investment analysts with access to this data can literally count cars and track car park traffic over time. Assuming a strong positive correlation between car park occupancy and store revenue, investors can make bets on retailers such as Target or Walmart before they disclose quarterly financial statements. When done correctly, this can be a strong source of alpha.

How does this work from an AI perspective? The answer is a combination of computer vision and neural networks being able to identify and count parked cars in a satellite image.

Forecasting Economic Activity with Phone Geolocation Data

As we emerge from the Coronavirus pandemic, investors are asking how quickly economic activity will rebound — not just in the stock market, but on the streets. Part of the answer may come from analysing crowd movement and geolocation (GPS) data from people's phones. The logic is that if you know where phones are, you know where people are.

Tracking phone movement from a Florida beach (first panel) throughout the United States (second panel). Source: CNN

At the height of the pandemic, a CNN report explained how two tech firms, X-Mode and Tectonix, tracked phone location data of spring break visitors to a Florida beach in March 2020. The firms were able to track where these phones (and their owners) went after leaving the beach. A location map showed where these people ended up across the United States.

When the world opens up, anonymized geolocation data can track human activity in shopping districts, tourist areas, and economic hubs. This data can serve as an early signal of economic activity before official data is released. These insights can be used to make investment bets on the hospitality industry, for example. Machine learning techniques can predict where crowds will move based on past movement patterns.

Automated Analysis and Reporting with Natural Language Processing

Automating Investment Analysis

In the good old days (a few short years ago), analysts would spend countless hours poring over annual reports, industry news, and earnings calls to understand how a company was doing.

Nowadays, a branch of AI called Natural Language Processing (NLP) is capable of 'reading' these reports, articles, and call transcripts. These tools can then extract insights from annual reports and summarize key findings. Sentiment analysis tools can analyze earnings call transcripts and determine the extent to which management feels positive or negative about the company's prospects. AI start-ups such as Alpha Sense provide these tools to institutional investors.

Similar NLP tools can also be applied to news and social media data, processing massive volumes of data that human analysts can't hope to match. The good news for analysts is that they are now free to focus on more value added, alpha generating analysis.

Tailored Client Reports & On-Demand Information

Natural Language Generation (NLG), a technique related to NLP, can describe underlying data in simple English. Investment managers can use this technique to automate periodic client reports and even serve clients market insights on-demand.

Bloomberg has been using automated reporting to write up to one-third of its news stories, according to a 2019 New York Times report. Bloomberg is not alone — the NYT report points out that hedge funds also use automated reporting to serve their clients market info.

Investment managers can automate reporting to cut costs and save time internally. More importantly, providing timely reporting and value-added insights to clients will improve client satisfaction and the firm's reputation.

Identifying High-Value Use Cases & Deploying Solutions

Investment management firms stand to gain considerably from AI adoption. In order to maximize benefits from AI, firms must consider the following:

1. **Use Case Identification:** What are the most rewarding business opportunities that we can solve with AI? Which AI techniques can we use?
2. **AI & Fintech Prioritization**: How should prioritize our projects, by use case and time horizon?
3. **Acquiring Data**: What types of data do we need? Where can we get it?
4. **Vendor Partnerships**: How can we partner with fintechs to co-create solutions that are designed for our unique needs?

Use Case Identification

Identifying AI use cases comes from gaining AI awareness. Investment management and senior executives understand their industry and their client's needs but may need an introduction to what AI is capable of. This foundational AI awareness will help executives conceptualize how AI will help the firm and its clients.

AI awareness & education can come from online courses, corporate training, AI consultants, or AI vendors that have a close working relationship with the firm.

It is especially effective when a trusted consultant or AI vendor comes in and works with employees to identify use cases. By working with the firm's management and domain experts, **AI vendors and consultants can help identify AI use cases for the firm's most rewarding business opportunities**, whether it is risk management, alternative data insights, or automated analysis.

Another benefit to leveraging AI vendors and consultants for use case identification is that they can explain (and maybe provide) the AI methods and tools required to deploy a solution.

AI & Fintech Prioritization

Companies can't roll out multiple tech solutions at once due to time and resource constraints.

A good rule of thumb is to knock out 'quick win' projects first — smaller projects that will quickly have a measurable impact. For instance, an investment management firm can acquire and deploy an intelligent Robotic Process Automation (RPA) tool that uses AI to automate a routine administrative workflow.

After gaining momentum and progressing on the AI learning curve, firms can shift to the higher-value AI use cases they identified. It makes sense to split an AI initiative into short/medium/long term projects. That way, costs are controlled, benefits are stacked, and the AI initiative is continuously validated over time.

Acquiring Data

Much of the data for an investment management firm's AI project will be internal data. Still, there is the question of unifying data sources and data cleaning — a

non-trivial activity to say the least. Other data will come from financial data vendors such as Bloomberg and Reuters.

Alternative data, such as satellite imagery and anonymized geolocation data mentioned above, comes from specialized alternative data vendors. When vetting these vendors, firms must:

- Ensure that the vendor does not use material non-public information. This could put investment managers at risk of insider trading accusations.
- Ensure that you can easily integrate vendor datasets into your AI models
- Check whether the vendor data is tagged using machine learning only, or if humans perform a secondary check to improve tagging accuracy
- Consider whether the data vendor will still be in business next year (competition is tough)!

Vendor Partnerships

Building and deploying tech solutions is not easy. Only the biggest investment managers can afford to build everything in-house using an internal AI team. While firms should aim for this in the long run (greater knowledge effects, data security, IP protection), many firms have yet to get to this level of AI maturity.

At the same time, just going out buying a bunch of AI tools won't work in the long run. Off-the-shelf AI products may not be tailored to your business needs and may not integrate well with your data.

A more robust strategy is to partner with trusted fintechs and AI vendors to co-create solutions. Vendors can work with your employees and your technical & data team to develop a suite of AI tools that work well together, both with each other and with the company's data.

This strategic partnership helps ensure that AI solutions are built to last. A vendor that is a partner will understand your business objectives over the long term and can upgrade your AI tools as objectives change.

Finding high-quality AI startups and vendors to partner with is not easy. A prospective startup or vendor should have:

- **A diverse team** of machine learning developers, product managers, software engineers, data specialists, and business specialists
- **Deep knowledge** about your industry
- **A track record** of deploying AI tools across functions and value chains

Final Thoughts: Aim for Scale!

Deploying AI at scale — so that it improves all major corporate functions — can lead to sustained competitive advantage and investment out-performance.

Scale matters. Companies don't invest in AI to look cool. They invest in AI to improve business outcomes and solve problems. These problems, such as investment risk management, are large scale. Therefore, AI solutions must scale accordingly.

Partnerships will help companies scale their AI initiatives. Partnering with competent AI startups and vendors will help shorten the learning and development curve and result in faster implementation.

In the end, each firm's AI journey is unique. Identify high-value use cases, lay out a plan, pick your partners, and build something that lasts.

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