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New Frontiers in Retailing

Enhancing Customer Experiences Through Artificial Intelligence

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Executive Summary

The following white paper sets out to describe two key focus areas and their impact on customer personalization – how artificial intelligence can enhance backend data processing and how artificial intelligence can revolutionize the customer-facing experience. We will explore these topics in depth via a variety of case studies, primary observations, and secondary research, with each section anchored on a central thesis.

Section I: The Logic – Improving Backend Data Processing through AI
Thesis: Integration of AI into the sales, marketing, and customer relationship management functions is necessary for companies to enhance customer personalization, foster long-term loyalty, and remain competitive in the broader retail landscape.

Case Studies:
- Data-Driven Insights – *Zoho*
- Predictive Analytics – *Salesforce*
- Automation – *Bouygues Telecom*

Section II: The Magic – Enabling Personalized Retail Experiences through AI
Thesis: The rapid development of AI-powered emerging technologies is creating more opportunities for retailers and brands to revolutionize the personalized shopping experience for customers.

Case Studies:
- Emerging Technologies in Retail Personalization
    - Computer Vision – *Sephora*
    - Intelligent Routing and Customer Sentiment Detection – *Camping World*
    - Sensor Fusion – *Amazon Go*
    - Indoor Positioning Systems and Geofencing – *Aswaaq Supermarkets*
- Leveraging Internal Data and Technology in Clienteling – *Moncler*
- Merging Internal and External Technology in Clienteling – *Neiman Marcus*
- Product Discovery – *Graffiti*

Section III: Tradeoffs and Conclusion

Introduction

From qualitative, one-to-one insights gathered at the Bloomingdale's store counter by Ms. Estée Lauder in the 1960s to Emily Weiss' creative use of her *Into the Gloss* blog to crowdsource consumer input for Glossier, the methods of gathering consumer insights have evolved with technology but remain the foundation of today's strongest brands and retailers. Since the initial release of Open AI's Chat GPT in November of 2022, there has been an exponential increase in the availability of advanced diagnostic, generative, and predictive AI platforms and technologies. AI has become the forefront of conversation across industries, including retail. AI, however, is not the only technology revolutionizing the customer experience and the ability of brands to tailor personalized experiences.

Section I: The Logic – Improving Backend Data Processing through AI

Thesis*: Integration of AI into the sales, marketing, and customer relationship management functions is necessary for companies to enhance customer personalization, foster long-term loyalty, and remain competitive in the broader retail landscape.*

AI is fundamentally reshaping sales, marketing, and customer relationship management (CRM) within the retail landscape. Its robust natural language processing capabilities empower retailers to more accurately segment leads and customers based on their interactions and data. This precision extends to reporting and predictive analytics, where AI swiftly sifts through large datasets to produce comprehensive insights on customers, leads, and sales trends.

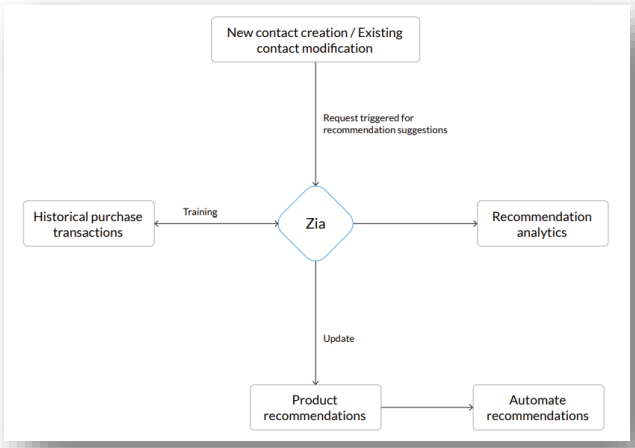
Market projections underscore the pivotal role of generative AI in CRM, with an anticipated market size of approximately $119.9 million by 2032, marking a significant surge from $19 million in 2022.The integration of AI into CRM systems is becoming imperative for retailers striving to maintain their competitive edge. This necessity stems from the various benefits AI brings, such as revolutionizing CRM processes, elevating customer engagement, and fostering personalized experiences that resonate with customers, ultimately enhancing satisfaction.

