

A Smarter E-Commerce Checkout using AI

WHITEPAPER

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Executive Summary

AI is rapidly reshaping retail and has the potential to transform the checkout experience by creating a dynamic process tailored to the individual and the moment.

The AI Checkout Architecture offers a solution framework in which customer behavior and historical data are leveraged to maximize revenue generation at checkout.

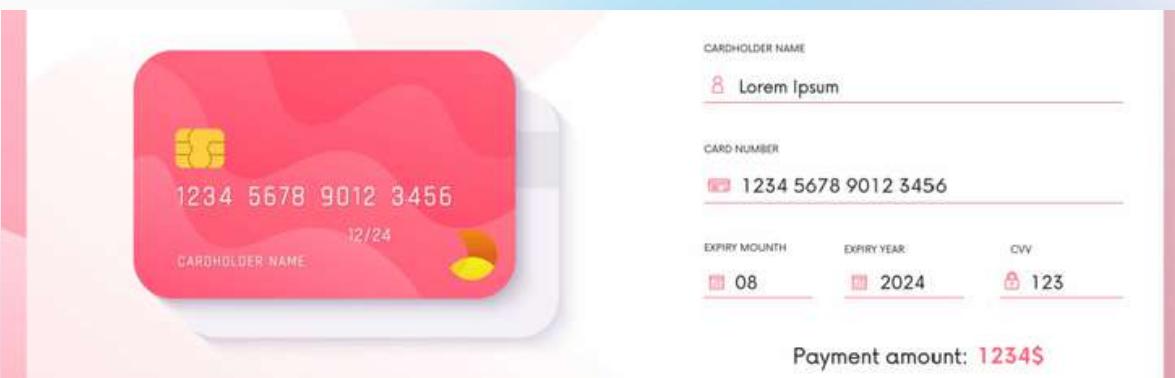
This approach enables retailers of all sizes to deploy a transparent auditable and adaptable system that evolves with their needs while using AI to increase revenue and reduce fraud.

A Smarter E-Commerce Checkout with AI

Introduction

Consulting firms, technology providers, and retailers are all eyeing AI as the next major driver of revenue for retail and e-commerce, and major media outlets highlighted this trend throughout November of 2025. In parallel, the top four technology consulting firms released reports detailing the expanding role of AI in retail, and large retailers including Walmart and Amazon noted significant AI focused initiatives in their communications with investors.

However, outside the largest players, smaller companies in retail and e-commerce are watching these developments closely. They seek guidance from industry leaders yet operate with lower risk tolerance and more limited budgets. Across the many areas where AI has shown promise such as e-commerce personalization, intelligent inventory search, dynamic pricing systems, and customer service automation each capability can stand alone as its own area of expertise. The author evaluated these domains and chose to center this article on the checkout process where shopping intent is converted into revenue, making it an especially strong early candidate for AI adoption.



Uses of AI in E-Commerce Checkout

This author sees several high level functions that AI can provide within the e-commerce checkout experience around fraud prevention, checkout, fulfillment options, upselling, and messaging opt ins.

Improving Fraud Detection with AI

Firstly, AI strengthens fraud detection by identifying unusual behavior or risky transaction patterns at the time of checkout. This work is complex to implement algorithmically, and the major checkout technology providers in this space are already offering or moving toward AI driven solutions for fraud detection.

Dynamically Optimizing Checkout Process with AI

Second, the checkout process and the ease of moving through it are vitally important for converting first time customers into returning customers. This must be balanced carefully against the need to reduce fraud and present upsell opportunities, since too much friction in either direction can result in abandoned carts. Here, AI provides a new capability because it can interpret customer behaviors during the current session and across prior sessions, combining this with intelligence about the buyer to determine whether it should prioritize upselling or streamlining the checkout experience. Getting this correct could lead to major decreases in checkout abandonment while also increasing revenue through more effective upselling.

AI Recommended Fulfillment Options

Thirdly, fulfillment is a unique case because customers vary widely in their preferences. Some are willing to pay a premium for faster delivery, while others prefer more economical options. Whether it involves expedited shipping, consolidated shipments, or environmentally friendly choices, AI can analyze customer behavior and context to recommend the most suitable option, turning fulfillment into a point of satisfaction rather than frustration.

