WISSEN

TopSeeds

AI IN CAPITAL MARKETS

A case study for how to prioritize, derisk, and implement AI projects

www.topspeeds.io

www.wissen.com

KNOWLEDGE ▲ INSIGHT ▲ ACTION

Abstract

Capital market firms are encountering several challenges in post-trade processing, such as increased regulatory pressures and rising costs. AI can not only mitigate these challenges but also provide a competitive edge. Although many capital markets institutions have already implemented modern technologies for their front-office operations, post-trade operations like trade processing, position settlement, risk management, and compliance efforts still rely on legacy systems. Both buy-side and sell-side firms presently face higher costs, margin pressures, increased regulatory compliance requirements, and interventions. The ability of AI to analyse large-scale structured and unstructured data and continuously improve its learning capabilities can considerably reduce reconciliation requirements, increase STP, decrease the need for manual interventions, and enhance operations. At the same time, applying AI to front-office operations and portfolio management can produce a competitive advantage.

Given the significant investments required to implement AI, financial institutions need a framework to identify which AI projects to undertake. Such a framework can help prioritize, derisk, and monetize their AI investments.

We have spent over two decades researching and applying innovation techniques to create user experiences that promote sustainable and meaningful growth. We first learned about the following framework to prioritize Artificial Intelligence (AI) investments in a business education course offered by Section. This adaptation, applicable in the capital markets industry, will allow organizations to take a pragmatic approach to the development process. By applying this framework, organizations will be well-positioned to:

- Choose the right operating mode for implementing Artificial intelligence based on organizational readiness.
- Discover project opportunities for your business to enhance the customer experience by adopting Artificial Intelligence.
- Prioritize projects and derisk the artificial intelligence investments to gain broader organizational buy-in.
- Develop an implementation plan to develop and roll out projects to customers.

AI framework in action

Once you have reviewed the benefits outlined above with your team, use this four-stage framework to guide your AI investments and gain organizational buy-in:

- Choose the right operating mode
- Brainstorm AI projects
- Prioritize AI projects
- Develop an implementation plan

These steps will help you and your team identify new opportunities and create new experiences while avoiding the pitfalls that can lead innovation projects astray. To see the framework in action, we will examine how a fictitious financial institution**, InnovateAM,** could leverage it to drive innovation as part of a growth strategy.

Authors

Raj Manghani,CFA

Managing Partner,
TopSeeds

Vishal Gupta

Managing Director,
Wissen

Choose your operating mode

InnovateAM's product managers were concerned about organizational readiness to choose the right mode for implementing AI to enhance the customer experience.

You may be familiar with the Ansoff matrix, a grid-style planning tool that plots out the types of growth that arise from new and existing product development and expansion into new and existing markets.

We also find the matrix helpful for visualizing AI strategies and evaluating risk levels. Here's what each quadrant represents:

- **Market Penetration = Low Risk**

  Improve by **optimizing** an existing product for an existing market.

- **Product or Market Development = Medium Risk**

  Accelerate growth by offering a new product to an existing market or by launching an existing one in a new market.

- **Diversification = High Risk**

  Diversify by **transforming** the business to create a new product for a new market.

InnovateAM's product managers used the rating and assessment tool below to pick whether to optimize, accelerate, or transform product development with AI.

Inputs	Low Risk	Medium Risk	High Risk	Points
The threat of disruption from AI within capital markets and the banking industry	1pts	2pts	**3pts**	**3**
Organizational buy-in to AI-powered initiatives	1pts	**2pts**	3pts	**2**
PM's ability to influence the internal workflow or product roadmap	1pts	**2pts**	3pts	**2**
Budget / bandwidth available for AI	**1pts**	2pts	3pts	**1**
Internal or external readiness to use AI	1pts	**2pts**	3pts	**2**
Access to training data or content	1pts	**2pts**	3pts	**2**
Ability to verify AI-generated output	1pts	2pts	**3pts**	**3**
Operating Mode	Optimize 0-7	**Accelerate** **8-16**	Transform 17-21	**15**

Table 1: The assessment and rating tool

Based on assessing organizational readiness and product development risk, InnovateAM's product managers chose **Accelerate** as the operating mode.

The organization had taken initial steps in 2023 to optimize existing investments by using AI to drive efficiencies so the product team felt that acceleration with AI was a logical extension.
InnovateAM's product managers focused on identifying key pain points for the existing market to accelerate additional revenue and improve overall offerings.