Data-Driven Insights

One of the primary benefits of AI in CRM systems is its ability to analyze large amounts of customer data, providing a comprehensive history of customer relationships. This analysis is crucial when making accurate predictions and recommendations for sales representatives, empowering them with actionable data-driven insights to enhance customer interactions and personalization.

The volume and complexity of data available can be overwhelming for companies to analyze and extract meaningful insights and patterns. Generative AI helps by analyzing complex data sets and uncovering hidden connections. This leads to improved lead scoring and more precise sales forecasting within the CRM. Additionally, AI helps to reduce churn rates by identifying customers at high risk of churn and implementing early intervention strategies to foster long-term customer loyalty.

AI-driven CRM systems also improve customer segmentation by categorizing customers into distinct segments based on various factors such as behavior, preferences, demographics, and purchase history. This segmentation strategy enables businesses to tailor marketing efforts more effectively, crafting personalized customer experiences that resonate with each customer segment. This targeted approach not only improves conversion rates but also strengthens the brand-customer relationship, driving growth and a competitive edge within the retail landscape.



Source: Zoho Website

Case Study: Zoho CRM provides a wide range of data capabilities through its AI assistant, Zia. For example, one functionality is a recommendation builder. Zia analyzes customer data (purchase history, demographics, online behavior, etc.) and provides sales representatives with product or service suggestions, aiding them in tailoring communications and promotions to each customer's needs. These recommendations also improve upselling opportunities across a retailer's platform. The below diagram depicts the workflow of the recommendation builder within the Zoho CRM.

Business Implications: For firms that are lagging on technology adoption or are within the small to medium size range across all customer-facing industries, data driven AI insights within a CRM platform is a seamless entry point to the software. CRM management optimized by AI will allow these companies to utilize their customer data by optimizing customer maintenance and management more wholly, fueling growth and customer retention within a streamlined hub.

Predictive Analytics

Another primary benefit of AI in CRM systems is its advanced predictive analytics capabilities. By analyzing extensive datasets, AI algorithms can identify intricate patterns, predict customer behavior, and generate high-quality leads. AI's predictive abilities enable organizations to forecast trends and drive data-informed decisions such as making proactive adjustments to marketing campaigns and creating sales strategies based on customer behavior. This proactive approach enhances customer satisfaction and fosters increased engagement and loyalty.

AI-driven predictive analytics also facilitate enhanced product recommendations and upselling opportunities, creating a more personalized shopping experience for customers. By tailoring product offerings to match customer preferences, retailers can increase customer satisfaction while also driving revenue.

Source: trailhead.salesforce.com

Case Study: Salesforce, a leader in CRM solutions, has an AI component called Einstein that provides insightful recommendations and predictions. For example, it will predict how soon an opportunity will close and prepare suggested improvements on how to prioritize efforts to improve the predicted outcome. The visual to the left is an example of an Einstein Discovery predictions panel on a "Lightning" page.

Business Implications: Predictive analytics can be leveraged across retail sales departments for tasks such as lead generation, sales forecasting, and trend prediction, offering a smarter way for firms to attract and maintain customers. Smaller firms can use this functionality to grow new client segments as they attempt to gain traction in a desired market. Larger firms can use predictive analytics to build on sticky, existing channels as well as source unique leads beyond their current footprints.

Automation

AI-powered systems play a crucial role in automating repetitive and time-consuming tasks within CRM platforms such as data entry, lead qualification, and customer support processes. By leveraging AI capabilities, these systems streamline communication channels, leading to increased efficiency and reduced manual workload for sales and customer service professionals. This automation saves valuable time and allows professionals to focus on building deeper relationships with customers and delivering more personalized experiences.

