wayfair

Harnessing Generative AI for E-Commerce: Wayfair's Practical Journey

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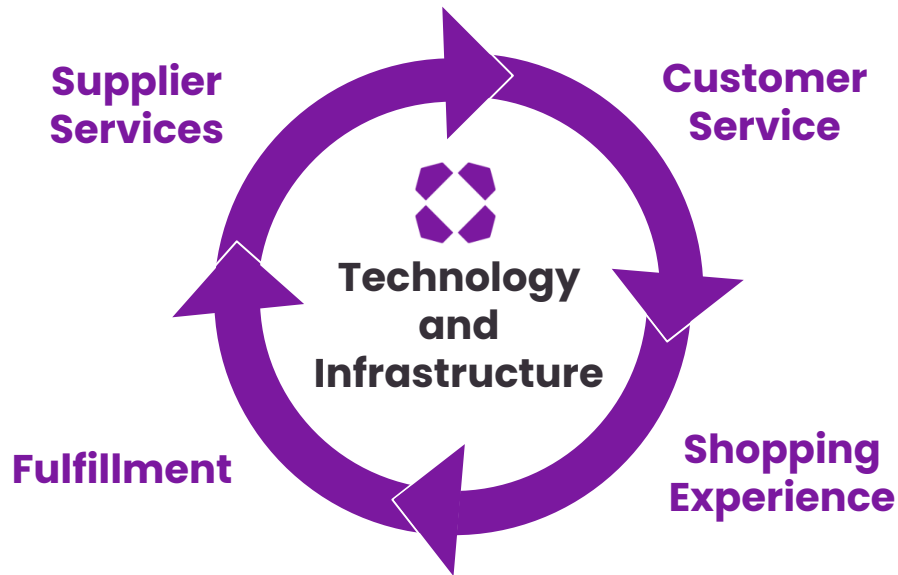
CTO, Wayfair

We are an e-commerce platform
exclusively focused on the home

Suppliers:
›20K

Wayfair partners with
our suppliers to drive
growth via our platform

Supplier Services

Customer Service

Technology and Infrastructure

Fulfillment

Shopping Experience

Customers:
›21M active and growing

Wayfair offers its customers
a 1P experience that
enhances and unifies every
step of shopping
for the home

We bring together suppliers and customers. Our technology
and services create market-leading experiences for both.

As of Q1 2024

Wayfair is a tech-forward company with a customer-first mindset

*We're using data and machine learning
to rapidly enhance our customer experience*

RELENTLESS CUSTOMER FOCUS

Our teams focus 100% on helping customers find perfect items for their homes.

INSPIRATION & GUIDANCE

We're innovating to inspire and guide our customers, especially those unsure of what they're looking for and eager to explore different styles

PERSONALIZATION

We're advancing personalization and simplifying navigation by tailoring our assortment to each customer's unique needs

Our AI Journey

Shopping for the Home Online is Different

Understanding what our **>21 million active customers** mean

Consistency across **>20k suppliers** and understanding of **30+ million SKUs** in our catalog

We are enabling new Gen AI powered capabilities.

Search, Recs & Personalization

Marketing

Merchandising

Pricing

Supply Chain

Sales & Service

Decorify Muse

Developer Assist

Tech Transformation

Finance & Accounting

Product Safety

Talent

Over a decade of ML and AI

Gen AI

Inspire

AI driven visual experiences to drive inspiration

Engage

Customers explore AI driven experiences and interact more

Reinforce Loyalty

Personalize

Enable 100% context aware personalization tailored to each individual customer across the customer journey
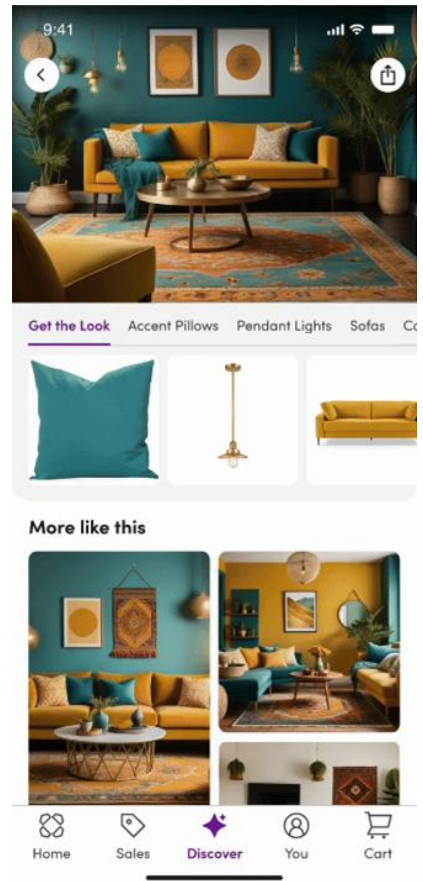
Learn

