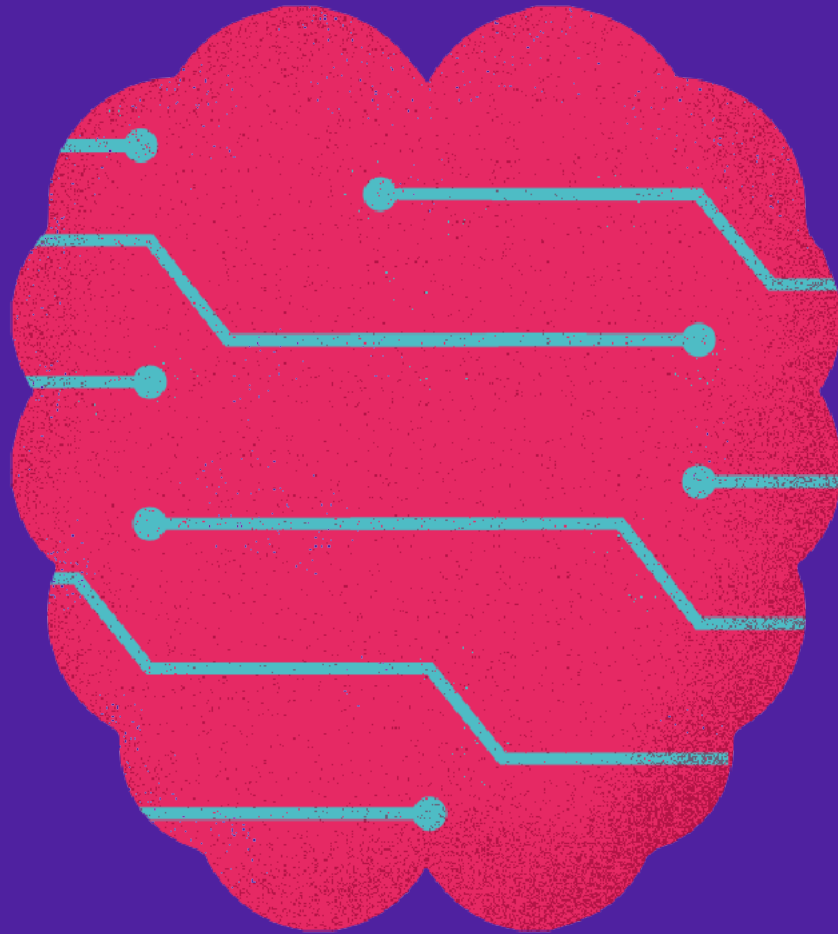# 5 Myths about AI in Retail

Why AI?

The next big thing in retail - whether brick-and-mortar or ecommerce - isn't a flashy new product.

It's artificial intelligence.

Retailers and ecommerce companies have always had large amounts of data - customer behavior, inventory, sales, etc. - and therefore a need for ELT and business intelligence from the early days of these technologies.

As the world has moved toward digital, the data sources have also grown in number and variety. Customers now engage with their favorite brands over text, video, and other mediums outside the traditional point of sale. It's becoming clear that BI and ELT alone won't be enough to get the insights retailers need to develop loyal customers and grow their companies.

It's at this point that artificial intelligence and machine learning are key for retailers. ML models learn best from large data sets like those generated by retail and ecommerce companies. By leveraging machine learning to forecast trends, retailers can improve inventory anomalies and predict customer needs through better segmentation.

Retail investment in AI and ML is projected to jump from $7.3B USD in 2023 to $29.45B USD in 2028, at a combined annual growth rate of over 32%. With so much adoption and investment, AI is becoming business as usual.

To stay ahead of your competitors and create loyal customers, retailers need to understand what AI is (and is not), how you can use it, and what steps to take to make AI valuable for your business.

> **"By leveraging machine learning to forecast trends, retailers can improve inventory anomalies and predict customer needs through better segmentation."**

86%

of retailers are already experimenting with AI and machine learning

What is AI?

At its core, AI is an intelligence layer, equal to human intelligence, that's added to a software, tool, or other program.

Using machine learning models, retailers can sift through mounds of customer, inventory, and other data to solve problems and predict future trends.

But what makes AI truly revolutionary is that it's able to learn, generalizing knowledge from one situation and applying it to another.

Don't be fooled: AI is so much more than just a hot new chat bot.

Instead, artificial intelligence is used (and has been for years) by retailers in a variety of activities, including:

Classification:

Analyzing the language in social media posts to gauge consumer sentiment, aka social listening.

