

ORACLE

Predict the Unpredictable

How AI-based analytics can help retailers make better decisions from a cacophony of data



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By Michael Hickins
Senior Writer, Retail

Retail has always featured a complex dance pairing supply and inventory with promotions, pricing, and point of sale, with sheet music written by the back office and instruments played by store employees. This dance, however, has been disrupted by dissonance on a macro scale.

Retailers are struggling to recover their footing amid inflationary pressures, climbing interest rates, the omnipresent escalation of online shopping, ever-changing consumer trends, and the continued shockwaves from a global pandemic, all while trying to manage employees demanding greater work flexibility and more sustainable business practices.

This isn't hyperbole. In the US, about 2,600 retail stores closed from January to April 2023, and the number of major retail bankruptcies in that timeframe exceeded the number for all of the previous year, according to Coresight Research. In the UK, more than 17,000 retail stores shut their doors in 2022, equivalent to 47 a day, according to a study by [The Centre for Retail Research](#).

The news isn't entirely bleak, however, with US retailers announcing about 5,100 new store openings during that earlier four-month span, mostly among discount chains. And that stat doesn't account for the extent to which retailers worldwide are expanding their online presences.

To keep up with (or stay a step ahead of) both changing market conditions and nimble competitors, retailers of all kinds continue to invest aggressively in IT to manage their finances, refine their supply chains, attract and retain key employees, boost loyalty, and improve their forecasting, merchandising, inventory management, marketing, and customer service. Retailers, which generated some \$27 trillion in revenue globally in 2022, aren't known for their extravagant



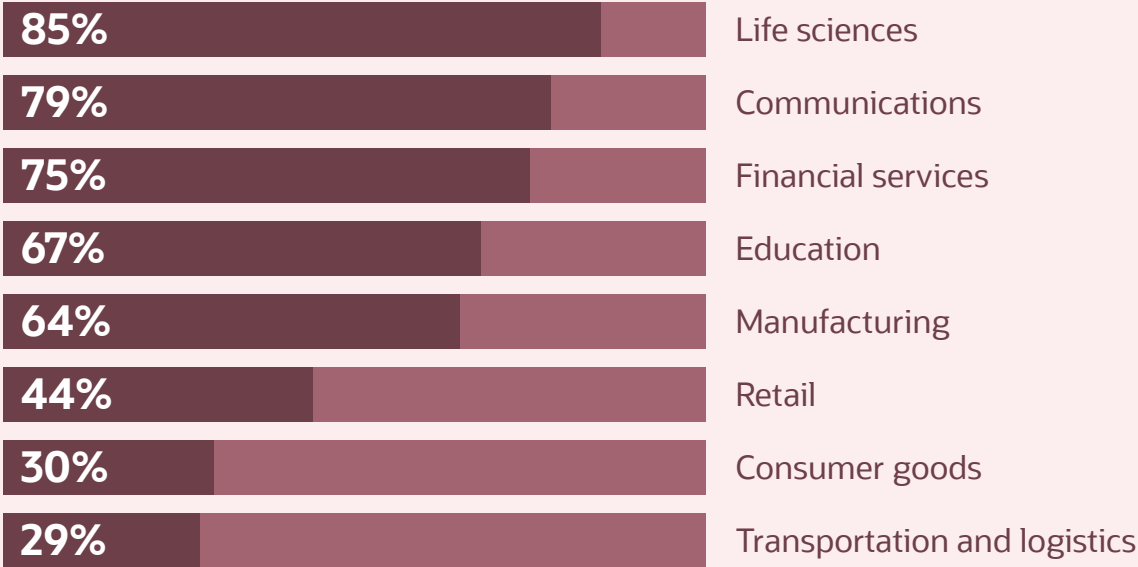
spending on IT services (estimates range from 2% to 6% of revenue), but they're not laggards either. In Asia, for example, 56% of retailers have either implemented or are expanding on their AI-oriented initiatives, according to Forrester.

