Visa Consulting & Analytics (VCA)

Generative AI in payments

Considerations for financial institutions intending to leverage generative artificial intelligence (AI) within their organizations

The rapid rise of ChatGPT propelled generative AI from the niche to the mainstream.

Suddenly, everyone has an opinion on how generative AI could be leveraged, and leadership teams are now left wondering how, when, where, and why it should be applied in their own businesses.

This is true in the world of payments.

Payment businesses have some unique characteristics. The risk profile, the regulatory scrutiny, the competitive intensity, and the need to segment and engage closely with customers throughout the product lifecycle, all mean that generative AI could have profound implications with potential opportunities to seize, and new challenges to navigate.

At Visa Consulting and Analytics (VCA), we believe that the payments sector has numerous unique factors to consider in adopting generative AI. Here is a quick introduction to generative AI and some of the payment-specific opportunities to help financial institutions (FIs) **acquire more customers, drive customer engagement**, and **improve the customer experience** for optimal growth.

A quick introduction to generative AI

Generative AI is a broad label describing any type of artificial intelligence that can be used to create new digital content, like text, images, video, audio, or computer code.

It is typically powered by foundation models, which are expansive neural networks trained on vast quantities of unstructured, unlabelled data in a variety of formats, such as text and audio. Foundation models can be used for a wide range of tasks. This is very different from existing predictive AI models, which were usually designed to perform just one task. For example, an AI model that can predict customer attrition can only use data about customers and their behavior, and cannot do anything else, such as writing a review or recognizing a face.

According to Visa's Carl Rutstein, Global Head of Advisory Services,

> AI is not just reshaping industries worldwide – it's revolutionizing them, and the payments sector is at the forefront of this transformation. Visa doesn't just use AI to help improve payment experiences – our Advisory business is also harnessing it to empower our clients to grow and redefine how they serve their own customers through acquisition, engagement, retention and risk management.

Today's data, computational power and sophisticated large language models put the payments sector on the cusp of a new era of AI. Generative AI has the potential to transform how we work, how we develop and build new products and services, and how we serve our clients.

Visa's 30-year heritage in AI

In 1993, Visa became the first network to deploy AI-based technology for risk and fraud management, pioneering the use of AI models in payments. In the last 10 years alone, the company has invested more than $3 billion in AI and data infrastructure to enable safer, smarter money movement and to proactively fraud. With several AI and machine learning models in production, Visa's AI and deep learning capabilities help to solve longstanding challenges and pain points for buyers, sellers, and financial institutions.

As AI transforms the payments industry, businesses across various sectors can anticipate new opportunities in customer management, improved customer experiences, and enhanced operational efficiency.

Source: "30 years of AI and counting", Rajat Taneja, Visa.com, Sep 14, 2023, https://usa.visa.com/visa-everywhere/blog/bdp/2023/09/13/30-years-of-1694624229357.html

Appreciating some of the upside opportunities

At VCA, we believe the commercial impact of generative AI holds significant potential to transform entire industries. And, given the unique characteristics of the payments business, the impact of generative AI could be even more profound. In the table below, we outline some potential ideas for the strategic use of generative AI.

Acquiring more customers	**Understanding the market and its hidden nuances**	Generative AI could be used to effectively analyze vast datasets including market trends, competitor activities, and customer behaviors – thereby generating actionable insights, identifying emerging trends, and driving strategic decisions
	Developing winning products and propositions	Generative AI could bring new ways to analyze customer behaviors and social sentiment to discover unmet or under-met needs and guide new product and experience design
Driving more engagement	**Crafting compelling messaging and marketing**	Generative AI could analyze customers' spend behaviors and preferences to generate more relevant and personalized marketing and outreach with a quicker ability to pivot and adjust based on performance
	Providing a more personal and personalized service	With generative AI, there is the potential to introduce a more conversational approach to everyday banking interactions. Routine customer interactions could be migrated from static interfaces with prepopulated FAQs, to chatbots that could dynamically and continuously improve customer interaction preferences
	Managing customer lifecycle	Using generative AI to combine various threads of structured and unstructured customer data can provide timely insights on a customer's readiness for things like an upgraded product or special financing terms
	Enhancing loyalty	Generative AI could help assess behavior patterns and identify engagement opportunities to enrich loyalty experiences
	Enhancing customer retention	Generative AI could be trained to bring more speed and accuracy to customer-retention programs, identifying factors that indicate which customers are at risk of leaving and enhancing loyalty and incentives