Prediction:

Estimating stock levels based on customer buying patterns associated with particular weather events.

Clustering:

Segmenting customers into groups based on their purchasing patterns.

Optimization:

Identifying improvements in ordering or employee scheduling.

Recommendation:

Creating local promotions or personalized offers for individual customers.

But before retailers can leverage AI for their operations, it's important they understand both its capabilities and limitations.

Keep reading to learn the top myths about AI in retail.

Myth #1

Retail is new to big data

Nothing could be further from the truth. In fact, double-entry accounting - the forerunner of today's spreadsheets - was created in the 14th century by an Italian merchant to manage relatively large datasets for the time.

Large amounts of data are nothing new for retailers. As their data grew, the methods for managing and processing retail data had to evolve. In fact, industry leaders like Walmart have long been using and creating new technologies to make advanced data analysis possible.

Walmart:
Leading the way with data for decades

Long before ecommerce was threatening brick-and-mortar sales, Walmart began using POS data to discover incredible insights about customer purchasing habits and its supply chain.

By 1992, Walmart's commercial data warehouse was the first to amass one terabyte of data, which skyrocketed to 101 terabytes by 1999."

Today, Walmart collects 2500x the data of 1992—a whopping 2.5 petabytes—every hour. That's the equivalent of 27,500 4k movies, or more than 6 years of nonstop binge watching.

Using data—and a lot of it!—to guide decision making has been an accepted practice in retail for over 30 years. Artificial intelligence makes that process easier by enabling retailers to capture, process, and analyze data in increasingly sophisticated ways.

Myth #2

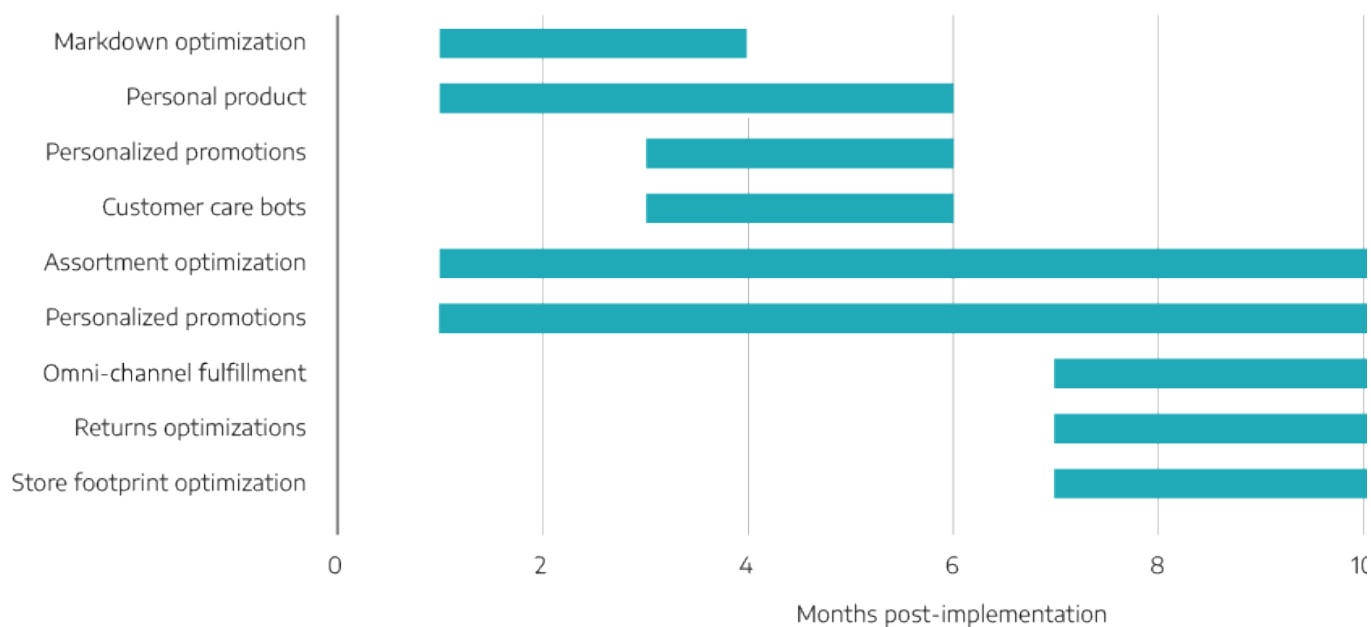## Seeing the ROI from AI takes a long time

In the not-so-distant past, just setting up a data warehouse and a few ETL pipelines was a months-long affair that cost millions of dollars out of the gate.