But more IT spending on its own won't confer a competitive advantage. What will differentiate the winners from the losers is where retailers spend that money and how they make use of it. Particularly crucial is the adoption of technologies that speed decision-making, repeatedly and with precision. A prime example is AI applied to analytics, providing decision-making support in the moment that retailers need it, as often as needed, at an almost infinite scale.

Less than half of employees in the retail sector have experimented with AI, according to a study by technology advisory firm Valoir. That's in the bottom quartile among industries, which suggests there's considerable room for growth and an advantage for retailers that move quickly.

The aim of this ebook is to provide people who lead and manage retail operations with information about the ways that AI—most notably, AI embedded in their everyday applications and processes, as well as generative AI—can help them make better decisions and ultimately boost their revenues and profit margins.

Share of workers who have experimented with AI, by industry



Source: Valoir



Why analytics without AI is just a start

Retailers already make widespread use of data across many types of applications—inventory management, supply chain, financial, and more. But most analytics is based on the use of historical data, and no competent organization would rely too much on data from, say, the COVID-19 pandemic as a predictor of the future.

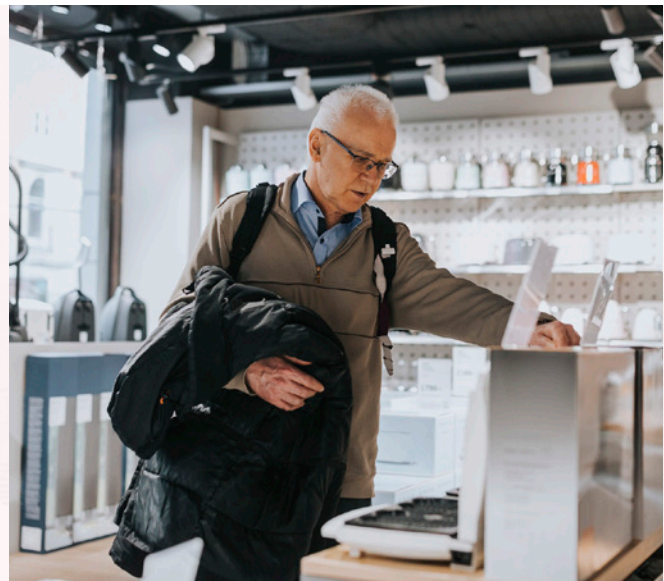
While conventional data analytics has provided retailers with the right answers “most of the time,” AI-based analytics, with its ability to iterate repeatedly and learn as it goes, “can make predictions much more reliably,” which is an invaluable asset during times of great uncertainty, says Denis Pombriant, principal analyst with Beagle Research Group. “AI isn’t the first, but it’s the latest iteration of a process that’s tried to give us greater and greater precision.”

In the coming years, thanks to AI, retail analytics will become more widespread and less visible. Users, processes, and applications will leverage analytics continuously, often unknowingly or automatically—not unlike the way smartphones constantly use location tracking and search to quickly meet users’ needs.

“AI is the way to fight the infinite store shelf so you carry only the stuff you’re absolutely sure your demographic is going to crave.”

Denis Pombriant

Principal Analyst, Beagle Research Group



Solve smaller decision dilemmas, faster

AI can also compensate for the iffy nature of historical data by letting business leaders make use of smaller, more recent data sets, repeating queries using many different scenarios and repeating them as often as necessary.

Retailers that can conduct two or three times as many experiments as they did before, using smaller data sets over shorter periods of time, will be able to do such things as determine optimal inventory levels, product locations, or prices—but without doubling or tripling the number of marketing employees they dedicate to the testing.

Conducting more tests with smaller sample sizes also means running tests that affect a smaller subset of activities than usual, says Paul Sonderegger, a senior data strategist at Oracle. This could mean something as simple as testing the impact of increasing the size of the Buy button on an ecommerce site by 10%. Or testing different ads to see what effect they have on conversion rates. Or providing salespeople with different scripts.

