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Harnessing the power of AI for retail: Part 1

TCS Thought Leadership Institute

Contents

Key takeaways

- Composite AI, a combination of predictive AI and generative AI (GenAI), has the potential to offer solutions to complex business challenges across different functions in the retail value chain.
- Retailers can realize the full potential of AI by adopting a customized approach based on a holistic strategy and an enterprise architecture optimized for cost, quality, security, and privacy. AI in general, and GenAI in particular, offers potential benefits along with considerable risks.
- Built on the principles of an industry-led, data-fueled, and ecosystem-enabled foundation, we offer an 'enterprise-wise' AI approach designed to make GenAI consumable for an enterprise-grade transformation.

It's not just about generative AI

For the last decade, the retail industry has embraced some form of artificial intelligence (AI) to make insightful predictions and determine next-best actions across the retail value chain.

However, the recent emergence of generative artificial intelligence (GenAI) has thrust the broader AI discourse into the retail boardroom and beyond, significantly impacting current strategy and growth discussions. AI offers descriptive, predictive, diagnostic, and prescriptive capabilities. They can be used to extract, classify, and categorize information, making the technology pivotal in generating business value for enterprises.

These capabilities—coupled with recent advancements in GenAI that use large language models to generate new content and data-driven recommended actions—offer immense potential benefits for a reimagined, intelligent retail enterprise of the future. Composite AI, which takes a holistic approach across predictive AI and GenAI and combines the strengths of both approaches, enables retailers to comprehensively address complex business challenges.

Composite AI uses predictive AI to analyze vast amounts of retail data, identify patterns, draw inferences, and recommend the next-best action, along with GenAI, to create new content that leverages these insights, along with user inputs. As a result, retailers are now asking: *How can we leverage AI to redefine our business in a landscape ripe with opportunities?* Realizing the potential of composite AI as a competitive advantage necessitates a multidimensional, holistic strategy and an enterprise architecture optimized for cost, quality, security, and privacy. In essence, it demands a tailored approach for each retail enterprise, rather than a one-size-fits-all solution.

We explore how the combination of generative AI alongside predictive AI capabilities is likely to revolutionize the retail ecosystem by fostering the creation of reimagined value chains, operational transformation, and hyper-personalization of the customer experience. Retailers must adopt a pragmatic approach to devising an enterprise AI blueprint by balancing risks and limitations.

Retail enterprise of the future powered by AI

From adopting barcodes to developing loyalty programs, retailers have always been at the forefront of driving technological innovation.

They have pioneered the use of IoT, robotics, drones, automated guided vehicles (AGVs), and autonomous mobile robots (AMRs) for efficiencies and experience transformation. Customer-centric technology for personalization, convenience, fulfillment speeds, and hyper-efficiencies have driven retail enterprises to champion the adoption of AI and other digital technologies to navigate the complexities of modern commerce. The evolution of AI in retail can be traced from basic automation, where tasks like inventory management and order processing were streamlined, to more sophisticated applications such as robotic process automation (RPA). However, as consumer behaviors and market dynamics continue to evolve, the need for advanced AI solutions has become increasingly apparent.

The advent of predictive intelligence was a significant leap forward in the retail landscape, allowing retail organizations to leverage machine learning algorithms to analyze vast datasets and forecast consumer behavior, preferences, and market trends. It has enabled retailers to make data-driven decisions, optimize inventory levels, personalize marketing campaigns, and anticipate demand with greater accuracy. By harnessing predictive analytics, retailers can enhance customer satisfaction, increase sales, and stay competitive in an ever-changing market environment.

The emergence of generative AI represents the next frontier in retail innovation, offering the potential to revolutionize how retailers interact with customers and manage their operations. Generative AI goes beyond analyzing data to autonomously generate new content, ideas, and solutions. In retail, this can be used to create hyper-personalized recommendations, design bespoke marketing campaigns, and even develop innovative product prototypes. In fact, the TCS AI for Business Study (see Figure 1) shows that 65% of senior retail executives want to use AI for more personalized interactions in marketing initiatives (beyond chatbots).

