

The Impact of AI-Driven Contextual Product Display on Fashion E-commerce Purchases in Egypt

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ABSTRAKT

Tato diplomová práce se zabývá úlohou kontextového zobrazování produktů založeného na umělé inteligenci při ovlivňování spotřebitelského chování v oblasti módního e-commerce trhu v Egyptě. Zaměřuje se na to, jak personalizovaná a vizuálně relevantní prezentace produktů může ovlivnit nákupní rozhodování, zlepšit uživatelský zážitek a posílit dlouhodobé vztahy se zákazníky. Pomocí smíšeného výzkumného přístupu práce analyzuje vnímání spotřebitelů, jejich připravenost k přijetí nových technologií a překážky, kterým podniky čelí, zejména v oblasti technologické integrace a ochrany osobních údajů, finančních investic a provozní infrastruktury.

Součástí výzkumu je i praktický projekt, který ilustruje reálné využití těchto schopností řízených umělou inteligencí. Projekt umožňuje módním e-commerce podnikům vylepšit vizuální prezentaci produktů na základě definovaných spotřebitelských person, čímž odráží jejich preference. Toto řešení nejen snižuje provozní náklady a časovou náročnost, ale zároveň posiluje propojení mezi produktem a zákazníkem. Sladěním technologických inovací s potřebami trhu přispívá projekt k naplnění širšího cíle – zvýšení zapojení uživatelů, zlepšení spokojenosti zákazníků a podpoře růstu digitálního módního maloobchodu v Egyptě.

Klíčová slova: Spotřebitelské chování, umělá intelligence, technologie, ochrana osobních údajů, módní průmysl, e-commerce, Egypt, prezentace produktů, kontextová vizualizace produktů, nákupní rozhodování, online nakupování, maloobchod.

ABSTRACT

This thesis explores the role of AI-driven contextual product display in shaping consumer purchasing behavior within Egypt's fashion e-commerce market. It focuses on how tailored and visually relevant product presentations can influence buying decisions, enhance user experience, and foster long-term customer relationships. Using a mixed-methods approach, the study investigates consumer perceptions, adoption readiness, and the challenges businesses face, particularly in terms of technology integration and data privacy, financial investment, and operational infrastructure.

To complement the research, a practical project is developed to illustrate the real-world application of these AI-driven capabilities. The project enables fashion e-commerce businesses to enhance product contextual visuals based on defined consumer personas, reflecting their preferences. This solution not only helps reduce operational costs and time but also strengthens the connection between the product and the consumer. By aligning technological innovation with market needs, the project supports the broader objective of enhancing engagement, improving customer satisfaction, and driving growth in Egypt's digital fashion retail space.

Keywords: Consumer Behavior, AI, Technology, data privacy, Fashion Industry, E-commerce, Egypt, Product Presentation, Contextual Product Visuals, Purchasing Decision, Online Shopping, Retail.

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I hereby declare that the print version of my Master's thesis and the electronic version of my thesis deposited in the IS/STAG system are identical.

Dolagy Hana,

Zlín, Czech Republic

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INTRODUCTION

Artificial intelligence (AI) is increasingly recognized as a pivotal tool in reshaping digital marketing interactions with consumers. Unlike human intuition, AI-driven strategies rely extensively on data analysis, converting vast data sets into actionable insights that significantly influence consumer behavior. By analyzing these data patterns, AI enables businesses to deliver highly personalized experiences, fostering enhanced engagement and driving more strategic consumer interactions (Rabby et al., 2021).

Therefore, technological advancements are continuously expanding the potential and scope of AI within digital marketing, opening limitless opportunities. AI has been increasingly integrated into operational functions such as risk assessment, market research, and customer relationship management, profoundly impacting marketing strategies, business models, customer service, and overall consumer behavior. Importantly, AI's integration in digital marketing aims not to replace human judgment but rather to enhance and support a dynamic and more responsive marketing environment (Rabby et al., 2021).

AI, coupled with related technologies like big data and machine learning, has emerged as essential for comprehending and shaping consumer behavior. By effectively analyzing large-scale data, AI facilitates real-time consumer insights, enabling businesses to tailor offerings precisely aligned with consumer preferences. AI-driven recommendation systems and interactive chatbots provide personalized experiences and support, further amplifying consumer engagement and satisfaction (Jain et al., 2024).

