Brighterion
mastercard

Mastercard's five pillars approach to thoughtful, strategic implementation of AI

Contents

Introduction

As technology evolves to support increasingly important roles, users want to know if AI is trustworthy and protects personal data. Mastercard has developed five pillars to implementing AI where ethics and inclusivity are as important as growth and efficiency.

Mastercard takes a five pillars approach to the thoughtful, strategic implementation of AI, focused on ethics, community development, great products and services, their customers and business operations. An innovator in artificial intelligence-driven products, services, operations, and system improvements, Mastercard is building on 20 years of AI experience. Its vision is to be a global leader in AI innovation.

To support its vision, Mastercard developed and adopted these five pillars:

1. **AI-powered products and services** that are efficient, accurate and provide real-time decisioning

2. **AI-powered customers** describes how Mastercard helps customers on their AI journey

3. **AI-powered Mastercard** to help scale the business, bringing increased efficiencies and identifying opportunities for revenue

4. **AI for good** to create inclusive growth that helps drive economic development to improve the lives of others

5. **Ethical AI** that is trustworthy, transparent, fair and just

Ajay Bhalla, President, Cyber and Intelligence Solutions at Mastercard, is passionate about the balance between engendering trust in technology and fostering AI innovation. He spoke recently at the World Economic Forum in Davos, Switzerland this year about trust and transparency.

"The trust that is needed for AI to be most effective will come when consumers see and feel its real-world benefits in action. In this sense, trust can be a key differentiator – a competitive advantage for businesses," Bhalla wrote in a recent World Economic Forum blog.

"Only those who are trusted to operate AI will be able to maximize the benefits of its value-added services in years to come. Not only can AI deliver safety for consumers online or revolutionize their shopping experiences, it is also revolutionizing farming as well as giving the environment a new lease on life. For those that get it right, the possibilities are endless," he believes.

AI will be as common as electricity

Harvard Business Review published in 2018 that just 8 percent of Fortune 500 companies surveyed deployed AI in more than one division. "That almost looks to me that AI is a pet project, or they are trying to experiment with it," says Rohit Chauhan, Executive Vice President, Artificial Intelligence, Cyber and Intelligence Solutions, Mastercard. "Our position is that this technology is the next electricity and we want to deploy it at scale across Mastercard and ensure our customers can benefit from the same."

"If AI is the next electricity," Chauhan says, "then we want every pillar of Mastercard to benefit from that."

Chauhan compares AI in the 2020s with website adoption in the mid-90s. AI's adoption is no longer an option, he says. The question is how soon companies will adopt AI and benefit from its advantages. He's very clear, however, that AI must be ethical, and everything is done in a very careful, thoughtful way. "AI is an important enabler that reflects what the company is doing ethically."

Mastercard has gone all in, using AI to identify system improvements, empower staff and support customers ethically and transparently. This is the story of how they are doing it.

The five pillars of AI
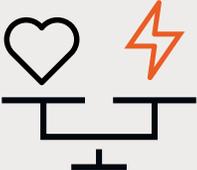
1. AI-powered products and services

5. Ethical AI

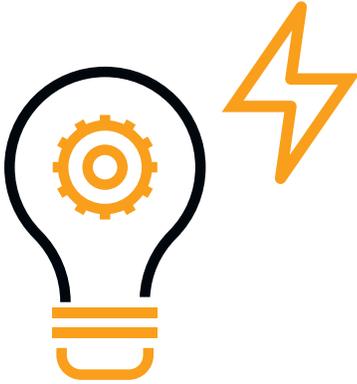2. AI-powered customers

AI

3. AI-powered Mastercard

4. AI for good

AI-powered products and services

> **"The Brighterion AI that powers our Decision Intelligence platform uses network data and insights to produce a highly accurate, real-time risk assessment to prevent fraud while reducing false declines and driving a holistic, positive experience for our customers."**
>
> *– Laura Quevedo,*
> *Executive Vice President,*
> *Decision and Transaction Solutions,*
> *Cyber and Intelligence Solutions,*
> *Mastercard*

This is where it all started. Mastercard first deployed Brighterion's AI solutions for fraud, credit risk and anti-money laundering (AML) almost 20 years ago. Today, AI touches every customer interaction, from ensuring valid credit card use to catching merchant fraud. When Mastercard recognized the potential to use this powerful solution for their customers' business problems, it acquired Brighterion in 2017.