Brainstorm Projects (Accelerate)

InnovateAM product managers undertook a brainstorming session to identify features to enhance existing products within the bank's capital markets division. For two key business metrics, they came up with feature ideas.

Identify Key Metric	Gen-AI Powered Features
Enable revenue growth	• Generate research summaries on securities based on secondary research and expert analysis (from multiple 3rd party sources) • (Auto) Generate trade order tickets based on trader's trading patterns • (Auto) Generate regulatory reports
Improve customer satisfaction	• Automatically detect post-trade settlement failures, reducing regulatory risk • Automatically run stress tests to detect systemic risks such as Asset liability mismatches • Auto-complete rebalancing and asset-allocation tasks for PMs

Select Features

The next step entailed prioritizing the features using a framework that accounted for ROI and the speed for prototyping the features. This approach allowed product managers at InnovateAM to quickly visualize the differences between the features based on impact and velocity and identify relative priority.

Reflection and Business Case

A final step before moving ahead with implementation involved reflecting on the following questions to put together a business case for approval:

- How much rigor do we need to put into the business case to get the new ideas approved?
- Do we focus on cost savings, revenue enablement, or both to persuade management?
- What degree of fidelity will be needed at InnovateAM to demonstrate during the product review board governance process?
- Moving forward, what does this mean for AI adoption?
- How do we mitigate data leakage to minimize reputational risk?

By reflecting on the above questions, the product managers and technology leads built a successful business case that accounted for their current business focus and decision-making culture and included the right level of detail to influence senior management.

Once the Accelerate project received the organization's buy-in, the next step was implementation. Given the novelty of GenAI implementation, InnovateAM hired a technical consulting firm to review the project and received the following recommendations.

Technical considerations for your Generative AI journey

The implications of Generative AI are so profound that every company must have a technology strategy around its adoption. However, it is still the beginning, and you are not late if you have not started yet.
With the constant news around GenAI and the almost daily release of new models, it is easy to think that you are falling behind - but that may not necessarily be a negative. If you have no use cases yet in production, you are probably one of 90% of companies out there. However, if you have not yet assembled a working group or started your planning phase, you must do so now.
Below, we discuss ways where organizations can initiate the process and discuss critical questions and frameworks that you can use to build your unique value proposition.

Choose your LLM wisely

Resources, cost considerations, and the uniqueness of your use cases will determine the future path forward for your organization. Today, there are many choices available.

Closed (Proprietary) models (OpenAI gpt-*, Google Gemini)

They have the benefit of large companies standing behind these models, are continually updated, and have easy-to-use APIs and other benefits like security, scalability, ease of deployment, and general lack of friction when using them. However, the cost implications can be significant, especially if you expect large-scale deployments, multiple users, or large contexts, which translate into substantial cost implications.
If you are a company where you expect relatively small implementation, understand the costs well, and are not worried about vendor lock-in, this might be the right choice for your organization.

Open Models

If you are an organization with a lot of proprietary data, specialized research, and other attributes that differentiate your offerings from your competitors, open models will provide you the level of customization, ability to fine-tune, easier experimentation, and customization options. While they require deep technical skills and sophistication, they provide unique benefits that will help control your GenAI destiny.

Prepare your Org with a focus on long-term value

While it is exciting to quickly create a tiger team with early adopters and volunteers within the company and hack our proof, for ultimate success with Generative AI, organizations must have a longer-term view with broad representation from business, technology, legal, and vendor management. These teams are required to build a sustainable GenAI along with use cases that would ultimately deliver or improve upon business metrics while ensuring that governance, security, and cost framework are in place.
Focusing on the longer-term value requires looking beyond the quick wins and focusing on longer-term sustainable value creation driven by Generative AI capabilities. Your teams should

- Focus on value-driven cases - pinpoint quantifiable value instead of chasing the hype.
- Cross-functional collaboration (data scientists, business experts, governance, and data engineers)
- Agile experimentation - To build long-term value. Try out smaller initiatives and drive them to realize a longer and more impactful roadmap.
- Invest and upskill - this is never a bad idea, but with Generative AI, you need teams that understand the inner workings of LLM, training and inference costs,

Generative AI stack (what else might be important)

LLM is general purpose and excels at summarization tasks, questions, and answers. However, if your company has a lot of proprietary data, you must consider using embedding models, grounding, and RAG (Retrieval augmented generation) based retrieval systems. This has led to the popularity of both open-source and commercial vector databases, which might very well be the key to your success in this endeavor. However, things are moving at breakneck speed, making it essential to continuously evaluate your choices, measure them against innovations, and re-calibrate if needed.