In other words, it means testing many different small changes many times. Retailers can use AI to invent those tests, write test scripts, invent methods to run the tests, and then modify some subset of the pages they serve up to implement those tests.

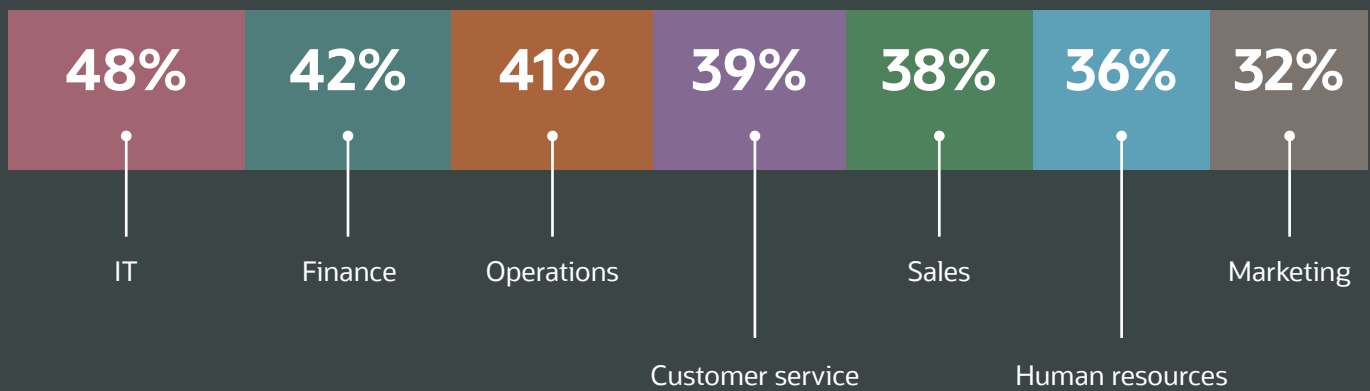
“Some of the tests will be nonsense because you’re asking AI to invent them,” Sonderegger says. “So you’ll need a marketing expert to review them, but that’s still significantly faster and cheaper than inventing all the test permutations by hand.”



Boost worker productivity and retention

From the back office to the retail floor, the use of AI to automate routine tasks can help retailers improve productivity and upskill their workforce. As many as 40% of tasks performed by employees are ripe for automation, according to the Valoir study.

Potential for automation by job role



Source: Valoir

AI can automate labor scheduling, email, and other communications, as well as analyze video of the retail floor to help replenish inventory more effectively than having people walk the floors. It can also help analyze customer service calls at scale





and identify individuals or specific types of language that lead to better outcomes, such as more loyal customers or greater upsells.

“Generative AI is the future of workplace technology, with untapped potential to transform HR processes,” says Kim Kohlman, vice president of HCM operations at Hearst. “We anticipate that these improvements with generative AI will allow our teams to focus their efforts on increasing productivity and driving meaningful business value.”

AI algorithms built into or augmenting cloud-based human capital management (HCM) applications could potentially help retailers evaluate candidates responding to a job ad on a social media site. Such an application could, for instance, analyze data shared by applicants on their skills, work history, and experiences and then match those patterns against data on the job requirements and the employer’s culture, as well as data on how the retailer’s recent hires with similar profiles perform. The goal of this kind of AI-based analysis is to help the retail employer identify, even rank, candidates most likely to fit in, stay, and succeed at the company. Retailers could also use this kind of analysis to filter out candidates likely to reject an offer, improving the efficiency of the hiring process.

Such AI-based analytics can also help managers identify high-performing individuals and single them out for more training, which helps the retailer in the short term and could increase job satisfaction and retention.

AI can help managers identify which employees need help learning a skill or need more information about a particular product by reviewing and flagging transcripts of call center

conversations using sentiment analysis. Conversely, it can help identify the traits and actions of employees who consistently sell more than others so that retailers can have other members of the team replicate their process. “A lot of these are things managers are doing already, but AI gives them a thousand sets of eyes, so they can do more,” says Rebecca Wettemann, CEO and principal analyst at Valoir.