Case Study: Bouygues Telecom worked with IBM Consulting to improve its call center operations through the implementation of AI models for automatic call summarization and topic extraction. The result was CRM generated actionable insights, leading to ~$5M in savings and a 30% reduction in call operations.

Business Implications: For firms of all sizes, automation can severely reduce the time spent on backend administrative tasks such as data entry, customer support, order processing, and workflow tracking. In the case of a nascent firm, using AI automation via chatbot or voice call for frequently asked questions or purchase history can alleviate the need for limited employees to correspond on trivial customer engagements. Sizeable firms can also benefit from automation in large scale data aggregation such as processing thousands of invoices and monitoring for billing errors.

Section II: The Magic – Enabling the Customer-Facing Experience through AI

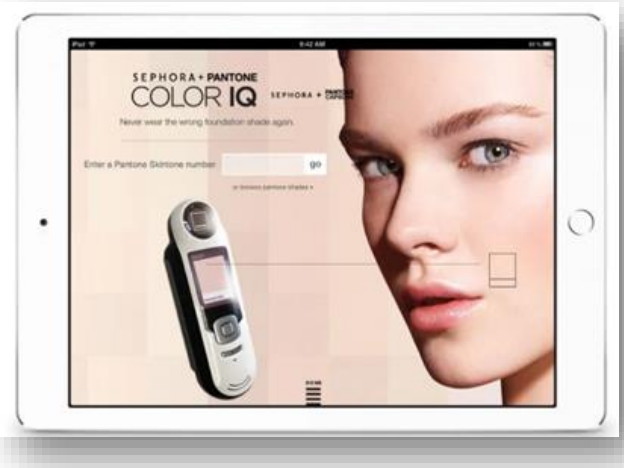
Thesis: *The rapid development of AI-powered emerging technologies is creating more opportunities for retailers and brands to revolutionize the personalized shopping experience for customers.*

Traditionally, personalization in retail was largely dependent on the interactions between sales associates and customers, where the associate would gather intel about the customer through direct conversations to better understand shopper preferences and needs. Today, advanced AI technologies have transformed this approach. According to a recent study by Accenture, consumers have strong preference for personalized shopping experiences: 56% of shoppers favor retailers that recognize them by name, 58% are more likely to purchase when recommended products based on past behavior, and 65% prefer stores that remember their purchase history. Overall, this means that 75% of consumers are more likely to buy from retailers offering personalized services, demonstrating the substantial impact of personalization on customer loyalty and sales. Technology like computer vision, intelligent routing, sensor fusion, and indoor position systems are accelerating the access and rate of personalization for retailers and brands, making the customer-facing experience completely tailored to the client.

Emerging Technologies in Retail Personalization

1. **Computer Vision**

AI can derive meaningful takeaways from digital objects through computer vision. As machine learning systems learn patterns from visual inputs such as images or videos, they are trained to offer recommendations or recognize defects in a process. Within retail, computer vision can be used to aid in product optimization, such as telling a grocer to restock their shelves or suggesting a specific item for a segment of customer that operates a certain way.



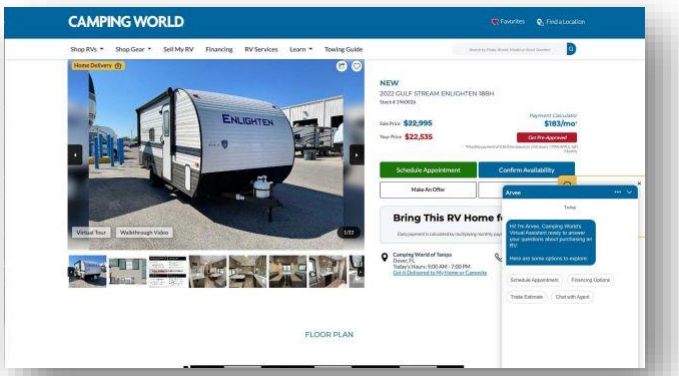
Source: Sephora Website

Case Study: Sephora Color IQ, AI-powered devices used by sales assistants, scans customers' skin tones and recommends perfectly matched products. This system not only improves customer experience by providing personalized recommendations, but also stores each interaction's data to refine future recommendations. In 2023, Sephora notably leveraged this technology for an interactive, digital installation called “Sephora Illumination,” which visualized the beautiful diversity of Pantones captured within Canada’s borders, illustrating how the company leveraged data to enhance unique, localized customer experiences.