As a result, Mastercard offers solutions for a range of business problems. Today, Brighterion's AI solutions prevent payment and acquirer fraud, reduce credit risk and delinquency, fight financial crime, prevent healthcare fraud, waste and abuse, and more for organizations around the world. Its scalability enables extraordinary growth in the number of transactions, cited as two times that of its nearest competitor by Aite Group.

Mastercard uses Brighterion AI in its Decision Management platform to assess transaction risk and to work across channels, capturing new insights, and connecting intelligence from the start of the cardholder journey through payment authorization. The platform determines if devices used have been seen before and if they are normally associated with the payment card in use.

"We are driven by the consumer experience which is to ensure consumers can safely and securely use their Mastercard for everyday purchases," says Laura Quevedo, Executive Vice President, Decision and Transaction Solutions, Cyber and Intelligence Solutions, Mastercard. "The Brighterion AI that powers our Decision Intelligence platform uses network data and insights to produce a highly accurate, real-time risk assessment to prevent fraud while reducing false declines and driving a holistic, positive experience for our customers.

"At the core of the Decision Intelligence platform is a 'Security-by-Design' focus that protects cardholder data through anonymization and strict usage while the power of the Brighterion technology delivers high impact performance," she adds.

AI-powered customers
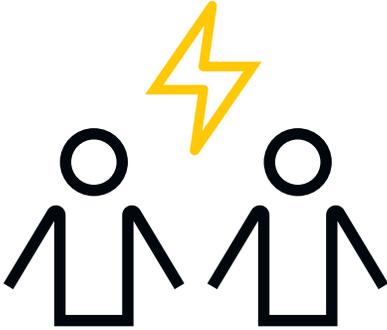
"Mastercard helps customers on their AI journeys," says Sudhir Jha, Mastercard Senior Vice President and Head of Brighterion. "We talk to our customers to see how we can help them solve their critical business problems. Once we've assessed the organization's challenge, we build a custom solution. Even if it's the same use case as another business, this is a custom, transparent AI model geared to solving their particular problems and improving their revenue."

The businesses may be new to AI or are already using it but want to leverage existing systems to expand to new use cases. One added value is that Mastercard uses AI to forecast revenue for its own operations, but also creates forecasts for its customers based on intelligence from federal and regional data and their industries, seasonal shifts and more.

By using their own AI-based intelligence, Mastercard and Brighterion work with customers across the continuum of core business needs. Use cases include credit risk management, anti-money laundering (AML), and omnichannel, acquirer, and healthcare fraud, waste and abuse.

Using the AI Express process, Brighterion draws upon a full suite of AI tools, using its patented technology to build custom AI models for each organization's specific needs and goals.

Building the customer-centered AI model

To begin the process, Brighterion's team meets with its customers to collaboratively determine the business challenge to be solved and set the goal for results. Next, its data scientists work with the business's historical data, aggregate and enrich it, then start creating the model for the customer's goals. As they work though the iterations, they are able to determine what incremental lift is achievable.

Continued...

"Our team is multi-disciplinary, and they bring a variety of perspectives to projects. Time is more precious now than ever before. We build the model, do all the testing and achieve customer approval in six to eight weeks."

– Amyn Dhala,
Vice President,
Global Product Management,
AI Express, Mastercard

This collaborative process moves the heavy lifting to Brighterion's team while still keeping the client involved. Because the model is customized, it results in higher accuracy demonstrated through reductions in false positives, false declines and incidences of fraud or risk.

"Our team is multi-disciplinary, and they bring a variety of perspectives to projects," says Amyn Dhala, Vice President, Global Product Management, AI Express, Mastercard. "Time is more precious now than ever before. We build the model, do all the testing and achieve customer approval in six to eight weeks. We ensure we are lockstep with our customers."

Dhala says AI Express is a highly practical, non-theoretical process that is laser focused on delivering value to customers. "AI Express is customer-centered and our team stays rooted in reality. Imagine being in a grocery store with a full cart during this pandemic and you get a false decline on your credit card at the cashier where the transaction ought to have been approved. It's embarrassing for you as the consumer, your bank would hate to have a dissatisfied customer, and the retailer just lost out on revenue as well," he says.

The AI Express team also ensures AI model results are highly explainable. There are reason codes with every score to ensure complete transparency. A customer can look on their mobile banking app and see the reason for the decline and avoid future issues.

Mastercard works with several key banks and other large organizations across the globe that have similar needs to the 74 of the top 100 U.S. banks currently served.