AI embedded in HCM applications can also help retail employers optimize schedules so employees don’t get burned out by working too many consecutive holidays or long weekends, while ensuring that high-performing employees are available and scheduled for days when higher-than-usual volumes are expected. An important point here is that HCM systems don’t include historical sales data—that’s the province of finance and sales teams. But retailers can use AI to correlate data from all those integrated systems.

“The upside potential is huge for retailers, particularly for those that are looking at resource shortages now,” Wettemann says. “With AI, I can identify not only product and service issues, but also coaching opportunities and where employees may need help so they don’t quit because they’re frustrated.”



Automate supply chain and other processes end to end

It seems obvious how AI can automate marketing scripts by generating endless numbers of A/B tests. But AI also can be used across every horizontal and specialized application.

AI can make a supply chain management system more effective by suggesting alternate shipping routes based on updated weather and traffic, and it can help identify and suggest contingencies around other risks, such as disruptions caused by natural disasters or geopolitical tensions. For instance, it could be used to predict the supply chain impact of tensions in China or Russia and suggest more fine-grained product allocation to make better use of available supplies. Longer term, it could help retailers prepare more accurate crisis plans for other kinds of outlier events.

One of the most common use cases of AI analytics for supply chains is in manipulating and orchestrating demand and supply. For example, such analytics can manipulate demand by prescribing promotions, markdowns, and targeted offers in ways that also protect profit margins, all reflected in an AI-powered forecast. AI analytics could manipulate supply by intelligently rebalancing units across warehouses, distribution centers, and stores, based on that new AI-powered forecast.

In a merchandising system, AI-based analytics can help make the difference between selling products at full price versus having to discount excess inventory, while ensuring that retailers with physical stores can compete on availability on a more equal footing with digital-only retailers. “AI is the way to fight the infinite store shelf so you carry only the stuff you’re absolutely sure your demographic is going to crave,” says Pombriant of Beagle Research Group.

“In the past, this was a human saying, ‘OK, I need five different black dresses, six different pairs of trousers, and 10 shoes, and that’s my assortment for soccer moms as a group,” says Antony Wildey, Oracle vice president of global sales consulting. “We now get much more detailed analysis of each customer to understand where they are. And then AI helps with the analytics around the assortment because we understand the interactions between different products based on their history.”



Explore the real-time benefits of AI for... financial analysis and reporting?

Financial analysis and reporting doesn't, on the face of it, scream out as time sensitive or requiring AI-powered analytics.

Not in the instant. But not every important, time-based decision has an immediate customer-facing implication. However, everything has a deadline, including planning for the next fashion season or next year's budget and sales forecast.

Apparel retailers in particular must meet stringent deadlines for ordering materials well ahead of a planned season, and that requires understanding which suppliers tend to stick closest to their delivery windows, which distribution centers will be most effective for a particular region, and so forth.

Especially for retailers with numerous stores, being able to automate most of this work helps business leaders focus on exceptions, experiment with different forecast scenarios, and provide individual stores with more targeted inventories.

Retailers may not need an answer from their financials today to respond to a customer service issue, but they may well need an answer today to help them make procurement decisions that will affect sales, margins, where inventory is stored, and the related carrying costs in the months ahead.

One way that AI helps retailers is by giving them a more thorough understanding of demand



transference—the propensity of customers to accept a different product if the one they’re intending to buy isn’t available, or the likelihood that they’ll make a purchase on top of their original intent. Organizations can use this information with the planning of inventories, distribution channels, and procurement.

“So when we’ve got high inflation, our costs have gone up, and our consumers have got less money. That equals less margin,” Wildey says. “And then, of course, because things are more expensive to buy, you want to buy the right amount of it, because the last thing you want to do is have sale signs all over your stores. The only reason you have that is if you bought the wrong stock and you bought too much of it. So we’re able to help retailers put together an effective plan to push through those barriers.”

