
Original Research Article

AI's dual impact: A comparative analysis of intelligent color solutions in graphic design and operational precision in e-commerce logistics

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Abstract: This paper gives an in-depth exploration of the transformative ability of Artificial Intelligence across graphic design and e-commerce logistics. It examines how Canva and Adobe apply AI to change visual communication and how Amazon deploys AI for record-breaking operational efficiency and predictive accuracy. For graphic design, neural networks and computer vision in applications like Canva's Color Palette Generator popularizes graphic design for a mass user base by decomposing advanced color theory. Adobe with its proprietary Adobe Sensei platform integrates AI across Creative Cloud to augment professional capabilities while driving innovation and brand consistency.

Keywords: artificial intelligence (AI); graphic design; e-commerce; warehouse management; demand forecasting; canva; adobe; amazon; machine learning; robotics

1. Introduction

This paper makes an earnest effort to be a keen analyst of AI's transformative impact by undertaking a profound analysis of its strategic implementation in two very different yet equally significant domains: the creative industries represented by graphic design websites, and the highly complex operational scenario of e-commerce supply chain logistics.

2. Canva

Canva is more than a tool for individual users but has now evolved into a whole workplace platform, controlling team collaboration and brand management. Canva has a whole set of powerful color tools that will help in making stunning and coherent designs in a breeze. While the tools are excellent for seasoned designers and beginners in the business too, the color selecting process has been significantly made easier^[1].

AI technologies that are behind the color intelligence are neural networks, computer vision, and machine learning algorithms. These tools analyze large amounts of image design and artwork, processing visual information and determining color

3. AI application techniques and outcomes in adobe color

Adobe's deep integration of AI, driven by Adobe Sensei, fundamentally transforms how designers interact with color, enhancing efficiency and expanding creative possibilities. Adobe Sensei is blogs.perficient.com/2025/06/01/adobe-sensei-and-genai-in-practice-for-enterprise-cms/. In color, Sensei uses advanced AI and ML principles: Contextual and semantic understanding, where AI interprets the "meaning" of colors within an image beyond numerical values—For example, "Project True Colors" analyzes photos for color undertones to recommend personalized clothing palettes, while "On-brand Recolor" intelligently avoids recoloring semantic regions like "skin, water, and grass"; algorithmic complexity, as deep-learning algorithms trained on enormous datasets of professionally graded images acquire sophisticated color relationships and best practices for design; automated correction and matching, with Sensei powering "Auto Color" and "Color Match" in Premiere Pro for intelligent color correction and consistency across video shots, while Lightroom's "Adaptive Profiles" use AI to selectively adjust image regions and naturally recover details; and style transfer, where the "Deep Photo

Style Transfer" technology—Created with Cornell University—Transfers a color and lighting style from one photograph to another while maintaining structural integrity^[2].

Adobe incorporates AI within some professional color tools: AI-Driven Palette Creation: Adobe Color makes recommendations for coherent palettes from images or keywords using Sensei. Illustrator's "Generative Recolor" (driven by Firefly) changes vector art colors from text prompts so that "infinite color combinations" can be explored quickly.

AI-based Color Correction & Grading: "Content-Aware Fill" in Photoshop easily eliminates objects with color continuity. Lightroom's "Adaptive Profiles" offer AI-powered dynamic corrections. "Auto Color" and "Color Match" in Premiere Pro allow for uniform color and lighting between video shots.

AI Generative Recolor: This Illustrator feature that is powered by Firefly enables designers to rapidly try out varying color sets for vector images with basic text prompts that greatly speed up ideation.

AI Style Transfer for Color: This data-driven algorithm transfers a color and lighting style from one image to another, allowing for advanced aesthetic changes.

4. Introduction of amazon

Amazon, which began as an online bookseller in 1994, has expanded from an online bookseller into a global retail powerhouse. As a global e-commerce giant, it has been at the forefront of using AI. Its core business, including supply chain management, warehousing logistics, and consumer services, is significantly integrated with AI technology, which maximizes operational efficiency and enhances the consumer experience. In its warehouse logistics, Amazon uses robotic systems, such as Kiva robots, which it acquired for \$775 million in 2012, to carry shelves to workers, thereby enhancing working efficiency^[3]. It also uses automated guided vehicles and conveyor belts to move and sort products faster, which reduces labor costs and potential mistakes.