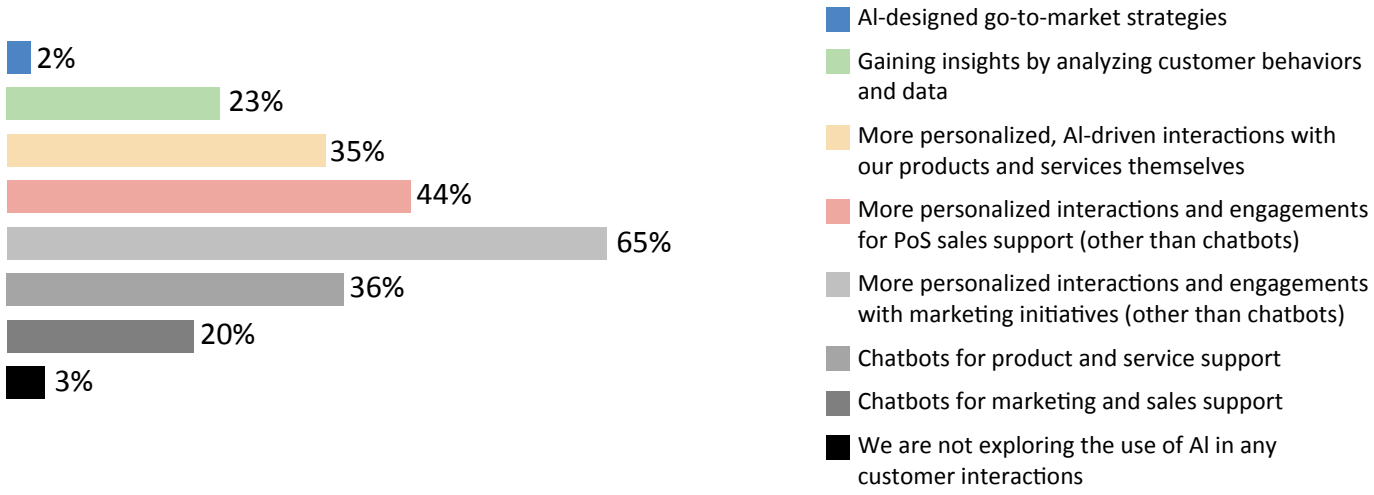

Figure 1: Highlights of the TCS AI for Business Study

By harnessing the creative capabilities of generative AI, retailers can unlock new avenues for growth, drive innovation, and deliver superior customer experiences across the entire value chain.

[1] From the TCS AI for Business Study: https://www.tcs.com/insights/global-studies

Early adoption of AI

It's time to reevaluate your AI adoption strategy.

The retail industry has been at the forefront of adopting traditional artificial intelligence (AI) and machine learning (ML) technologies. Now, many leaders within the sector are reevaluating their AI adoption strategies. Enterprises are driving composite AI along two key dimensions:

1. **Productivity and efficiency:** This includes initiatives like store associate AI knowledge companions and AI-generated product content, aimed at reducing operational costs.
2. **Experience transformations:** Examples include AI-generated review summarization, intelligent search tools for customers, and regulatory compliance validations to enhance the overall retail experience.

There are broad-based ways in which AI can be used across organizations, including for customer service, marketing content generation, and so on. However, retailers can achieve significantly higher value when AI is used to address company-specific priorities and issues.

We look at AI enterprise initiatives as highly contextual, multi-disciplinary business transformation initiatives requiring consulting and design skills; technology skills in cloud, AI, digital twins, computer vision, and others; as well as domain skills, with a deep understanding of the context.

The upcoming TCS AI for Business Study explores how nearly 1,300 companies around the world are looking at the strategic implications of AI technologies and how they are responding to their transformative potential. The research found that most corporate leaders in retail, around 65%, were more inclined toward leveraging AI for enhancing productivity rather than for quality enhancements.