Thus, retailers adopting AI-driven strategies typically achieve significantly better outcomes than those relying on conventional marketing techniques. Today's consumer behavior has notably evolved with expectations of consistent and customized interactions heightened by digital marketing advancements. However, the integration of AI in digital marketing can sometimes create trust concerns among consumers, prompting them to dedicate more time and effort to informed purchasing decisions. Modern consumers, better educated and more cautious, increasingly rely on thorough research before finalizing any buying decision (Rabby et al., 2021).

Within online retail, particularly in sectors like fashion where sensory and experiential considerations strongly influence consumer choices, effective product presentation is crucial. In virtual shopping environments, consumers rely heavily on visual and textual contexts for decision-making in the absence of tangible product experiences. Studies have

shown that visually rich and contextually complex imagery substantially enhances consumer engagement by evoking deeper cognitive and emotional responses, ultimately enriching their overall shopping experience (Yoo et al., 2014).

Research highlights that presenting apparel products in a realistic, contextualized environment significantly stimulates consumer imagination and encourages mental imagery. Contextual product displays, including detailed backgrounds or descriptive texts depicting specific usage scenarios, facilitate consumers' ability to visualize products in use, effectively bridging the sensory gap inherent in online shopping (Yoo et al., 2014).

Personalization has long been valued by marketers; however, AI uniquely enables scalable personalization. Leveraging robust, accurate data correlations and real-time adaptability, AI allows marketers to effectively engage large consumer segments through highly customized interactions. This dynamic, forward-looking approach ensures personalized consumer experiences that enhance overall satisfaction and purchase intention (Sudhir et al., 2023).

Building upon that, this study will explore how AI-driven contextual product displays impact consumer purchasing decisions in Egypt's fashion e-commerce sector. It will provide practical insights into utilizing AI visuals effectively to enhance product presentation, shape consumer preferences and build customer loyalty.

I THEORY

1 CONSUMER BEHAVIOR AND DECISION MAKING IN FASHION E-COMMERCE

This chapter outlines the concept of consumer behavior and highlights its importance within the context of fashion e-commerce. It explores the main elements that shape online shopping decisions, such as psychological influences, the stages of decision-making, and the distinctive characteristics of fashion as a retail category. Together, these elements form the basis for understanding how consumers engage with fashion items in virtual shopping environments.

1.1 Consumer Behavior

1.1.1 Definition

As mentioned by (Solomon, 2019), consumer behavior focuses on the study of how individuals or groups make decisions related to the selection, acquisition, use, or disposal of products, services, ideas, or experiences to meet their needs and preferences. These consumers may range from children asking for a mobile device to business professionals managing high-value purchases. Consumption is not limited to physical products; it also includes services, lifestyles, cultural symbols, and influential figures. The drivers behind consumer actions may stem from essential physical needs, like hunger or thirst, or from emotional and symbolic aspirations such as gaining social recognition, affection, or personal identity. In many cases, consumers develop strong brand preferences, showing dedication and persistence in seeking out specific items they consider important.

Initially, the discipline was known as buyer behavior, reflecting the focus during the 1960s and 1970s on transactional interactions at the point of purchase. This view has since broadened, and current marketing thought sees consumer behavior as an ongoing cycle that includes considerations before and after the purchase, rather than only the act of buying.

Additionally, by (Lake, 2009), consumer behavior involves examining the actions individuals take to meet their recognized needs. This satisfaction results from the series of steps involved in choosing, obtaining, and using products or services, particularly when the outcome meets or surpasses the consumer's expectations. In essence, once a person becomes aware of a need, a psychological process initiates the decision-making journey. This journey includes how the individual thinks, feels, and acts in response to that need. By the end of

this process, the consumer evaluates the information gathered, which shapes the decisions made to address the identified need.

Understanding consumer behavior offers valuable insights into the people who purchase products or services. By gaining this understanding, businesses can communicate more directly and effectively with their target audience. Such tailored communication not only enhances the consumer's recognition of a product's value but also supports increased purchasing. Consumers are more inclined to buy when they perceive and understand the product's relevance to their needs.

Another definition by (Rath et al., 2014), consumer behavior refers to the actions and decision-making steps individuals take when they become aware of a need or desire for a product or service. It encompasses the processes involved in searching for, assessing, purchasing, using, and ultimately disposing of the chosen item. At its core, consumer behavior focuses on consumption, the process by which individuals select, utilize, discard, and ideally recycle a resource.