Finally, AI systems need to be accessible to business leaders so that they can run reports themselves, rather than having to ask a data scientist, data analyst, or some other person with data in their title to do it for them. “I can run a lot more what/if scenarios, I can explore a lot more data—and if I can do it using natural language, that becomes very valuable to me,” says Wettemann, the Valoir analyst. “It’s all the things that simply aren’t cost-effective to do manually, and there’s just the natural disinclination to ask somebody to redo work again and again and again and again. And if I want to make minor changes or minor tweaks, I want to be able to do that in the moment when I’m thinking about it, rather than having it be this slow, iterative process.”

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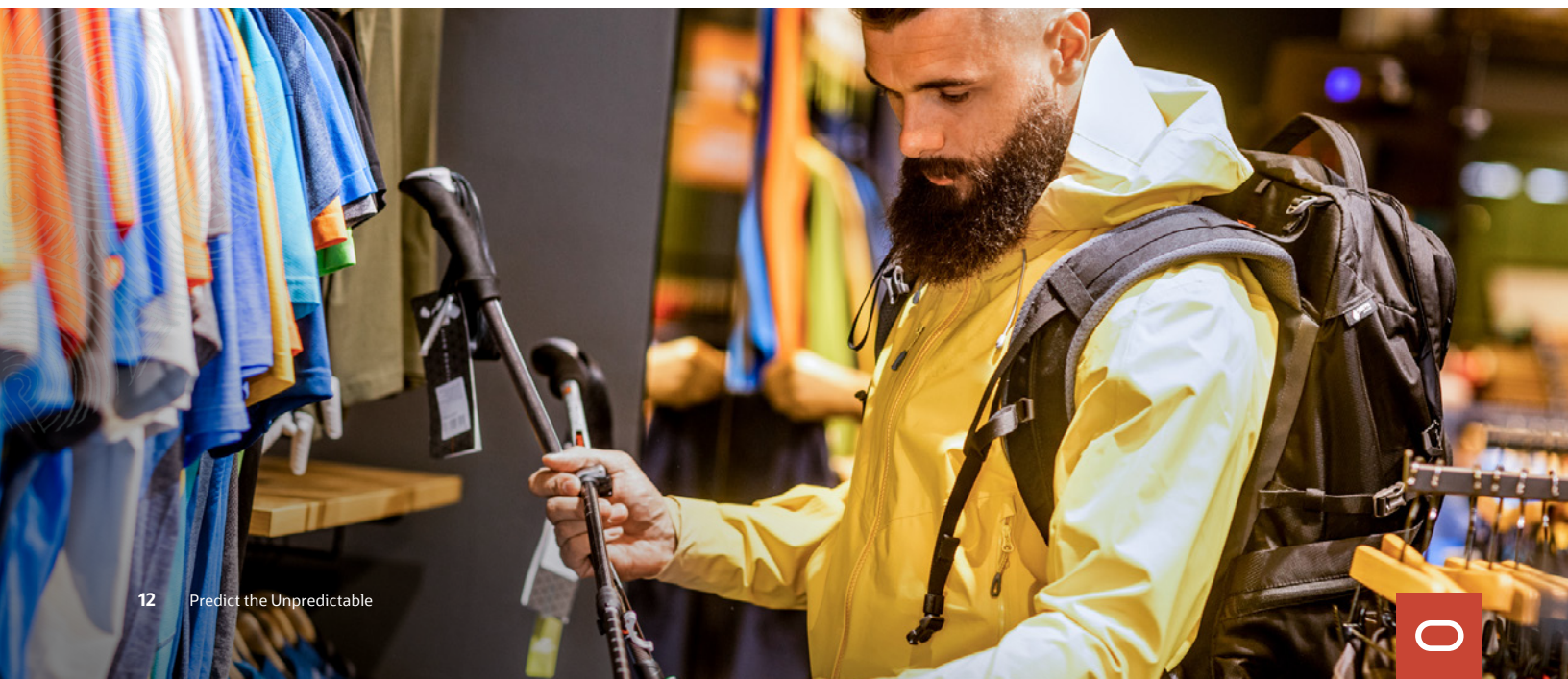
Apply AI to the proverbial five Ps of retail

Earlier we discussed one of the five Ps of retail—people. The others, of course, are placement, price, product, and promotion.