Capture rich customer insights and scale personalized experiences with advanced modeling and tech
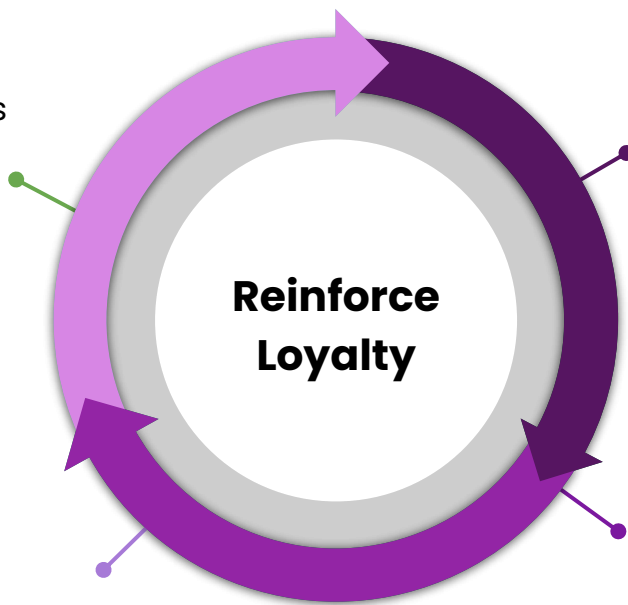
- Leveraging Muse tech we're able to offer **look-based shopping (Shoppable imagery)** to customers seeking help navigating our catalog

- **We'll expand media types** in upcoming cycles, with influencer videos as well as non-AI photos all providing rich embedding data to understand customer intent and feed personalization

- We are adding a Gen AI powered shopping assistant serving up **AI generated product questions**, in addition to a free form text box

- The questions will train on what drives add to cart while also learning what types of questions customers are asking

- Opportunities to expand functionality such as personalized **Comparison tables, embedding chat in marketing emails, and leveraging pop-up agents** to assist customers based on their browse behavior"
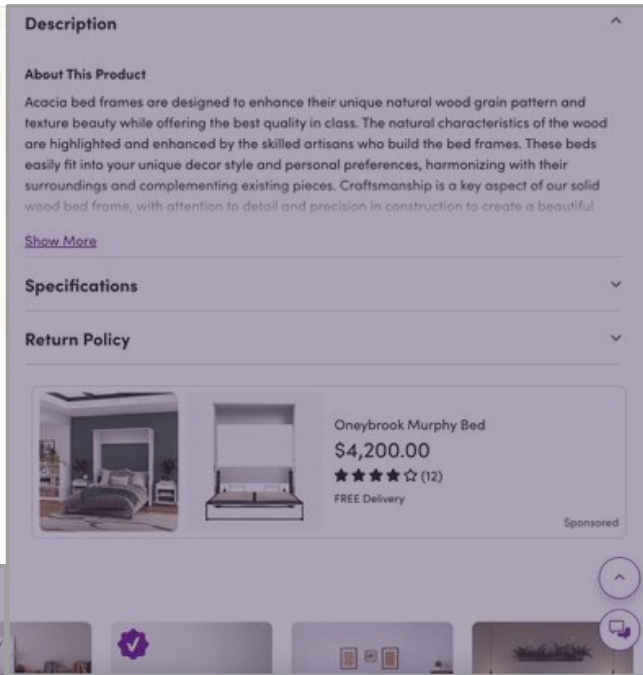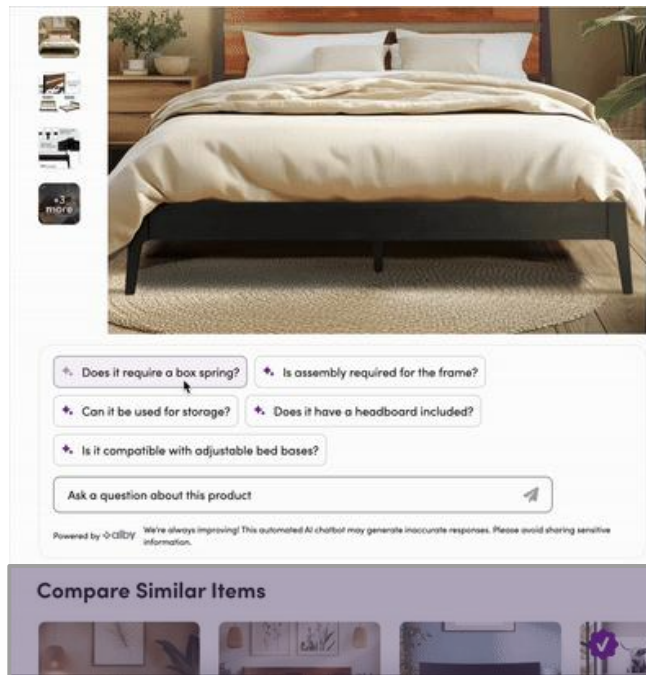
We're making our product page more immersive and engaging