Furthermore, online consumer behavior is a multifaceted socio-technical process influenced by a wide range of interconnected factors. These influences span several fields, such as marketing, psychology, sociology, economics, and information systems. As a result, online consumer behavior is inherently complex and nonlinear, making it difficult for any single model or theory to capture it in full. In the digital environment, consumers function not only as buyers but also as users of information systems. While traditional theories in marketing and economics have effectively explained consumer behavior in conventional settings, there is strong evidence indicating that variables related to information systems have become equally significant in shaping online consumer actions. Consequently, e-commerce is better understood as an interaction between the consumer and a sophisticated information system, rather than solely a marketing activity influenced by technological tools (Lee et al., 2010).

1.1.2 Purchasing Decision Model

Consumer behavior is inherently personal and varies significantly across individuals. While few universal rules apply, one constant remains: multiple elements influence the consumer's decision-making journey. These elements fall into two main categories; internal and external influences, both of which shape purchasing decisions (Lake, 2009).

Internal influences arise from within the individual and encompass their personal thoughts and emotions. These include factors such as perception, self-identity, lifestyle, motivation,

emotions, attitudes, and intentions. Collectively, these are considered psychological influences. They affect how a person interprets their environment, understands and processes emotions, gathers and assesses information, forms opinions, and ultimately decides to act (Lake, 2009).

On the other hand, consumers are also influenced by external factors, which originate from their surrounding environment. These include cultural background, subcultural affiliations, family structure, and social groups. Since these factors stem from outside the individual, they are referred to as external or sociocultural influences. They reflect the impact of formal and informal social interactions and relationships on the consumer's behavior (Lake, 2009).

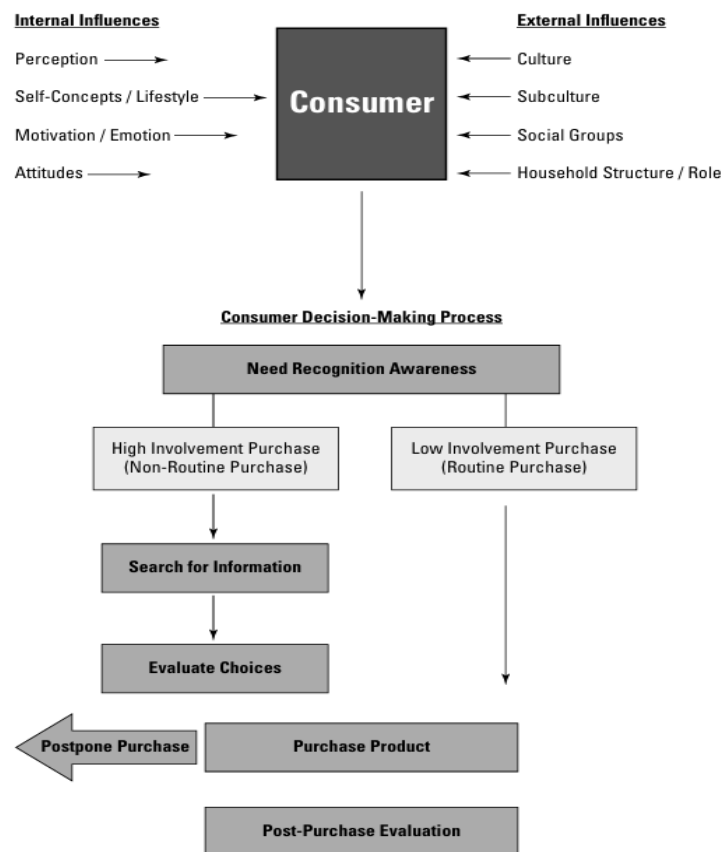


Figure 1 The consumer's decision making process

(Source: Lake, 2009)

As illustrated by Lake (2009), customers typically follow a five-step decision-making process as shown in Figure 1 when making a purchase, regardless of whether the item is a product or a service. This process is cognitive in nature and primarily psychological, meaning it is not outwardly visible. Rather than being directly observed, it is understood to be occurring through attentive interpretation of consumer behavior.

Step 1: Need recognition and awareness: At this initial stage, the consumer becomes conscious of a need or identifies a gap that requires fulfillment.