But a lot has changed since the days of on-prem storage and hand-coded pipelines. And just as data infrastructure has become easier and faster to implement, so has artificial intelligence that's been trained on these large data sets.

According to a Google survey of specialty retailers,

"In general, 80% of AI/ML use cases in the specialty retail sector realize expected value in less than 12 months."

Time to full expected value

Markdown optimization
Personal product
Personalized promotions
Customer care bots
Assortment optimization
Personalized promotions
Omni-channel fulfillment
Returns optimizations
Store footprint optimization

0   2   4   6   8   10

Months post-implementation

Once implemented, many AI projects return their expected value in under a year, with a few standouts like markdown optimization and online personalized promotions proving their value in just a quarter or two.

That relatively short time to value makes AI a compelling investment for retailers looking to balance short term wins with long term strategy.

Myth #3

AI cuts humans out of the loop

If your mental picture of artificial intelligence is a future where robots run the world and computers operate without people, you're not alone.

And there is some truth to this myth: once programmed, artificial intelligence can use—and enhance—algorithms to optimize customer service interactions to improve your CSAT (customer satisfaction) score.

But just as you'd keep an eye on human customer service employees to ensure improved scores aren't happening at the cost of expensive refunds or discounts, you'll need to do the same for your artificial intelligence software.

From black box to complete transparency with explainable AI

A common worry among retailers is that artificial intelligence systems are making decisions—lots of them!—without revealing the "thinking" behind them.

New innovations in explainable AI (XAI) are designed to combat that concern. With XAI, algorithms are made more transparent so you can better understand which factors led to a decision and make adjustments as needed.

For AI to work well, retailers should build out a strong data management and governance program and use performance metrics to measure improvements and identify unintended consequences (like a rise in refunds).

Myth #4

More data is always better

As with the myth that AI will replace humans, this one is really a matter of degree.

The truth is that extensive training sets are helpful when getting a machine learning algorithm up to speed. But big data that's outdated, incomplete, mislabeled, or otherwise inaccurate can throw off AI efforts.

Black swan events and AI training data

When an unexpected event happens that creates extreme outliers, historical data may have little relevance to current trends.

That makes training a machine learning model tricky, and may require a trade off between volume and recency.

For example, although the Instacart data team usually feeds weeks worth of data into its machine learning algorithms, when COVID-19 hit, they cut that down to just 10 days.

As a result, Instacart's models were accurate about 85% of the time despite a global pandemic that shook up both buying habits and the grocery supply chain.

The good news is that techniques like transfer learning (transferring knowledge from a domain with more data to one with less) and collective learning (combining a variety of small data sets from different sources to figure out the same use case) are making it easier for retailers to turn even small data into big insights.

Myth #5

A great data scientist is all you need for AI

While a strong data team is absolutely essential to the success of any artificial intelligence venture, even the best model can't run if there isn't data to fuel it.

Because retail data is housed in a variety of unconnected systems, it can be difficult to get a hold of the info you need to sustain AI initiatives.

Common sources of retail data

When compared to domains like healthcare and finance, retail might not seem like a particularly data-heavy field. But just think about the array of information captured in a retail environment:

- **Point of sales data**
- **Online transaction data**
- **Loyalty card data**
- **Inventory data**

And on top of all that, Salesforce reports that your marketing team alone likely leverages 12 data sources from ads platforms to marketing automation software to fuel customer engagement. That's a ton of data, all in different places.

To successfully implement AI, you need more than a data scientist that's up on the latest trends in machine learning. You also need the infrastructure that makes their work possible—and that frees up their time from data chores so they can focus on building models and finding insights.

> **"You need more than just a data scientist...you also need the infrastructure that makes their work possible."**

About Panoply

Panoply's managed data warehouse plus ELT and visualizations make it easy to sync, store, access, and visualize your business data without complex code. Using Panoply as a single source of truth, you can build value through AI instead of managing pipelines or tuning storage.

With Panoply, you can:

- Connect disparate data sources without complicated code
- Automatically update your BI and analytics tools
- Store raw data in the cloud in analysis-ready tables
- Spend more time delivering insights and less time on manual tasks

To learn more about Panoply and whether we're a good fit for your retail business.

Book a personalized demo today!

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