While enterprises focus on these dimensions, it's crucial to acknowledge potential pitfalls related to AI, such as data privacy, security, fairness, and transparency. As AI holds significant promise, enterprises must proceed cautiously and implement proper guardrails to address these challenges within a broader business strategy.

Moreover, enterprises must develop strategies to leverage the full potential of AI amid the rapidly evolving landscape of AI technology. With the introduction of new models, upgrades, and versions, enterprises need to continually reassess their AI technology landscape to maximize benefits. The potential impact of AI on enterprises will vary depending on how they integrate AI interventions into their futuristic intelligent value chain.

Our vision

Transforming the potential of AI into sustained performance will require retailers to develop a multidimensional strategy.

They must adopt an enterprise architecture optimized for cost, quality, security, and privacy. In short, it will require a tailored approach – not a one-size-fits-all solution.

With extensive experience in working with hundreds of global companies, we offer a best-practice approach to help retailers master the delicate balance of opportunity and risk to ensure calibrated, risk-mitigated, sustainable, and successful GenAI outcomes.

Built on the principles of an industry-led, data-fueled, and ecosystem-enabled foundation, we offer an 'enterprise-wise' AI approach designed to make AI consumable for an enterprise-grade transformation (see Figure 2).

Industry-led	Data-fueled	Ecosystem-enabled	Enterprise-wise
AI needs to be contextualized for the value chain of the industry served	Creating a strong digital data foundation is important to unlock exponential value and derive intelligent insights	AI needs the right partner eco-system solutions for advanced AI capability realization and rapid innovation	AI needs to unlock enterprise- and industry-specific tacit knowledge

Figure 2: 'Enterprise-wise' AI adoption approach

These four principles underlie the TCS path of AI potential to performance, a continuum that builds upon and reinforces the previous stage: assist, augment, transform. (see Figure 3)