Step 2: Searching for information: Once the need is recognized, the consumer begins to gather information about possible solutions. The extent of this search is influenced by how important or significant the purchase is to the individual.

Step 3: Evaluating the alternatives: Here, the consumer assesses the available options, comparing them to determine which best meets the identified need.

Step 4: Purchase: During this phase, the consumer chooses when and where to complete the transaction. However, if the need is not urgent or the available solutions do not meet expectations, the decision may be postponed until a more suitable option becomes available.

Step 5: Post-purchase evaluation: After making the purchase, the consumer reflects on the decision and evaluates the outcome. This stage may include satisfaction or dissatisfaction, and in some cases, feelings of buyer's remorse.

1.1.3 Consumer Psychology and E-commerce

Consumers are affected by a combination of psychological, emotional, and digital influences when interacting with online platforms. Their choices are guided not just by product attributes, but also by how effectively the digital setting engages their senses and feelings.

According to research, a user-friendly information system significantly enhances online consumer behavior. Three key flow dimensions; concentration, enjoyment, and telepresence, have been shown to influence behavior through PEOU. As a result, digital interfaces should support focused engagement, pleasurable experiences, and a realistic, immersive browsing environment. Consumers tend to prefer websites that are easy to navigate and resemble real-world interaction (Lee et al., 2010).

Emotions play a crucial role in shaping purchasing decisions. Consumers often choose products to fulfill emotional needs or to avoid discomfort. These motivations may involve addressing personal desires, reinforcing self-image, or finding a sense of safety. Forming a positive emotional link with a product greatly influences consumer preferences (Lake, 2009).

Stimuli also have a strong influence on consumers, often functioning instinctively. They trigger internal reactions that shape behavior, functioning as cues that influence response without conscious deliberation. When exposed to stimuli, consumers assess them in relation to their personal values, experiences, and cultural background. This evaluation process is

influenced by factors such as gender, religion, race, and past experiences. Typically, people respond to stimuli that align with their needs while ignoring those perceived as negative or irrelevant (Lake, 2009).

Human satisfaction tends to return to a baseline level after emotional highs or lows, a concept known as the hedonic treadmill, introduced by Brickman and Campbell. This means that even positive shopping experiences may only temporarily increase happiness. This dynamic explains why consumers often lose interest quickly and seek continuous engagement. Brands must consistently evolve their customer experience to maintain attention and reduce the risk of losing customers to competitors (Kotler et al., 2021).

Moreover, psychologist Marcel Gommans and colleagues emphasized that effective website design should be grounded in a thorough understanding of the target audience. A website should align with the specific expectations and behaviors of the intended user group. Consumers often judge a site based on its appearance, branding, and interactivity. These elements can influence trust and the likelihood of return visits (Nahai, 2017).

Color is a powerful form of non-verbal communication. Historically used to convey social or emotional signals, its strategic use online can shape how a brand is perceived. Colors can imply trustworthiness, luxury, or authority, and cultural context plays a significant role in how these meanings are interpreted (Nahai, 2017).

Although aesthetic preferences may vary across cultures, certain dynamic features have universal appeal. A design that combines cultural sensitivity with broad visual engagement increases the chance of resonating with diverse consumers and sparking a favorable emotional reaction (Nahai, 2017).

Therefore, while Rational Choice theory in economics assumes that individuals base their decisions on logical evaluation, actual consumer behavior is frequently influenced by perception and contextual cues. Even subtle changes in how options are presented, such as price formatting, can alter purchasing decisions, challenging the notion of consistently rational behavior (Nahai, 2017).

1.2 Purchasing Behavior in B2B E-commerce

B2B e-commerce involves digital interactions between two or more organizations, encompassing the exchange of products, services, information, or payments. The rise of the

internet has significantly transformed how businesses communicate both externally with other firms and internally within their own operations (Solomon, 2019).

Organizational buyers are responsible for acquiring goods and services on behalf of their companies, often for use in production, distribution, or resale. They represent various types of organizations, such as corporations, government departments, healthcare institutions, and retail businesses, by overseeing procurement processes and ensuring the acquisition of goods and services meets operational requirements. B2B transactions account for a substantial share of commercial activity, with the value of exchanged goods and services surpassing that of consumer markets (Solomon, 2019).