AI gives retailers an opportunity to use data and act holistically, taking into account all five Ps, sometimes in concert. “Historically, unfortunately, customer data and customer analytics have been largely relegated to just marketing departments. But in modern retail, it has to be ubiquitous,” says Mark Lawrence, a director of analytics at Oracle.

AI-based analytics can combine data about customers (people) with data about a location (placement) to help retailers decide how to allocate products in different geographic regions and stores. For example, a sports apparel retailer can use analytics on the latest weather data and forecasts to see that even a two-degree difference in temperature affects sales of thermal undershirts and can allocate more of those items to a distribution center closest to areas projected to have colder temperatures in a given winter.

Price is another element where retailers can use AI software, for example, by detecting the latest changes in shopper buying patterns and suggest prices that will maximize profits. Such analyses





consider price history, but they also factor in the latest data on inventory levels, supplier costs, offers from competitors, and other variables.

“The magic question is being able to actually keep stuff on the shelves at a reasonable price when customers want it,” says Wettemann, the Valoir analyst. “That’s where the challenge has always been—the speed to knowledge, the speed to data for retailers.”

AI can also help retailers decide which products to put on promotion, understanding that significant demand transference across a set of products would have the effect of cannibalizing promotions on those products. So, for example, a retailer might want to promote a new brand of coffee beans, but not coffee filters at the same time because many people are going to buy coffee filters with those coffee beans anyway. AI can help identify such examples of demand transference across thousands of SKUs and retail locations much more easily and effectively than a human could do.

AI can also help determine which products to carry, and how much. For example, it can help create personalized assortments for online shoppers by suggesting products that aren’t what a shopper thinks she’s seeking. “Within these rows and rows of shoes, maybe dropping a handbag next to the right brand of shoe, or the right price shoe because there is an affinity for those two categories, is something AI can accomplish on the fly that a human being cannot in the moment,” says Greg Flinn, a former Neiman Marcus executive and current director of business development at Oracle.

AI can help retailers decide which products to order and where to place them on shelves and even suggest design and sourcing decisions, taking into account fashion trends while

ensuring that goods have been manufactured in a sustainable manner and sourced as locally as possible. AI can analyze video to identify the patterns that consumers use to navigate a store, helping stores improve their layouts and messaging. It can also identify potential instances of theft or fraud, helping reduce shrinkage.

Given all the parameters in play, only a powerful tool such as AI can help retailers make the right decisions far more often than not. “If you don’t have the AI and analytics in place,” Flinn says, “a sustainable model will be difficult to implement and put into practice.”

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Greg Flinn
Director of Business Development,
Oracle

AI-powered antidotes to market turbulence for each of the five Ps of retail

The P	Market turbulence	AI antidote
People	Workforce exodus	With so many people leaving the workforce across service industries such as retail, AI-enabled labor and HR applications can help stagger shifts, suggest compensation levels, and even achieve desired levels of workforce diversity
Placement	Many products compete for the same eyeballs	AI can help retailers with product placement on shelves and in virtual stores
Price	Inflation	AI-powered analytics helps retailers adjust prices on the fly, with minimal negative impact on margins
Product	Consumers demand more personalized goods and sustainably sourced products	AI can help guide product design decisions and identify providers with sustainable practices
Promotion	Carrying costs are becoming prohibitive	Analytics can help retailers decide which products to promote, for how long, and at what price levels



Speed your enterprise agility and responsiveness with Oracle Cloud Infrastructure

Retailers in 96 countries rely on Oracle to help them manage their business, running applications, AI, and analytics on Oracle's second-generation Oracle Cloud Infrastructure (OCI). OCI uses best-in-class NVIDIA GPUs to run its AI services, letting retailers run prebuilt and native AI models, in addition to applications from Oracle and other vendors, faster and less expensively than any other vendor.