Business Implications: Computer vision will be leveraged across brick-and-mortar retail operation functions, from grocery and big box retail to beauty and fashion. It will optimize the customer experience for beauty and fashion, where personalization, color match and sizing are critically important. Computer vision enhances the customer experience by providing personalized recommendations and efficient inventory management, boosting customer satisfaction, sales and loyalty through ensured product availability and tailored offerings.

2. **Intelligent Routing and Customer Sentiment Detection in Customer Care**

AI is transforming contact centers by offering a range of applications to enhance customer service. Firstly, AI-driven knowledge base software enables customers to independently resolve issues, thereby reducing call volumes and streamlining knowledge management for call center teams. Secondly, through intelligent routing, AI analyzes requests and directs customers to the most suitable agents, minimizing call times and transfers. Additionally, AI aids in call monitoring by generating accurate call transcripts, analyzing interactions for insights, and evaluating agent performance against service goals and benchmarks. Furthermore, AI automates post-call tasks such as summarizing tickets and providing full call transcriptions, thereby saving agents time and effort. Finally, using NLP algorithms, AI detects customer sentiments in real-time conversations, allowing agents to adjust their responses accordingly or escalate issues when necessary for prompt resolution. Overall, AI-driven solutions optimize contact center operations, improve agent efficiency, and enhance the customer experience.



Source: IBM Website

Case Study: Camping World, a leading RV retailer that faced issues with response times and agent management, sought to modernize their contact centers. Partnering with IBM Consulting, they deployed a cognitive AI tool, to enhance customer interactions. IBM's Watson AI Assistant seamlessly integrated with LivePerson's conversational cloud platform, facilitating dynamic routing and capacity management. This virtual agent ensures faster response times, lead generation, and smoother handoffs to live agents, significantly improving customer experience. The implementation led to increased customer engagement, shorter wait times, and enhanced agent efficiency.

Business Implications: Customer experience and customer care teams across retailers and B2B retail service providers will be impacted by routing technologies. These AI-driven systems can considerably reduce operational costs, improve customer satisfaction, and streamline service efficiency by automating customer service routing and leveraging

sentiment analysis. Nevertheless, the deployment of such systems requires ongoing maintenance and updates to handle evolving customer interactions. There are notable tradeoffs in leveraging AI for customer care versus human-to-human interaction for customer service needs. Luxury retailers will have to evaluate how to engage AI based service technology while not compromising the luxury experience.

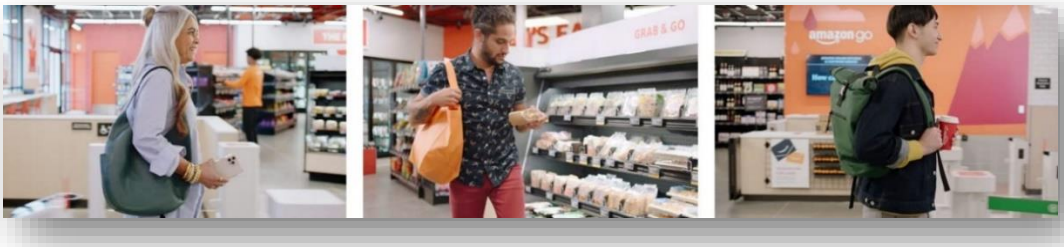
3. **Sensor Fusion**

Sensor fusion is the process of combining data from multiple sources, such as radar, lidar, and camera sensors, to provide more accurate and reliable information than what could be obtained from any single source alone. This system aims to streamline the shopping process by removing unnecessary steps in purchasing, checkout, supply chain, and inventory management, like the automation seen in self-driving cars.