The purchasing process in organizational settings typically begins with the recognition of a need, prompted by either internal or external factors. Once a need is identified, the organization moves to define and describe the required solution, including detailed product specifications. After gathering all relevant information, the process culminates in the selection of an appropriate supplier (Mononen, 2020).

Various factors shape how organizational buyers perceive and approach purchasing decisions. These include expectations regarding supplier performance, such as product quality and staff professionalism, prior experiences with the supplier, and the internal values and reward structures of the purchasing organization. A buyer's willingness to take risks can also influence decision-making (Solomon, 2019).

Much like individual consumers, organizational buyers engage in collective learning processes. Employees share insights and build what is known as organizational memory, a system of shared assumptions and knowledge that influences purchasing norms and preferences (Solomon, 2019). So, changing purchasing habits within an organization requires deliberate effort. Once a supplier is regarded as reliable, switching becomes increasingly difficult due to the high level of loyalty that often characterizes B2B relationships. Trust and consistency play a central role in supplier retention, making behavioral change a challenge even when alternatives are available (Mononen, 2020).

Although B2B purchases are typically driven by functional and economic reasoning, emotional and relational factors can also influence decisions. Brand familiarity, long-standing relationships with sales representatives, and even subjective preferences may affect supplier selection. One emerging trend in organizational decision-making is the use of a prediction market. This approach leverages the collective insight of knowledgeable

participants, asserting that group judgments often outperform individual forecasts when anticipating future industry developments (Solomon, 2019).

1.3 Fashion in E-commerce Landscape

Fashion is defined as what is currently popular or considered appropriate by a given group at a particular time. It reflects societal preferences and is inherently dynamic (Rath et al., 2014).

Fashion and design are deeply rooted in the cultural, social, and aesthetic values of the time, often referred to as the *zeitgeist*. To participate meaningfully in these industries, individuals must remain informed and perceptive, as success depends on staying in tune with what is relevant and valued at any given moment. Awareness of trends, politics, art, design, and broader cultural movements is essential to identifying what consumers deem meaningful whether symbolically or functionally (Rath et al., 2014).

Fashion operates across both collective and personal dimensions. It can shape social trends that influence large groups while also guiding the preferences and behaviors of individuals. The aspiration to appear fashionable often plays a key role in purchasing choices. Beyond consumer appeal, fashion items are also cultural artifacts, reflecting the artistic values and historical context of a society. Because of these varied functions, different theories have emerged to explain how fashion begins and spreads (Solomon, 2019).

Interestingly, fashion consumers often display both brand loyalty and brand-switching tendencies. Fashion is not solely about functional needs, it also serves symbolic purposes. Consumers use fashion to express their identity, values, and social standing. In this way, garments become tools for personal expression, allowing individuals to create unique styles and meanings (Sutinen et al., 2022).

Fashion consumers can generally be divided into two groups: leaders and followers. Most people fall into the latter category. Fashion followers adopt styles only after they are widely accepted. Their motivations vary, they may lack interest or confidence in their own fashion choices or seek social acceptance. Regardless of the reason, fashion followers play a key role in shaping demand and contributing to the fashion cycle (Rath et al., 2014).

The shift in fashion retail from traditional stores to digital platforms has been significantly influenced by technological advancements and evolving consumer expectations. E-commerce, particularly in the consumer goods sector, has reshaped how fashion is marketed

and sold. Online fashion retailers face the challenge of replicating the in-store experience through strategic digital tools (Guercini et al., 2018).

Fashion brands often rely on the in-store environment to create immersive brand experiences. As global digital access expands, online retailing has become a strategic tool for brand growth. E-retailing enables companies to enter international markets and connect with diverse consumer groups (Guercini et al., 2018).

In today's retail landscape, consumers expect flexible shopping options. They want to move seamlessly between online platforms, physical stores, catalogs, and mobile devices depending on what suits their needs at any given time (Rath et al., 2014).

The online shopping environment introduces new behaviors and decision-making processes not typically observed in physical stores. The internet offers convenient access to a broad selection of products, altering how consumers search for and evaluate fashion items (Sutinen et al., 2022).

Fashion e-commerce appeals to consumers by offering competitive prices, a wide product range, and a convenient shopping experience. These advantages have encouraged consumers to develop new patterns of behavior that allow them to better navigate and benefit from online platforms (Sutinen et al., 2022). Users seek products that align with their personal style. However, the abundance of items can make it difficult to locate specific products. To address this, many websites implement tools designed to guide users toward relevant items of interest (Kim et al., 2022).