Improving Customer Experience

Increasing the speed and accuracy of manual tasks	Generative AI could be used across the business to help humans increase their effectiveness and productivity in rote, manual tasks. It can provide quick "first drafts" of documents like meeting minutes, organizing routine tasks to focus on strategic priorities
Improving authorization	Generative AI could potentially be applied to existing models scoring individual transactions to improve authorization rates
Enabling more granular operational decision-making, such as fraud	Generative AI could potentially assess data connections and sequence data more granularly, identifying connections and allowing for more surgical decision-making that can improve authorization decisions, while also helping to combat fraud
Delivering attentive, always-on personalized service	Generative AI could be used to develop more human-like chatbots, offering personalized 24/7 customer support – thereby enhancing customer satisfaction and reducing the workload on service agents by analyzing customer interactions before escalating to a human agent

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Pre-considerations for generative AI implementation

With boundless innovation and opportunities there are just as many boundless limits, so implementation strategy is vital. Implementing generative AI too quickly and without proper infrastructural support could mean inadvertently exposing the organization to performance, operational, and reputational issues.

Given the nature of the payments business, and the appropriate risk-balancing nature of many companies that operate within it, this is an area that needs appropriate consideration before generative AI applications are implemented. Below are four of many considerations for adoption.

1. Transparency

Making generative AI usage clear and understandable

Vital to successful implementation, transparency around generative AI usage includes building the capability to educate and train users on outputs

2. Fairness

Placing ethical safeguards in generative AI responses

Responsible generative AI use needs to be fair, so companies using generative AI should monitor and be able to remediate biases, if any, that show up in generated responses

3. Security

Protecting users from cyberattacks

With any new technology, there may be opportunities for bad actors to commit even more sophisticated and rapid cyberattacks on unsuspecting users

Companies should be aware of AI-specific cyber risks and implement appropriate mitigating safeguards

4. Reliability

Creating a reliable operating model

By design, generative AI models can produce many unique answers in response to one prompt. Users are then responsible for the reliability of generated outputs by vetting their accuracy

Choosing the right AI tool is important

With the attention generative AI is capturing, it is important to understand that generative AI is a subset of a wider artificial intelligence/machine learning (AI/ML) toolset. Choosing the right tool for the right use case is critical to optimizing the value achieved in any AI implementation.

Visa has been using AI and machine learning for years.

We have over 150 proprietary AI/ML models used in hundreds of AI-related paid engagement over the past year. Examples include:

- Acquire more customers using acquisition scorecards and digital acquisition models
- Activate new customers using early-month-on-book and e-commerce activation models
- Increase customer spend using top-of-wallet, travel prediction or digital engagement models
- Cross sell other products using debit-to-credit propensity and small-business lookalike models
- Improve authorization rates with line management and overlimit optimization models
- Reduce fraud transaction processing with fraud anomaly detection or fraud predictor models
- Reduce customer attrition with proactive dormancy and retention models

> From the outset, Visa has made extensive use of AI techniques and machine learning models. Our approach is grounded in identifying the best methodologies to provide actionable guidance. Emerging AI and ML capabilities enable us to generate richer predictive insights.
>
> **—Suresh Vaidyanathan,**
> VP, Head of Data Science supporting Visa's Products and Functions

Like our clients, Visa is investing heavily in generative AI and experimenting with how it can be used to advance the predictive capabilities of our proprietary models. Generative AI based methods can use richer transactional data to identify unique patterns and merchant preferences. Transactional sequence signatures translated into high-dimensional vector embeddings would minimize information loss which occurs with data aggregation to directly power our next generation of models. Actions taken based on these models would be more relevant to customers with higher levels of accuracy, as they are using more data. For example, with the greater computing and predictive powers of generative AI, more factors relevant to a model's scoring and assessment of a transaction can be analyzed without tradeoffs, benefitting clients and creating more trust.