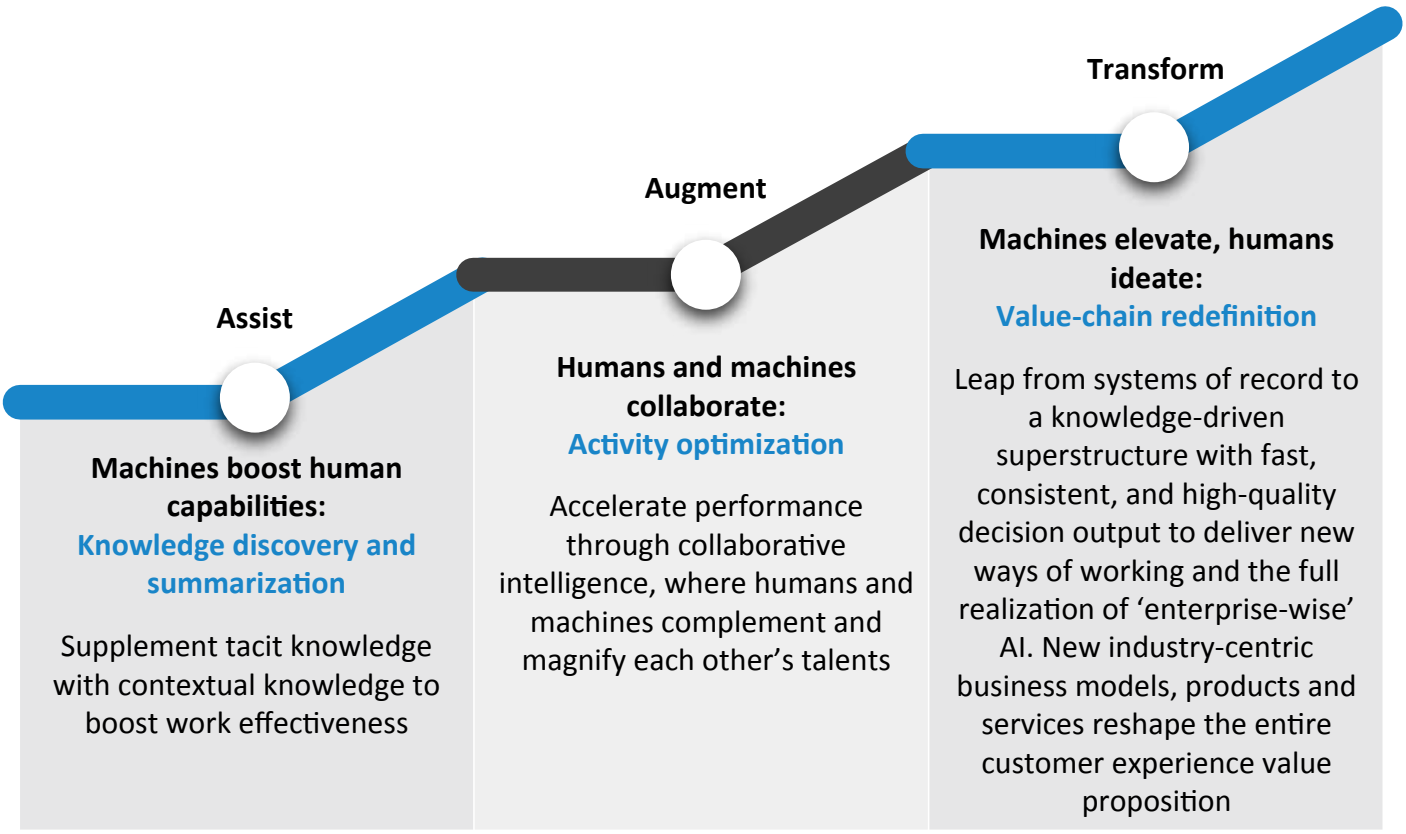

Figure 3: TCS AI continuum – Retail

For retail, these phases can include the scenarios illustrated in Figure 4.