Dhala says it's notable that Brighterion AI applies to a range of use cases. For example, in healthcare, it can be leveraged to reduce fraud, manual claims review and operational costs while driving efficiency.

"Not only can the technology develop highly personalized models, agnostic of use case, it can develop at scale," he says. "With the capability of processing 100,000 transactions per second, we haven't hit a ceiling. Our customers benefit from 99.9999% uptime. I know that sounds cliché, but they really don't have downtime that causes issues like fraud slipping through or false declines as a result of our servers being overloaded."

AI-powered Mastercard
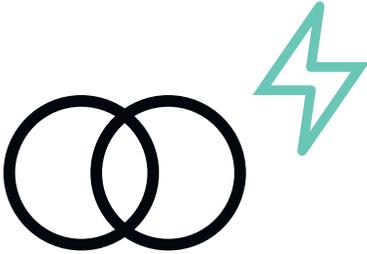
"If we think of AI in terms of using it to help humans make decisions, we see that in any large organization people can use AI to make decisions in each of their divisions."

– Nitendra Rajput,
Vice President,
Product Development,
AI Garage, Cyber and Intelligence
Solutions, Mastercard

Every function at Mastercard is optimized by AI from the scalability of the business to increasing efficiencies and improving the Mastercard business model.

AI ensures Mastercard servers are always running and optimizing transaction routing. As a result, response time is less than 10 milliseconds and networks operate 99.9999% of the time. This extraordinary scalability enables Mastercard to process over 100 billion transactions a year and identify incredible efficiencies in the company.

"We have completed 150 projects across Mastercard where AI is being leveraged," Chauhan says. "From finance, forecasting, HR, employee development, audits, and looking for anomalies to sales using it to recommend products and services to each of our customers."

These projects take place under the leadership of Nitendra Rajput, Vice President, Product Development for Mastercard's AI Garage, where these challenges are addressed by an innovative, multi-disciplinary team. "If we think of AI in terms of using it to help humans make decisions, we see that in any large organization people can use AI to make decisions in each of their divisions."

However, seemingly simple things make a big difference, too. For example, Mastercard's customer support inbox gets thousands of emails a day. Now, rather than staff manually sorting and routing emails, AI scans messages and directs them to the correct division. What used to be a laborious task is now automated, allowing staff to focus on what's important: customers.

AI also creates Mastercard's financial forecasts 90 days in advance to predict the upcoming volume of transactions. By sharing economic information with customers, Mastercard enables the entire ecosystem to take corrective actions, if needed.

AI helps with people management, too. It identifies skills gaps to suggest continuing education and recommends staff for project teams. It can match employees with the right skills and interests with available volunteering opportunities.

AI for good

> **"Our idea was that we can help millions of people in Africa, Asia and other countries enter the global economy and gain access to financial systems. It's been proven that having access to financial instruments can help people lift themselves out of poverty and progress at a much faster rate."**
>
> *– Rohit Chauhan,*
> *Executive Vice President,*
> *Artificial Intelligence,*
> *Cyber and Intelligence Solutions,*
> *Mastercard*

Giving back to the world is part of Mastercard's DNA. AI for good is a vehicle for Mastercard to use its AI products to advance equitable economic growth.

"Our idea was that we can help millions of people in Africa, Asia and other countries enter the global economy and gain access to financial systems," Chauhan says. "It's been proven that having access to financial instruments can help people lift themselves out of poverty and progress at a much faster rate if they have access to bank accounts, credit and working capital."

One example of this inclusive growth is Mastercard's work with micro-lenders to help them leverage AI and data analytics techniques to make their ecosystems more efficient. In one initiative, microlenders and aid organizations use these tools to help people in the Indian subcontinent improve their quality of life by enabling access to things others may take for granted, such as electricity and plumbing. With these basics in place, they can start small enterprises.

Closer to home, Mastercard uses AI to assist communities in the U.S. with the highest school dropout rates. "We want to help communities find ways to increase economic independence so youth can stay in school, which of course improves the jobs they qualify for," Jha says.

Inclusive growth looks at all aspects of keeping a diverse, thriving economy. Mastercard is funding and working with MIT on research projects to see the effects of COVID-19 on communities and businesses. The result will be projections of future economic impacts on industries and regions that have been hardest hit by the pandemic.

"We want to determine if there are things Mastercard can do that will allow people to bounce back faster," Chauhan says. "If more people than estimated have to recover, it will be painful and hard."