So, in fashion e-commerce, analyzing users' sequential behaviors such as the items they click provides valuable insight into their preferences. These behavioral patterns allow platforms to offer recommendations that align more closely with what the consumer is likely to engage with (Kim et al., 2022).

2 AI AND ITS ROLE IN E-COMMERCE

This section investigates the core principles of artificial intelligence and its transformative impact on the e-commerce industry. It outlines how AI is being utilized to enhance business performance, streamline decision-making, and deliver more personalized and efficient consumer experiences in the digital marketplace.

2.1 Understanding AI

Artificial Intelligence was initially described in 1956 as the science and engineering of developing intelligent machines. Over time, AI evolved into systems capable of learning, reasoning, and adapting based on their environment, replicating elements of human intelligence. More recently, definitions have expanded to include AI's ability to perform complex cognitive tasks such as learning and problem-solving, made possible by advancements in machine learning, natural language processing, and neural networks (Ng et al., 2021).

In recent years, AI has become a driving force behind major transformations in business operations. Originally developed to optimize production and logistics as part of Industry 4.0, its scope has extended into administrative, planning, and marketing processes. Businesses are increasingly adapting to become algorithm-driven, with AI at the core of decision-making and strategic planning. This evolution has enabled companies to pursue new markets and rethink their business models entirely (Gentsch, 2019).

AI enables the automation of data-heavy tasks that were once handled manually. Activities like collecting, processing, and analyzing large datasets now fall under the domain of algorithms, freeing up human resources to focus on interpreting results and applying insights. With vast volumes of data, such as the 70 trillion data points found online manual processing is impractical. AI systems help automate functions like customer acquisition and competitive analysis, allowing professionals to focus on strategic engagement and outreach (Gentsch, 2019).

In parallel, the integration of digital data with algorithms has led to the creation of new business models. These range from straightforward small-scale analytics to more advanced applications involving big data and AI (Gentsch, 2019).

One of the most profound developments in AI is its extension into creative tasks. Once thought to be the sole domain of human intelligence, areas such as writing, music

composition, software creation, and fashion design are now being explored by AI systems. These developments have significantly blurred the line between human creativity and machine-generated content (Feuerriegel et al., 2024).

Generative AI refers to computational methods that produce original content; text, visuals, or audio based on training data. With tools like DALL.E 2, GPT-4, and Copilot, this technology is transforming not only creative industries but also the way people work and communicate. These systems not only replicate artistic expression but also function as advanced tools for answering questions and assisting in content creation (Feuerriegel et al., 2024).

Generative AI models stand as a central innovation within this evolving landscape. These advanced machine learning systems are engineered to generate original content by recognizing complex patterns across large datasets. Despite their potential, they often require fine-tuning and adaptation to ensure effective performance in specialized contexts (Feuerriegel et al., 2024).

2.1.1 Machine learning

Machine learning, a widely recognized branch of AI, has become central to numerous applications that involve the "generation of knowledge from experience" (Gentsch, 2019).

One of the most cited definitions comes from the American computer scientist Tom Mitchell, who stated that a computer program is said to learn from experience E with respect to a class of tasks T and performance measure P if its ability to perform tasks in T , as measured by P , improves with experience E (Gentsch, 2019).

Early spam filters, for example, relied on fixed rule-based systems that required regular manual revisions. In contrast, modern machine learning algorithms continuously improve by learning from new data, enhancing their accuracy and adaptability over time (Gentsch, 2019).

Incorporating machine learning, algorithms, and AI into existing business processes presents a strategic opportunity to optimize operations. However, this shift also challenges conventional business models to adapt and make better use of their data-driven capabilities (Gentsch, 2019). As businesses adopt machine learning to enhance decision-making, models are trained using data derived from past behaviors and outcomes. While this can introduce

intelligent automation into processes, it also raises concerns, these systems may replicate the biases embedded in historical data (Agarwal et al., 2021).

Expanding upon the capabilities of machine learning, large language models mark a major development within natural language processing. They are built to interpret, produce, and engage with human language in a refined and context-aware manner, offering new opportunities for innovation in research, communication, and cross-disciplinary applications.