Case Study: Amazon's "Just Walk Out" technology in Amazon Go stores perfectly exemplifies the cutting-edge application of sensor fusion in retail. Their system involves precise calibration where each camera is accurately positioned within the store to monitor shopper movements and interactions. It employs advanced person detection algorithms to continuously identify and track everyone in the store, alongside object recognition capabilities that distinguish between different items being sold.

Additionally, pose estimation technology is used to assess the actions of shoppers near shelves, specifically their arm movements. Activity analysis algorithms then determine whether an item has been picked up or returned to the shelf. All these elements work in concert to update virtual carts in real-time, ensuring that customers are automatically charged for their purchases via their credit cards or digital wallets as they exit the store, akin to Amazon Go stores which offer a streamlined, cashier-less shopping experience.

Business Implications: Sensor fusion will impact store operations and visual merchandising teams as well as evolve the role of the sales assistant for brick-and-mortar retailers; luxury, however, is less likely to be impacted by this technology as it would impersonalize the brand experience. Sensor fusion optimizes shopping processes, such as inventory management and checkout, by providing frictionless experiences that attract more customers. This technology improves accuracy and reliability of inventory systems, requiring a significant upfront investment, However, in the long-term, it can lead to significant savings through reduced labor costs and increased customer output.



Source: Amazon Website

4. **Indoor Position Systems (IPS) and Geofencing**

   IPS and Geofencing are transforming retail by merging digital and physical shopping experiences, further enhancing customer interaction and store operations. IPS allows retailers to track and analyze customer movements within their stores, aiding customers in product location and navigation. This technology also enables the delivery of personalized discounts and promotions, directly enhancing customer engagement and boosting conversion rates. Geofencing complements IPS by setting up virtual boundaries that trigger specific actions in a customer's smartphone app when they enter a store, such as switching the app to in-store mode and displaying a store map with product locations.

   Case Studies: Aswaaq supermarket chain in Dubai has implemented a connected lighting system. This system interacts with the brand's app to guide customers to items on their shopping lists with precision, significantly enhancing the shopping experience. Another prominent example is The Dubai Mall, the world's most visited shopping center, which has implemented a sophisticated IPS to enhance the wayfinding experience for its visitors across its expansive 5.9 million square feet featuring over 1,200 stores. The system offers location services on mobile devices that integrate real-time with the mall's smartphone app, connecting visitors with special retail offers and information.

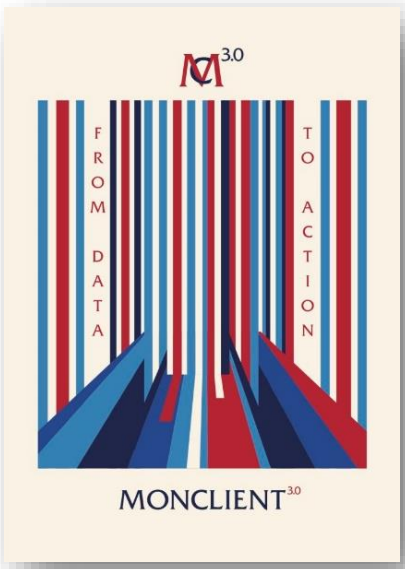
   Business Implications: IPS and Geofencing will impact customer engagement and marketing teams for all brick-and-mortar retail environments. These technologies will also enhance the role of the sales associate, who will need to answer related questions and support customers in store, connecting the digital with physical. IPS and Geofencing successfully integrate digital and physical retail strategies to improve customer engagement and operational efficiency within the store. They enable highly personalized marketing and customer services, which can increase sales and conversion rates. Conversely, this technology also poses challenges in managing data privacy concerns and maintaining consumer trust.