5. Definition of warehouse management and its process.

AI in warehouse management refers to the process of combining intelligent technologies and warehouse systems, which enhances the operational efficiency, accuracy, and adaptability of several logistics functions. AI will optimize inventory placement, guiding autonomous robots to pick items and predict order patterns to streamline warehouse workflows. It fosters intelligent decision making through real-time data analysis, enabling predictive maintenance, demand prediction, and dynamic resource allocation. According to a 2023 Accenture report, a combination of IT and factory technology, such as using AI in sensors and robots, will greatly change how warehouses work in the next ten years. ("Ai Can Supercharge Warehouse Management. Here's How." Oracle ASEAN, www.oracle.com/asean/scm/ai-warehouse-management/#explained. Accessed 23 July 2025.) AI systems can process large volumes of data to identify consumer demand trends, recommend optimal picking routes, and detect machine problems to reduce downtime and increase productivity. It also uses computer vision to design more efficient warehouse layouts and improve order accuracy^[4]. AI in warehouse management goes beyond automation by integrating intelligent systems into all aspects of operations, such as inventory management, to improve responsiveness, flexibility and cost efficiency.

6. Amazon robotic warehousing system

Robotic warehousing systems play an important role in Amazon's logistics strategy. Amazon integrates the automation into its storage, picking, and shipping warehouse operation process, to enhance speed, accuracy, and scalability. The use of autonomous mobile robots, especially the Kiva system, allows robots to bring shelves to human workers instead of workers through aisles. This running mode significantly decreases picking time and labor intensity. Amazon's robotic warehousing systems have reduced average picking time to less than 15 minutes, while also minimizing potential human error.

These improvements align with the essential warehouse function, where efficient order fulfillment is crucial. Therefore, Amazon's robotic warehousing is not just about replacing labor, but also about optimizing the logistics performance of the entire system.

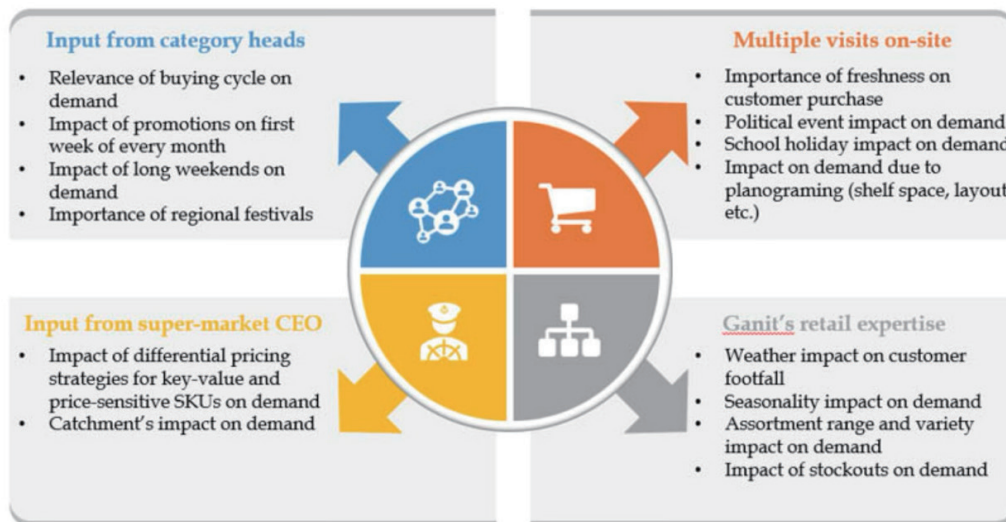


Figure 1. Deep learning prediction model.