Large language models are advanced AI systems characterized by their complex structure and extensive parameter sets, trained on massive volumes of textual data. Originating from the domain of natural language processing, these models are capable of producing coherent, human-like text and are responsive to user prompts, allowing for interactive communication and tailored outputs. The introduction of ChatGPT by OpenAI in late 2022 played a major role in making this technology widely accessible (Rillig et al., 2023).

LLMs present various advantages for environmental science research. Their effective use can enhance productivity by supporting clearer scientific writing, allowing researchers to dedicate more time to experimental design, data analysis, and innovation. Additionally, these models may help improve the visibility of scientists from non-English speaking regions by assisting with language clarity and fluency in academic writing (Rillig et al., 2023).

2.1.2 Responsible AI and Data Protection

The objectives of responsible AI are varied and interconnected. An effectively designed system must deliver fair outcomes, ensuring that individuals with solid financial backgrounds are assessed equitably, without being disadvantaged by circumstances beyond their influence, such as their residential area. Moreover, responsible AI should promote fairness and reduce bias, while allowing for positive interventions to address historical inequalities (Agarwal et al., 2021).

Bias in decision-making has long influenced human behavior, often shaping results in both explicit and subtle ways. AI systems, trained on historical data, can inherit these biases and apply them without context, mistakenly interpreting them as accurate representations. Unlike humans, machines lack the awareness to identify such biases as problematic (Agarwal et al., 2021).

The quality and protection of data are critical in mitigating these issues. When sensitive or inadequately secured data is used in model training, it may result in biased outcomes or reliance on inappropriate features. Risks also arise from internal access to private information. To counteract this, it is essential to implement privacy measures early in the data pipeline. Early-stage anonymization not only protects user information but also helps enhance fairness by flagging sensitive variables. For example, data containing geographic, health, or demographic indicators can introduce unintended bias (Agarwal et al., 2021).

Equally important is safeguarding the models themselves. If AI systems are susceptible to manipulation or breaches, they cannot uphold the standards required for responsible and ethical use (Agarwal et al., 2021). Technological solutions like differential privacy, federated learning, and homomorphic encryption offer significant advancements in securing personal data. These techniques make it possible to extract insights and build predictive models without compromising individual privacy (Yanamala et al., 2024).

From a regulatory perspective, the General Data Protection Regulation (GDPR) has become a cornerstone in guiding AI-related data practices. Voigt and von dem Bussche (2017) outlined essential safeguards, including data minimization, the right to erasure, and privacy by design, as key principles for protecting personal data in AI systems. However, applying these rules to AI remains challenging due to the dynamic nature of data processing in intelligent systems (Yanamala et al., 2024).

Concerns about AI ethics often center on its lack of transparency and the difficulties in safeguarding personal data. The potential harm from opaque algorithms underscores the importance of establishing strong ethical guidelines to ensure that AI systems operate in accordance with legal requirements and societal norms (Yanamala et al., 2024).

2.2 AI Application in E-commerce

Artificial intelligence has become a key force in transforming the structure and dynamics of e-commerce. Its use enables companies to efficiently gather, sort, and analyze customer data, creating personalized experiences aligned with individual needs. AI enhances user engagement by simplifying tasks like product selection, search customization, and virtual assistance. For example, AI-driven chatbots respond instantly to routine customer inquiries, contributing to a more responsive and user-friendly shopping environment (Suresh et al., 2023).

The application of AI also allows for greater personalization in product recommendations, which helps customers identify suitable alternatives more quickly and accurately. By analyzing browsing behavior and purchase history, AI supports retailers in delivering individualized content, increasing engagement and conversion rates. Moreover, AI facilitates continuous interaction between customers and businesses, enhancing the user journey across digital platforms (Suresh et al., 2023).

Trust remains a vital component in online shopping. In the context of e-commerce, trust is built through perceived competence and reliability, both of which AI technologies can reinforce. By delivering precise product descriptions, relevant recommendations, and consistent communication, AI reduces uncertainty and strengthens customer confidence. As consumers gain familiarity with intelligent systems, their trust may increase, especially when interactions are transparent and consistent (Suresh et al., 2023).

The evolution of e-commerce is not solely driven by technological innovations but also by a new generation of informed and demanding consumers. These users expect real-time responses, personalized service, and seamless digital interactions. AI, along with tools such as big data, automation, and bots, is enabling e-commerce platforms to meet these expectations. As a result, businesses are being redefined as algorithmic enterprises, continuously adapting to remain competitive (Gentsch, 2019).