Bringing it all together

Now that you have an idea between open and closed models, put your team together, and have a good idea of your stack, the next set of tasks is to decide how to get models to perform to your expectations. Once again this is dictated by your data and use cases, but here are the general techniques you can use to fine-tune your approach. Some key techniques that you should familiarize yourself with are:

- prompt engineering - helps get better output for QNA-type use cases.
- Prompt learning - if prompt engineering is not getting where you want to be, it can help with entity extraction and similar use cases.
- parameter efficient fine - tuning (advanced not needed for most) - Techniques like LoRA can help your use case outperform by primarily scaling down a larger model. It can lower your inference costs but requires a strong team of ML and Data scientists.
- fine-tuning - Taking a foundational model and getting it to perform well for specific use cases in medicine, other narrow implementations, etc.

MLOps to LLMOps

Like another successful process, the success of GenerativeAI will depend on its ability to convert it into a finely orchestrated process. LLM Ops, short for Large Language Model Operations, focuses on the lifecycle management of large language models, encompassing development, deployment, monitoring, and maintenance. It shares similarities with MLOps, which deals with the operational aspects of machine learning models by emphasizing automation, continuous integration/continuous deployment (CI/CD) practices, model versioning, performance monitoring, and scalability. Both disciplines aim to streamline the process from development to deployment, ensuring models are efficiently updated and maintained in production environments. They prioritize robust model governance, ethical considerations, and compliance with data privacy regulations, ensuring models deliver value while aligning with ethical and regulatory standards.

Conclusion

To unlock the potential of Generative AI, most innovative companies today do not focus exclusively on the products they sell but rather on the customer experience.
Through the AI framework laid out here, your product team can identify a way to address key pain points for your existing market that will drive additional revenue, improve your overall offerings, and reduce customer churn.
Leveraging this framework mitigates the risk involved with new GenAI projects, ensuring new products align with organizational readiness and business needs, have strong ROI potential, are fast to prototype, and offer a new, valuable customer experience.

Making a compelling business case by reflecting on the level of rigor, focusing on cost reduction or revenue enablement, implications for future product strategy, and accounting for any data security risks is necessary to obtain senior management buy-in.
A successful implementation requires identifying the type of LLM (large language model), a cross-functional team, an agile process, and commitment to constant upskilling. Furthermore, a robust LLMOps process translates AI from concept to reality, separating winners from the rest.

References

AI Framework is based on a Section course with permission to illustrate specific examples.

About Wissen

Established in the year 2000 in the US, Wissen is an Information Technology company headquartered in Bangalore, India. With global offices in US, India, UK, Australia, Mexico and Canada, Wissen is an end-to-end solution provider for companies in sectors such as Banking and Financial Services, Telecom, Healthcare, Manufacturing and Energy verticals. With best-in-class infrastructure and development facilities spread across the globe, the company has successfully delivered $1 billion worth of projects for more than 25 of the Fortune 500 companies. Wissen's 4500+ highly skilled professionals, a strong leadership team, and technology expertise help clients build enterprise systems, implement a modern digital strategy, and gain a competitive advantage with business transformation.

Services we

Application Developmen

Big Data and

Artificial and Machine Learning

Robotic Process

Agile and

Visualization and Business

Cloud and

Quality Assurance and

Infrastructure Management

contact@wissen.com

WISSEN

https://www.wissen.com

India | UK | USA | Australia | Canada | Mexico | Vietnam

About TopSeeds

TopSeeds collaborates with investment firms, consulting firms, and software providers to effectively assess, analyze, and mitigate the risks associated with technology innovation projects. Its specialized focus is on capital markets and investment management technology. TopSeeds provides the following services.

For IT Consulting and InvestmentFirms

Industry and Competitive Analysis
Technology Overview
Vendor Selection and Evaluation
Systems Implementation

For Software Providers

Product Vision
Product and Technology Roadmap
Designing Experiments and Testing Project Management
Leadership Coaching.

www.topseeds.io

Pleasant Hill, California 94523, US