Visa has been deploying cross-functional teams to review how best to deploy generative AI to drive productivity, develop new products and services, and better serve client needs. We are conducting pilots across software testing and coding and have deployed a secure instance of GPT-4 to employees, subject to responsible usage guardrails, to help with content summarization and analysis. To develop new products and services, we have doubled-down on our use of AI with several thousand colleagues working on our new data and AI platforms, helping us to enable even more sophisticated models in our product offerings.

Six broad considerations for payments businesses

While generative AI is still in its early days, we are proposing six considerations for FIs intending to implement the technology within their own organizations:

RECOMMENDATION #1

Get familiar with what generative AI is (and isn't) and link to existing business objectives

Get familiar now, including experimenting with generative AI, even on a personal level with open tools, to understand how it works

Identify a use case that is closely and clearly aligned with a pre-existing business objective so your organization is better equipped to assess success factors

It could be about improving digital acquisition, enhancing loyalty, or streamlining operations. What is important is to pick a use-case that is relevant, has a strong strategic rationale, has well-structured success metrics, and helps to achieve a tangible business goal

RECOMMENDATION #2

Build a strong foundation in data infrastructure, governance, and transparency

For any FI, data management is a critical consideration. Careful thought should be given to three factors:

Infrastructure – the systems and processes used to collect, store, and manage data need to be robust, while the data needs to be accurate, complete, and consistent. This is important because generative AI models are trained on data, and the quality of the data will directly impact the quality of the outcomes. Be sure technical infrastructure is supported with the right human capital to work alongside to provide the right oversight of the AI

Governance – the quality and security of data need to be championed as a core goal. This is important to ensure that the data is used in a responsible and ethical way. It also helps to protect the data from unauthorized access or misuse

Transparency – implement processes to trace the flow and use of data. This is important because it helps to ensure that the models are accountable, and the data is not being used for malicious purposes. It can also help to build trust with users and stakeholders

RECOMMENDATION #3

Foster a culture of innovation and experimentation

The initial reaction of some FIs has been to block all access to generative AI programs to their employees. Having limited practical knowledge of generative AI carries certain risks of creating blind spots relative to how it is shaping the business landscape, both in strategic opportunities and potential risks to your business

Instead, FIs should provide their team a safe and secure environment to familiarize themselves with generative AI so they can better understand what it is, how it works, its potential, and its limitations

They should also actively encourage teams from across the business to explore the capabilities of generative AI, and focus on the likely implications for the business, the functions most likely to be impacted, the type of initiatives that could be piloted, the suppliers and vendors who specialize in generative AI, and how peer-group organizations are responding

RECOMMENDATION #4

Prioritize ethical considerations

Develop guidelines and policies that empower ethical uses of AI, including fairness, transparency, and accountability

Building trust around AI is crucial, so consider educating employees and customers on when, where and how AI is being used

RECOMMENDATION #5

Invest in talent and expertise

Generative AI it is only just burst onto the mainstream. Hence, it is a subject that a lot of people may know a bit about, but few people know a lot about

FIs that are serious about deploying generative AI in their business should invest in the requisite expertise, by providing formal training for existing talent, recruiting more people with proven data science know-how, and enlisting trusted advisors

RECOMMENDATION #6

Collaborate with external partners

The tech ecosystem is already home to a growing group of generative AI specialists offering solutions

To accelerate implementation, and supplement skills gaps, FIs should prepare to draw on their expertise, resources, models and frameworks, but should also remain cognizant of data-management risks

Ensure that data integrity and data privacy are prioritized in partner selection and that they are prepared for the regulatory and reputational issues