- We're helping customers understand why they should buy from us by leveraging **Wayfair Verified content** and our own **user generated content along** to quickly build customer trust in purchasing from Wayfair

- **AI will play a huge role** in helping summarize **key product attributes, user sentiment, verified "why we love" it**
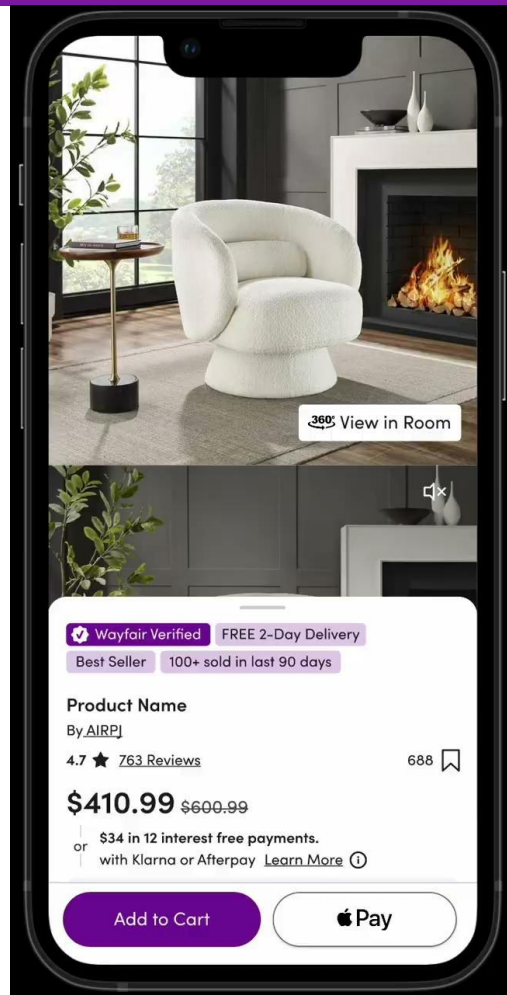
Strong model foundation

State-of-the-art models amplify our understanding of customers and products

Proprietary foundation model transformer deeply personalizes most relevant SKUs

Product understanding enriched with data from merchandising and science teams

Updated architecture

Highly flexible schema will enable any strategy to be used on any page, with any context

Modular building blocks decouple product strategies from UX modules

GenAI acceleration

GenAI enhances product understanding and accelerates testing of copy and imagery

GenAI copy and imagery used in Product Listing Ads and email subject lines

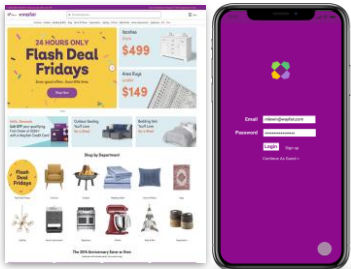Semantic search is powered by GenAI product attributes and multi-modal capabilities
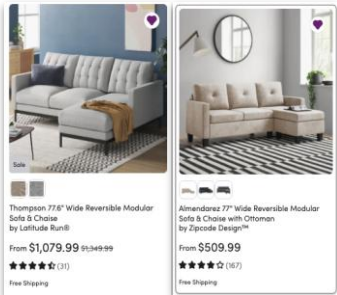
"Wayfair just gets me"

100% Personalized email & notifications
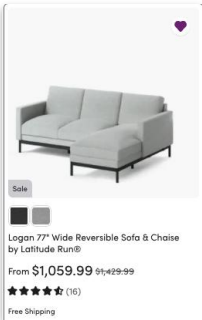

100% Personalized Home Page


100% Personalized Search

100% Personalized PDP

Personalization helps us inspire, engage, build trust, retain customers, and increase share of wallet to drive long term customer lifetime value

Enriching the Catalog with AI

- **A Universe of Choice:** Navigating >30 Million unique products for the entire home.

- **Diverse Supplier Ecosystem:** Integrating data and inventory from >20,000 global partners.

- **The Information Challenge:** Managing immense variety in product types, styles, specifications, imagery, and supplier data feeds daily.

- **Critical Customer Impact:** Accurate, rich, and consistent product information is the bedrock of effective search, personalization, and purchase confidence.

- **Beyond Manual Scale:** Traditional methods simply cannot maintain the quality, depth, and consistency required across this vast and dynamic catalog.