Businesses across industries are lining up for these AI services. "Our generative AI cloud customers have recently signed contracts to purchase more than \$2 billion of capacity in Oracle's Gen 2 Cloud," said Oracle Chairman and CTO Larry Ellison during an earnings call on June 12, 2023.

For example, eyeglass retailer [Now Optics uses OCI-based AI and analytics services](#) to quickly interpret the sentiment behind online customer reviews, letting employees visualize trends and decide what changes to focus on.

OCI offers prebuilt AI services, such as anomaly detection and forecasting, that customers can bake into any business process—whether those processes run on Oracle software or not.

OCI also offers data science platforms that let businesses create competitive differentiation by building their own generative AI or visual AI models.

"With apps and infrastructure engineered together, Oracle can deliver cheaper, faster, and more integrated processes that create competitive advantage for enterprises," says Holger Mueller, principal analyst at Constellation Research, in a statement.

Improve your finance, supply chain, HR, and other business processes with Oracle applications

Retailers rely on Oracle's integrated suites of cloud applications, many of them embedded with AI, to help them manage their key processes, including finance, supply chain, HR, sales, marketing, and customer service—all running on Oracle's second-generation Oracle Cloud Infrastructure (OCI).

For example, retailers use Oracle Fusion Cloud Enterprise Resource Planning to simplify and optimize procurement processes and manage financials. [Almacenes Siman, a retailer with operations across Central America](#), reduced requisition validation times using Oracle Fusion Cloud Procurement, letting buyers generate purchase orders with just a quick review on the platform. Also, the retailer eliminated manual tasks, digitized key processes, and established standardized formats by country and company.

Retailers use Oracle Fusion Cloud Enterprise Performance Management to map out their annual strategic plans and adjust them monthly. They use Oracle Cloud SCM to track data on suppliers and Oracle Cloud HCM to automate and improve their employee hiring, onboarding, retention, development, performance management, and other HR processes. Oracle Cloud CX applications help retailers respond more decisively and accurately to customer queries and complaints, putting employees in a better position to upsell to customers or do that little extra something that converts a one-time customer into a loyal one.

Retail organizations that lag in adopting an AI-intensive application portfolio may find that they can't compete with those that move more quickly—and may rapidly find themselves announcing store closings, or worse.

Manage your inventories, merchandising, and other key processes with Oracle Retail applications

Retailers rely on Oracle Retail to help them manage their business, with applications specific to financial planning, store management, merchandising, marketing, supply chain management, brand compliance, and other key processes.

Prada Group, for example, uses [Oracle Retail planning and optimization](#) to enhance forecasts, analyze performance, and manage inventories. The luxury retailer plans to deploy Oracle Retail Demand Forecasting Cloud Service, a forecasting engine within the Oracle Retail analytics and planning suite that sits on top of Oracle Retail AI Foundation, to support planning, buying, moving, and selling decisions.

[Oracle Retail supply chain management](#) helps retailers make more accurate demand forecasts. It also optimizes daily replenishment decisions, aligning the actual service level to targets with the minimum amount of inventory, leading to a reduction in working capital, mainly inventory, freeing up cash that could be reinvested more strategically.

The [Oracle Retail AI Foundation](#) includes retail-specific AI and machine learning to improve and enhance merchandise planning, by including such features as customer segment decision trees, demand transference analysis, size profile optimization, space allocation optimization, and planogram performance data.

[Oracle B2C Marketing](#) helps retailers use real-time behavioral data to automate and adapt marketing campaigns to boost conversions, loyalty, and revenue.

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Oracle helps retailers put customers first by providing relevant information and timely decision making tools in the hands of business leaders and customer-facing employees.

[Learn more](#)

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