Continued...

Mastercard also used natural language processing (NLP) to help coronavirus researchers comb through 100,000 historical articles to compile and analyze existing data, such as latency of the virus and past fatalities. What could have been months of manual work was completed in just a few days.

"It was a fascinating experience for us," Rajput reflects on the impact made on his team in the AI Garage. "We were able to predict the number of hospital beds that would be needed during COVID, which businesses would survive the pandemic, and more."

Learn more about Mastercard's commitment to community responsibility by visiting our Vision page at mastercard.us.

Ethical AI
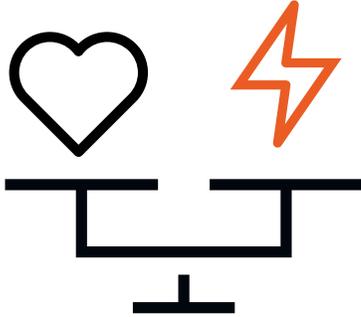
> **"Ethical AI is trustworthy, transparent, explainable, fair and just."**
>
> *– Sudhir Jha,*
> *Senior Vice President, Mastercard,*
> *and Head of Brighterion*

Ethical AI examines decisions that humans have never codified in technology. Chauhan gives the example of a driver facing a snap decision to avoid a car accident. They have to react so quickly, human logic doesn't kick in. However, a car with AI can analyze a million instructions in a split second to select the best outcome. But what are the ethics behind that decision? What group of humans created the models, and how? And always underlying poor decisions is the fact that bad or unethical outcomes will be reflected directly onto the manufacturer's brand.

Chauhan says ethical AI is not just an extension of ethical business: it's a reflection of the company. Let's say a business is selling water bottles on the street corner for $1. The owner has an app that predicts the temperature will be 95 degrees, so he increases the price to $2 for the day.

"What is to blame? The AI that predicts the weather, or the ethics of the business owner?" Chauhan asks. This simple analogy shows the potential for misuse of information and illustrates Mastercard's dedication to using AI effectively and ethically while engendering greater trust.

Ajay Bhalla believes it's incumbent upon organizations to "proactively demonstrate the responsible use of their technology to the world and to be prepared to explain and justify decisions made by those systems when required."

Bhalla's position is supported by a recent Capgemini study on ethics in AI and public trust.[1] It found 62 percent of consumers put more trust in companies whose AI is visibly ethical, and 61 percent would refer those companies to others. Consumer loyalty to ethical companies was measured at 59 percent.

How is that done? "When AI algorithms are implemented, we need to implement certain governance to ensure compliance," Chauhan says. "Responsible AI algorithms minimize bias and are understandable, so people feel comfortable that AI is deployed responsibly, and that they understand it."

Jha sums up ethical AI quite simply: "Ethical AI is trustworthy, transparent, explainable, fair and just."

1 Capgemini, *Why addressing ethical questions in AI will benefit organizations*, Capgemini.com, (accessed October 2020).

Conclusion

> **"People ask, 'Will AI take over my job?' My answer to them is that AI will not take over your job. But people who embrace AI and run with it will be much better positioned than people who resist AI. The biggest limitation of AI is going to be our own imagination."**
>
> *– Rohit Chauhan,*
> *Executive Vice President,*
> *Artificial Intelligence,*
> *Cyber and Intelligence Solutions,*
> *Mastercard*

Technology with artificial intelligence (AI) has become a reliable, important tool for commerce and businesses. At Mastercard, AI protects consumers, organizations and financial institutions from fraud and financial loss and keeps our private data secure. Mastercard contributes analysis data for community development and public health challenges, while ensuring it maintains secure and efficient practices, benefiting both its customers and employees.

Under the guidance of Ajay Bhalla, President, Cyber and Intelligence Solutions, Mastercard is passionate about its commitment to AI innovation by matching business growth with earned trust through ethical practices and contributions to a global economy that is inclusive of all citizens.

Mastercard's leadership approach to innovation is expressed in its five pillars of AI. Mastercard develops and implements ethical, transparent AI in the form of products and services for its customers that reflect its own practices.

"AI innovation is going to drive the next revolution in technology. It's going to be bigger than the internet and redefine the world all over again," says Rohit Chauhan. "We all have to take it seriously."

"People ask, 'Will AI take over my job?' My answer to them is that AI will not take over your job. But people who embrace AI and run with it will be much better positioned than people who resist AI. The biggest limitation of AI is going to be our own imagination."