Leveraging Internal Data and Technology for Personalized Clienteling Experience

While leveraging external technology can be an effective use of resources, some companies have also developed their own tools, allowing them to integrate and connect data from internal databases to optimize the client experience more seamlessly. Improving the luxury client experience across channels has direct financial benefits for companies. As Neiman Marcus CEO Geoffroy van Raemdonck noted, a customer who shops across channels spends 5x more on average, and a close relationship with a client advisor drives 12x more spend on average.

Additionally, Bain's research study, as noted in its 2023 Luxury Technology Report, found that "for 61% of customers, the relationship with the sales associate is the key factor in creating a remarkable experience whether in-store or beyond." Technology can empower client advisors by equipping them with data, such as clients' purchase and return history, to offer personalized experiences.

Case Study: Moncler has turned to its evolving Monclient app to optimize and personalize the client experience across all channels. Through customer data collection, the brand has developed a similar metric to Net Promoter Score, referred to as their "VIBE" score, which is calculated from post-purchase customer ratings covering various aspects of the purchase experience. Importantly, individual scores from each purchase experience are shared with client advisors through Moncler's clienteling app, with the expectation that client advisors will act in accordance with the customer's feedback and further tailor their communications. This feedback loop serves both a short-term outlook through personalized responses and a long-term optimization of client advisor relationships through aggregation of client feedback and preferences.

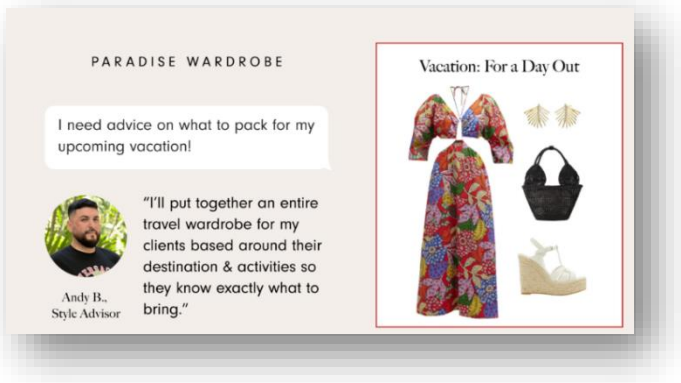


Source: Pinksalt.it

Furthermore, while many brands struggle with CRM, Moncler has managed to effectively integrate CRM data into its clienteling app, Monclient, to place key customer insights and preferences in the hands of client advisors. According to Moncler Group, "the application is based on a centralized and integrated management of the CRM calendar," and the app's features are continuously evolving to improve areas including client relations.

Business Implications: Clienteling technologies will impact sales associates, as well as customer engagement and marketing teams for brick-and-mortar retailers that have significant sales associate interaction such as fashion, home goods, and beauty. Companies with strong CRM databases will be best positioned to take advantage of these technologies to engage customers and enhance the in-person experience at a lower cost; cleansing CRM and building in-house applications will require upfront investment with the upside of higher customer lifetime value.

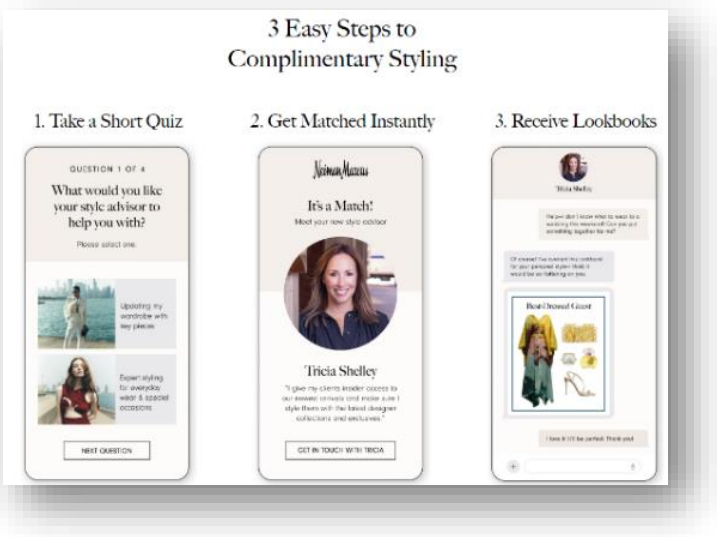
Merging Internal and External Technology for Personalized Clienteling Experience



Source: Neiman Marcus Website

When it comes to implementing AI solutions, brands can also incorporate new external technology into their existing solutions to optimize internally developed tools.