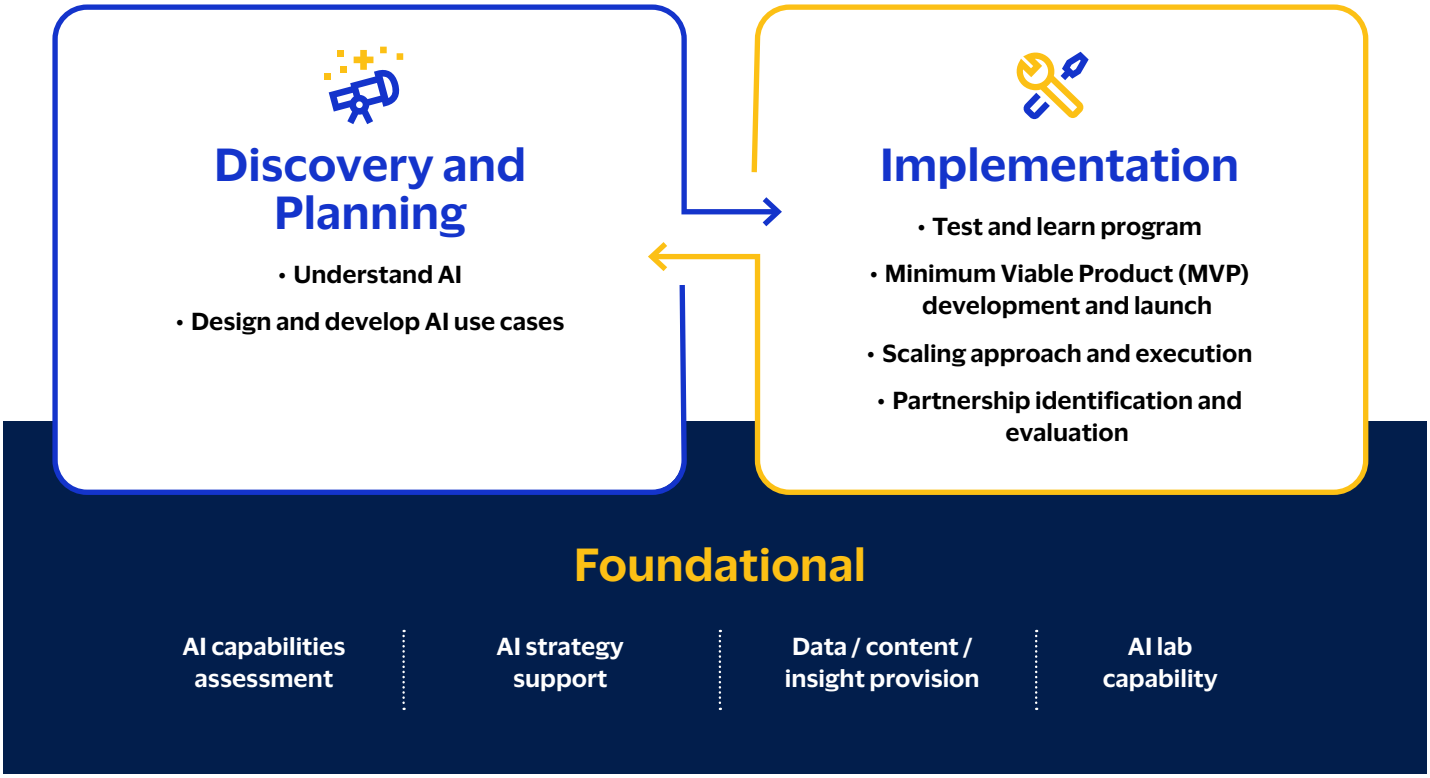
How can Visa help with generative AI planning?

As generative AI continues to alter the payments industry landscape, FIs will encounter new opportunities in customer acquisition, engagement and experience – but will also face unprecedented challenges.

Our global team of experts can help with understanding AI and planning a use-case roadmap, in addition to implementation support.

We have a comprehensive portfolio of offerings to support our clients' AI journey – from supporting discover and planning all the way through to use-cases and implementation.

Visa also supports clients design and develop their foundational capabilities, including strategy and data governance.



About Visa Consulting & Analytics

We are a global team of 1000+ payments consultants, marketing specialists, data scientists and economists across 75 offices on six continents.

- Our consultants are experts in strategy, product, portfolio management, digital and more with decades of experience in the payments industry
- Our marketing specialists have end-to-end expertise in helping our clients reach their customers to grow
- Our data scientists are experts in statistics, advanced analytics, and machine learning, with access to insights from VisaNet, one of the largest payment networks in the world
- Our economists understand economic conditions impacting consumer spending and provide unique and timely insights into global spending trends

For more information on Visa's AI practice, contact your account executive or email VCA@visa.com. Learn more about VCA at Visa.com/VCA.

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