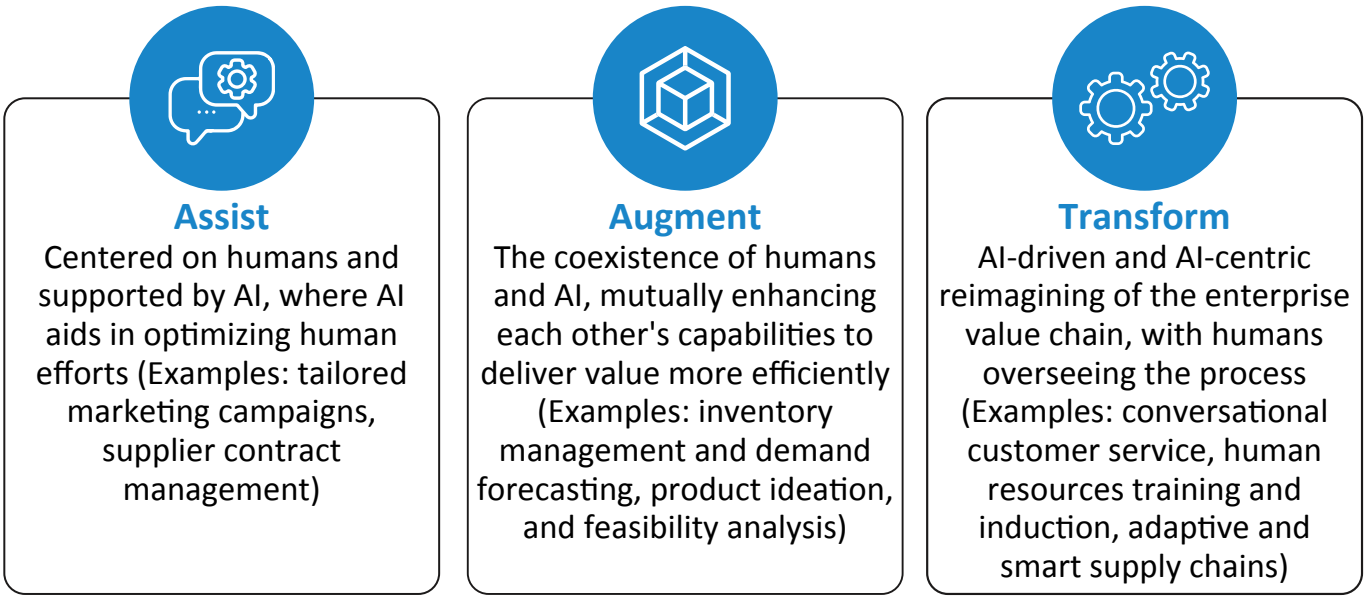

Figure 4: AI evolution in action

In scenarios where humans and AI collaborate and augment each other's activities, rather than AI merely assisting humans, productivity can reach unprecedented levels. We believe that in the most advanced phase, AI-driven transformative models are capable of scaling to reshape end-to-end business processes and value chains and will significantly impact revenue margins. However, in the current state of constant AI maturity evolution, the headwinds around responsible AI and AI at scale and the realization of these aspirational AI-first enterprise capabilities are often deferred to farther out in the future.

Ultimately, the value derived from AI will depend on where and how enterprises choose to integrate it in their operations. In the early stages of adoption, most enterprises typically find themselves in the assist or augment stages. We use composite AI across three categories: AI for business, IT for AI, and AI for IT, which we will explore in the second part of this point of view series.

Navigating the delicate balance between opportunity and risk

AI-ML technologies have long been integrated into retail operations, providing invaluable insights and predictive capabilities across the value chain.

However, composite AI capabilities hold immense potential for retailers. By leveraging composite AI, retailers can foster the creation of new value chains, drive operational transformation, and deliver hyper-personalized customer experiences.

As with many recent technology revolutions, the short-term impact is often overestimated while the long-term impact is underestimated. Moving forward, retailers must navigate the delicate balance between opportunity and risk associated with AI adoption.

The TCS advantage

Our strong partnerships help retail organizations successfully navigate GenAI transformations to drive sustained performance.

Deep domain and contextual expertise
TCS has a vast pool of industry experts with well-established experience and contextual knowledge across retail functions, to help identify, build and support the latest and fittest solutions and technologies for clients.

Cross-industry experience
Today's businesses are more interconnected than ever before and need cross-industry expertise and leading practices. Working with customers across industries such as retail, consumer packaged goods (CPG), and travel and transportation brings an end-to-end holistic view of enterprise business functions and know-how.

Enterprise AI at scale
TCS enables AI at scale through over 150,000 trained associates for more than 670 customers.

Partner ecosystems
Scale and accelerate the path to value through a network of joint solutions and established hyperscaler partnerships, an elaborate TCS COIN™ network, and co-innovation facilities such as TCS Pace Port™.

Evolving solutions
To help accelerate their journey, TCS leverages its contextual knowledge and expertise to enable multiple purpose-built solutions for retailers that incorporate GenAI technologies.

Executive champions

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About the Thought Leadership Institute

Since 2009, the TCS Thought Leadership Institute has initiated conversations by and for executives to advance the purpose-driven enterprise. Through primary research, we deliver forward-looking and practical insights around key business issues to help organizations achieve long-term, sustainable growth. For more information, visit **www.tcs.com/insights/global-studies**

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About Tata Consultancy Services Ltd (TCS)

Tata Consultancy Services is an IT services, consulting and business solutions organization that has been partnering with many of the world's largest businesses in their transformation journeys for over 56 years. Its consulting-led, cognitive powered, portfolio of business, technology and engineering services and solutions is delivered through its unique Location Independent Agile™ delivery model, recognized as a benchmark of excellence in software development.

A part of the Tata group, India's largest multinational business group, TCS has over 601,000 of the world's best-trained consultants in 55 countries. The company generated consolidated revenues of US $29 billion in the fiscal year ended March 31, 2024 and is listed on the BSE and the NSE in India. TCS' proactive stance on climate change and award winning work with communities across the world have earned it a place in leading sustainability indices such as the MSCI Global Sustainability Index and the FTSE4Good Emerging Index. For more information, visit **www.tcs.com**