Case Study: Through the acquisition of the machine learning platform Stylyze, Neiman Marcus has been able to build upon its custom-built clienteling app, Connect, to deliver a more personalized clienteling experience. Stylyze, which described



Source: Neiman Marcus Website

itself on its social media channels as a "discovery platform that helps you find and coordinate products based on the colors and styles you love" was initially developed as an interior design solution. Through acquiring Stylyze and integrating its technology with the Connect app, Neiman Marcus has been able to empower its style advisors with AI-powered style recommendations. Especially notable given every retailer's focus on omnichannel, the app's personalized style recommendations are utilized across in-store, e-commerce, and remote selling experiences.

Business Implications: Optimization solutions like Stylyze will impact client engagement, marketing, and merchandise planning teams as well as sales associates. While most pertinent to fashion, this technology could be applied across sectors, from recommending items in grocery shopping carts to suggesting beauty routines. This technology will be leveraged both internally to optimize assortment and externally to enhance consumer engagement with retailers.

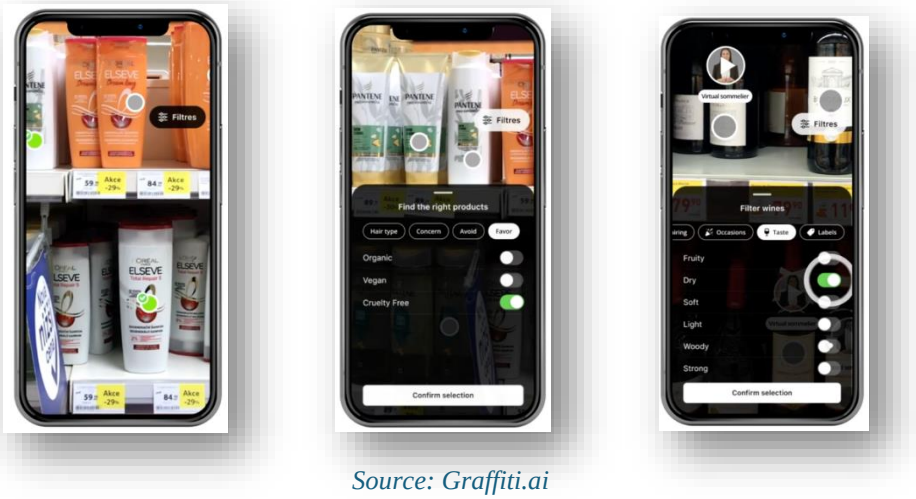
Product Discovery Enabled by Augmented Reality

As the retail industry moves from omnichannel to a unified customer experience where the digital and in-person world is seamlessly connected, Augmented Reality will play a key role in the customer experience.

Case Study: Graffiti is reinventing the customer's in-store experience. Graffiti is an AI-powered mobile solution that allows customers to bridge the offline to online gap while shopping in store. Once activated through QR code, NFC tag, electronic label or hyperlink, Graffiti brings in users without any required app download. In store, the application opens an AR experience which allows users to scan shelves and filter for their preferences for a more personalized, streamlined experience shopping amidst a myriad of options in store. Additional product information including ingredients, features, sustainability criteria, reviews and additional information are readily available for the customer to compare items and convert to purchase. In addition to streamlining shopping, Graffiti integrates dynamic digital coupons directly into the digital wallet.