One of the most sophisticated tools utilized by Amazon is DeepAR, a deep learning forecasting model from Amazon Web Services . DeepAR uses autoregressive recurrent neural networks on large-scale time series data for precise forecasting of customer behavior in thousands of product categories. DeepAR has greater scalability and accuracy compared to traditional statistical approaches, particularly in high-variability settings such as e-commerce

Amazon forecasting system depends on pattern identification within customer activity as well. A repeated seasonal buying pattern or a drastic increase in keyword search, for instance, is responded to in real-time in order to adjust according to changing pReferencess. That way, Amazon is in a position not only to adjust stock but even suggest related products to the user. This approach involves computing "search history, clickstream data, and time spent on each product page" to decipher users' buying intentions.

Describing further on forecasting demand, Agoro, Habeeb, and Emily White spotlights the usage of multi-modal learning models through the combination of textual reviews, product images, and numerical grades in attempting to infer popularity and changes in trends.

Amazon practices the same methods by making use of customer reviews and visual inputs in attempts at re-ranking product placement and replenish schedules^[5]. A product with good grades and rising positive reviews and image shares might appear in the early replenish list. In addition to this AI infrastructure, Amazon uses A/B testing to confirm model assumptions. For instance, when predicting the demand for a new product category, Amazon may conduct micro-experiments by exposing the product to potential users and observing engagement metrics like the click-through rate , conversion rate, and add-to-cart counts. Findings are then inputted into the system in order to refine the accuracy in making predictions.

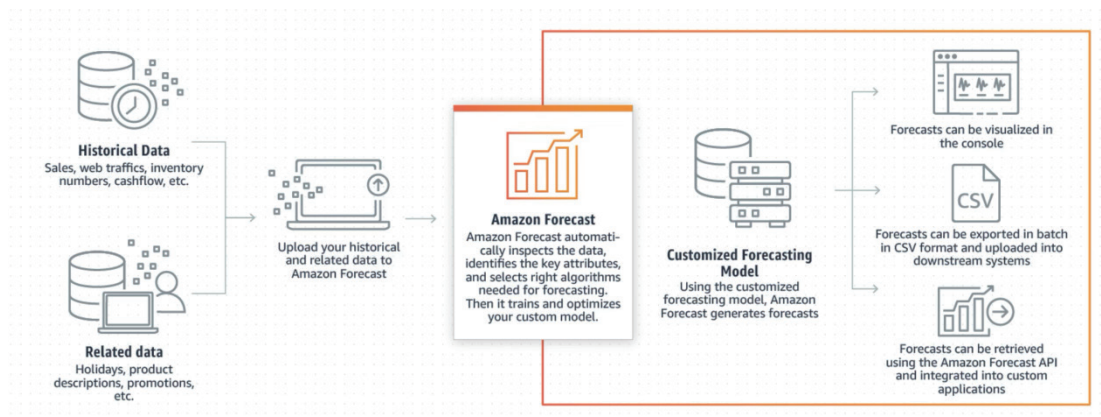


Figure 2. Verification of model assumptions.

Overall, the method instituted by Amazon for predicting customer needs is a synthesis of adaptive feedback loops, behavioral analytics, and deep learning. It reflects the multi-layer approach and the multi-modal in a distinctive holistic system, which reduces the risk of over- and under-stock by tailoring the customer experience.

7. Conclusion

This paper has deeply discussed the transformative effect of Artificial Intelligence in the different spaces of graphic art and e-commerce logistics with References to Canva, Adobe, and Amazon as leading case studies. We have seen how AI makes graphic art democratic with user-friendly tools in Canva so that more people with a broader demographic profile achieve professional-grade designs. Meanwhile, Adobe's sophisticated Adobe Sensei platform illustrates AI's potential for enhancing professional workflows that push artistry further while maintaining industry-grade precision. In e-commerce delivery, Amazon illustrates AI's promise for achieving record levels of operational effectiveness. From warehouse robotics optimization to highly accurate predictive demand planning with machine learning computing, AI underlies its highly seamless logistics network. On a larger canvas, these diverse applications illustrate AI's multi-pronged role: it does not simply automate and fine-tune but also facilitates human imagination and redefines performance standards for numerous industries. Continuing AI incorporation alongside AI evolution will further drive innovation that fundamentally reorganizes ways businesses operate along with people's interactions with technology.

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