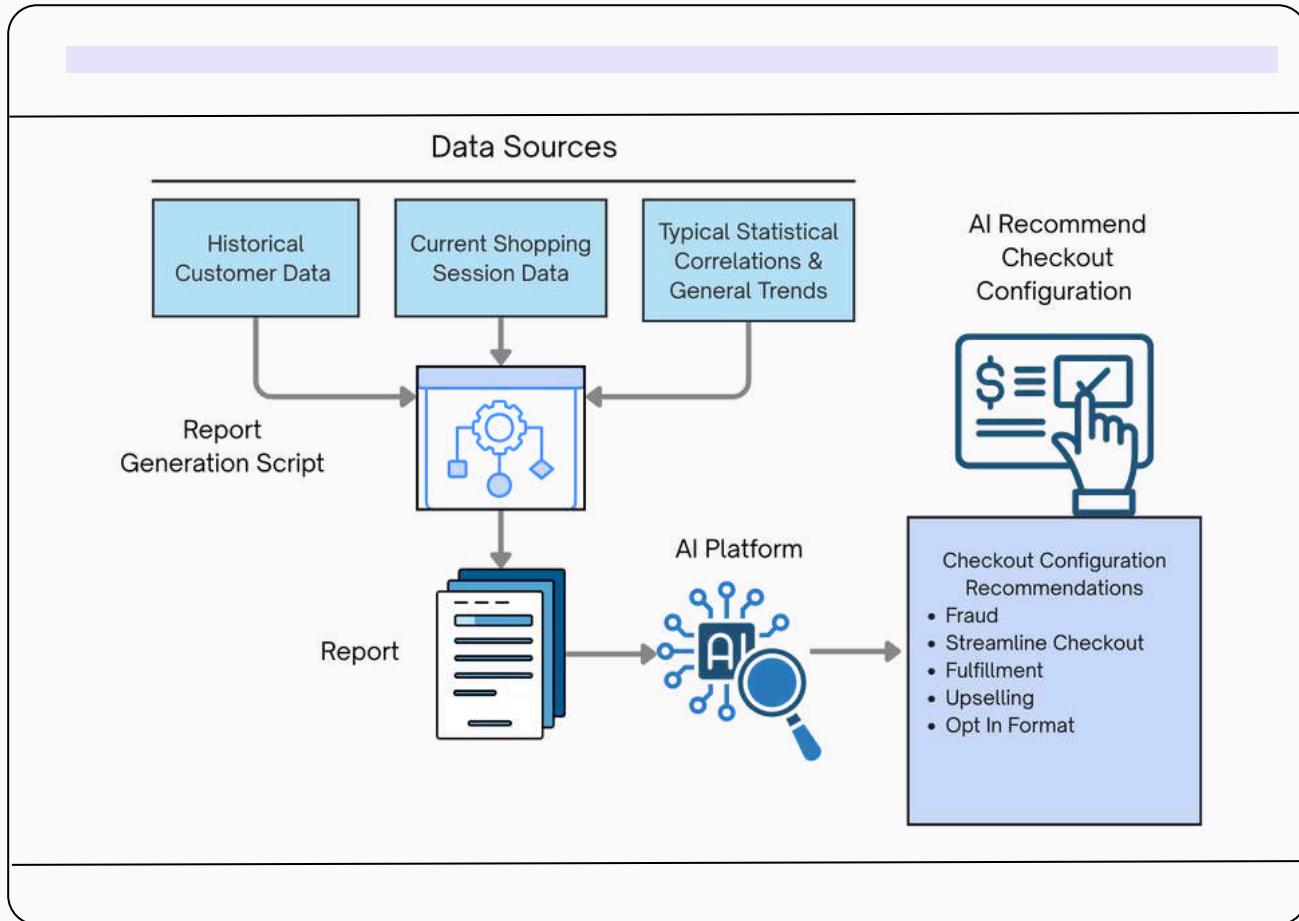
Selecting Attractive Upselling and Cross Selling Offers

Fourthly, add ons, upselling, and cross selling options can be selected and presented based on a deep understanding of each customer including their preferences, past behaviors, and statistically driven correlations. Small additions such as product insurance plans, drink packages for cruises, or accessories for dresses can meaningfully increase revenue when they are relevant to the shopper. Selecting the offers with the highest likelihood of resonating with a particular customer can lead to significant increases in overall revenue.

Improved Opt in for Future Communications using AI

Customers can be encouraged during the checkout process to opt in to future retailer communications. Here, AI can recommend, justify, and articulate the value of communication options that are most relevant to the shopper. For example, it can identify when a customer may be interested in receiving updates about new arrivals or trends in categories they regularly browse such as asking to see the hottest gowns for parties. Effective post purchase messaging that anticipates future high intent buying moments is an important driver of long term revenue growth.

An AI E-Commerce Checkout Architecture



Benefits of this AI Checkout Architecture

Unlike many complex algorithmic systems where decisions are made through opaque software processes, this approach remains transparent and easy for an average e-commerce manager to review. Each step in the workflow can be examined and improved without requiring advanced technical knowledge. The report can include the AI prompts, and the AI explains its reasoning clearly, enabling managers to understand the logic behind each recommendation. This clarity allows decision makers to identify strong insights or correct flawed reasoning when improving the system.

About the Authors



Dr. Brian Scott Glassman is an AI architect, strategist, and product visionary whose understanding of business challenges, business systems, and emerging technologies enables him to identify major opportunities and design solutions that can be effectively deployed.



Gerhard Van Wyk brings 20+ years of contract consulting for large international brands with deep expertise in AI use-case discovery, business case creation, and stakeholder alignment from proof-of-concept to scaled delivery. He specializes in AI-driven ecommerce and payments optimization, with expert C-level communication skills across retail, SaaS, financial payments, and medtech industries.

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