Business Implications: AR technologies like Graffiti will enhance the customer experience in grocery, big box retail, alcohol, and beauty. Retailer and brand data will have to be cleansed and updated continually to reflect the most recent product updates. Functions impacted by this technology will include data engineering, marketing, merchandise planning and customer engagement. While less likely to be leveraged in luxury, the technology could be utilized to further enhance and digitize the branded experience. This technology has the potential to solve

language barriers and difficult customer problems like skin sensitivities and food allergies in a more efficient manner.



Source: Graffiti.ai

Section III: Tradeoffs and Conclusion

While AI can systematically change both backend and frond end retail applications, there are several tradeoffs that firms should be aware of when integrating the technology into their operations. The first is around implementation costs; Forbes reported in 2023 that AI not only requires significant upfront costs (licensing, infrastructure, installation), but also ongoing maintenance costs as large language models change and learn, data acquisition and cleaning costs, and legal costs associated with consumer protection and privacy. An estimate from Salesforce CRM quotes enterprise pricing including AI at $330-500/month per user, a significant jump from the standard enterprise pricing of $165/month per user and clearly reflecting the premium associated with AI at this point in its development trajectory. Larger firms also may want to weigh developing an AI system internally, or whether they should externally acquire an established platform. For companies in earlier growth stages or experiencing budget constraints, immediate implementation can be cost-prohibitive.

Additionally, companies should consider whether they would like to onboard a trained AI professional or train existing employees to use new systems. Both pathways highlight the importance of human oversight and specialized labor that arrives with the advent of AI in retail workplaces, especially given the lack of subjectivity and contextualization that AI still experiences. For example, although Neiman Marcus acquired the machine learning Stylyze platform, the tool was expected to be a complement to existing sales associate interactions as opposed to a replacement of the human employee. In the latter case, the technology is not yet advanced enough to independently recommend merchandise and lacks the personal connection that initially draws clients into the showroom to make purchases. Resultingly, companies like Neiman Marcus will be required to strategize around educating staff on proper and ethical use of AI, adding to the list of prerequisites for productive employees.

Data privacy of consumers is another key consideration for retail firms interested in AI adoption. Retail firms are already under increased scrutiny for the way they manipulate user data—especially given the understanding that information is used to personalize customer

experiences—and the added complexity of AI can exacerbate buyer concerns. A notable example is the introduction of computer vision, as facial recognition software combined with AI has introduced fear of mass surveillance and bias in public spaces. Firms like Sephora must balance the desire to use software for tailored pattern recognition based on physical human shopping behavior with the reality that the software is collecting mass amounts of visual data on trusted consumers. Inevitably, if retailers adopt AI, they will have to consider the reputational and legal implications of collecting (and applying) exponentially more user data, as well as the vigorous overhaul of data security and encryption frameworks expected from patrons.

A last reflection is around the emergence of "AI hallucinations," or the incorrect perception of patterns and objects by a generative AI tool. Expanding on the tradeoffs of human oversight and data privacy, which are deemed opportunity costs of AI value creation, hallucinations introduce a fundamental downside of AI in the functioning of a retail firm. If AI systems are misconstruing user data, there is potential for outright value destruction of the brand via supply chain mismanagement, unsatisfactory customer service, inaccurate inventory projections, and much more. Further, this emphasizes the importance of companies responsibly implementing AI in a way that comprehensively outlines use cases and enacts adequate guardrails for the software before it is widely deployed.

Ultimately, advanced analytics and AI technologies will continue to revolutionize the retail landscape and customer experience in industry, fashioning a more efficient economic market that accurately matches consumers with products. AI today helps brands leverage traditionally unusable or bulky internal data to identify their target market's needs, while customers experience the effects of AI both in store and online in the form of personalized recommendations and time efficiency tools. In the future, as tradeoffs smooth, we expect the AI experience to be fully integrated and omnichannel, a baseline expectation of the future consumer who shops in store, online and on social.

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