- **The AI & Gen AI Imperative:** Essential to structure, enhance, and unlock the true value of our product catalog – turning complexity into a competitive advantage.
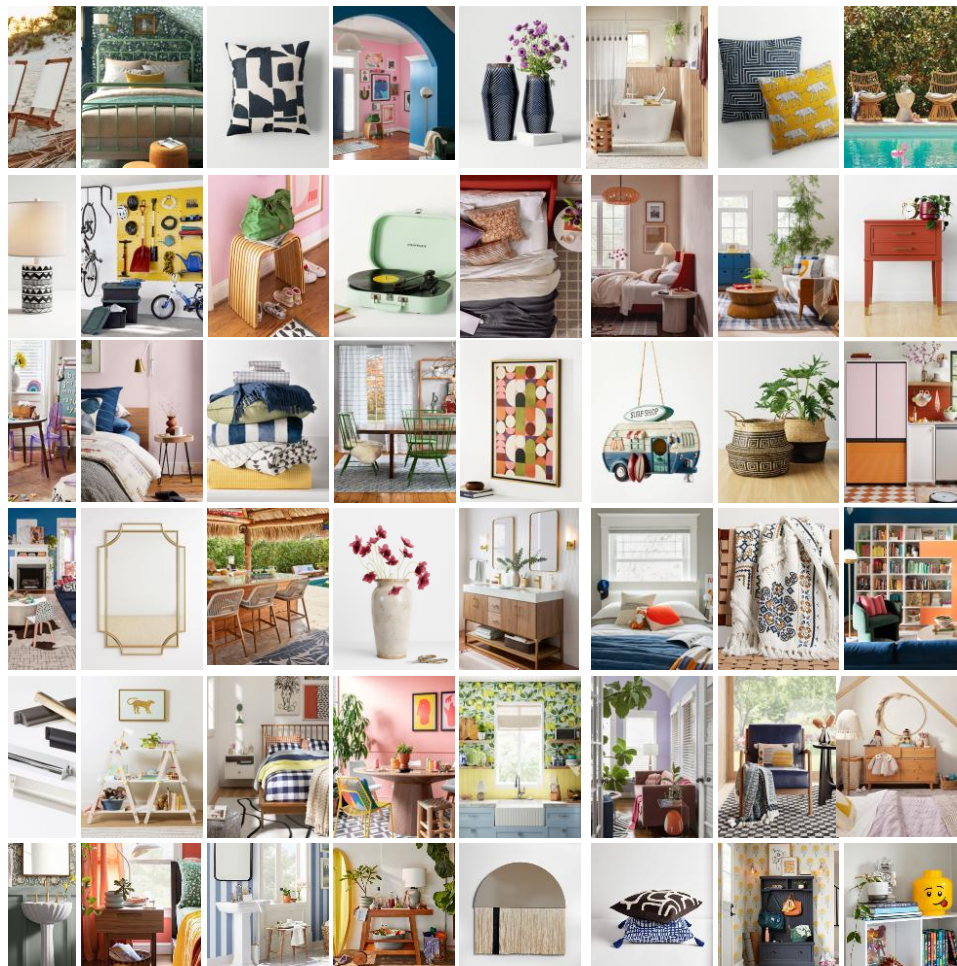
Enhancing Discoverability & Filtering

AI automatically generates & tags key product attributes (e.g., Color, Material, Style) from descriptions and images.

Gen AI-created data powering site filters

Ensuring Accuracy & Completeness

Leveraging Gen AI (text & multimodal) to identify inconsistencies and suggest corrections for critical data like dimensions.

Leveraging Deep Product Understanding (Multimodal AI)

Deployed Wayfair's fine-tuned Catalog Multimodal Foundation Model - specialized for home goods.

Driving Customer Lifetime Value through Seamless Support

AI powered service agent assist features to enhance agent productivity

Scaling customer support with Gen AI-powered agent

AI-enabled agentic system for triaging and solving supplier tickets

Reduction in Average Handle Time

Reduction in live agent calls

Reduction in Ticket Response times

- LLM-Agnosticism is Key: Flexibility avoids lock-in, optimizes cost/performance.

- Ecosystem Change > Point Solutions: Real transformation requires integrating AI into workflows, not just replacing old models.

- Scalable Platforms are Crucial: Needed for rapid iteration & emerging Agentic AI patterns.

- Disciplined ROI Focus: Measure value rigorously; manage costs (hosting, pricing models)

- Talent & Adoption: Ongoing investment in training and change management is vital.

Key Takeaways

✔ **Gen AI is powerfully accelerating E-Commerce**

✔ **Success requires a practical, iterative approach focused on real customer & business problems**

✔ **Leverage existing AI foundations; build for Gen AI's unique capabilities (understanding, generation, action)**

✔ **Measure rigorously, embrace the learnings and adapt quickly**