In this digital environment, companies are transitioning toward data and algorithm-driven models that support dynamic, real-time decision-making. AI does not simply automate processes; it enhances the quality of decisions by leveraging vast datasets to generate insights that often surpass human analysis. As mobile technologies continue to shape consumer behavior, e-commerce must move beyond the traditional desktop model and embrace a more agile, responsive digital infrastructure (Gentsch, 2019).

Despite its growing influence, AI in e-commerce is still evolving. The full potential of these systems has yet to be realized due to existing challenges such as limited leadership commitment, insufficient resources, and inadequate infrastructure for data analysis. These barriers highlight the need for strategic investment and continuous learning to fully integrate AI into e-commerce ecosystems (Suresh et al., 2023).

3 THEORETICAL FOUNDATIONS OF THE RESEARCH

This chapter outlines the core theoretical models that guide the study's investigation. It provides the basis for analyzing how users respond to digital technologies that shape their shopping experiences and influence their purchasing decisions.

3.1 Elaboration Likelihood Model (ELM)

As presented in The SAGE Handbook of Persuasion: Developments in Theory and Practice, 2013:

The elaboration likelihood model (ELM) of persuasion is a dual-process framework that addresses how individuals process social information, with a specific focus on persuasive communication that was developed by Petty & Cacioppo, 1986 and Petty & Wegener, 1999. Its core premise is that there are two distinct paths through which persuasion can occur, determined by the extent to which a person engages in thoughtful consideration or elaboration of the relevant information.

The model proposes that depending on situational factors, individuals differ in the level of cognitive effort they devote to evaluating a persuasive message. In some instances, recipients may invest significant attention in analyzing arguments and supporting evidence, even comparing them with prior knowledge or other perspectives. In contrast, there are times when individuals exert minimal cognitive effort when processing persuasive content.

ELM posits that the type of persuasion route taken is influenced by the level of elaboration. Specifically, when elaboration is high, the central route is engaged, leading to persuasion based on critical evaluation of content. When elaboration is low, the peripheral route is activated, relying more on surface-level cues such as visuals or source credibility rather than in-depth reasoning.

By applying this model to the study, it examines how consumers process persuasive content in fashion e-commerce, particularly in response to AI-driven contextual product displays.

The central route:

When customers are deeply involved in the fashion shopping process, especially when purposefully searching for specific clothing, they tend to engage in central route processing. This means they carefully assess aspects such as the item's quality, material, fit, and how well it aligns with their individual tastes, lifestyle, etc. AI-driven contextual product displays

support this analytical evaluation by showcasing items in lifelike, relatable environments that connect with the customer's expectations. Rather than modifying the product image, these displays amplify its relevance and appeal through dynamic visual context. This helps customers make more informed decisions, boosting their confidence in the purchase and enhancing satisfaction with the shopping experience.

The peripheral route:

Conversely, when customers are less involved in the shopping process for instance, when browsing casually or under time pressure, they tend to rely on the peripheral route. In this context, decision-making is driven more by visual and emotional cues than by detailed analysis. AI-driven contextual product displays play a critical role by using engaging imagery, aesthetically pleasing designs, and aspirational visuals to capture customers attention. These visuals create an emotional appeal or convey a desirable lifestyle that may prompt customers to make spontaneous purchases, even when there is no immediate necessity. By evoking emotional responses and reducing cognitive effort, AI-driven visuals increase the likelihood of spontaneous purchasing behavior in low-involvement shopping scenarios.

3.2 Technology Acceptance Model (TAM)

The dissertation and the later developed in two journal articles published in 1989 (Davis, 1989; Davis et al., 1989), offered a new perspective on predicting and enhancing user acceptance of technology. The model gained recognition due to its theoretical robustness and the precision of its measurement methods. Central to TAM are two primary factors influencing acceptance: perceived usefulness and perceived ease of use. These foundational constructs were identified and validated through well-established theoretical and psychometric approaches (Davis et al., 2024).

Perceived usefulness has proven to be a reliable indicator of user acceptance, even when individuals are only exposed to a non-interactive demonstration of a system. Its consistency and its generally stronger influence compared to perceived ease of use makes it possible to assess user acceptance earlier in the development cycle. This includes stages prior to the creation of a functioning prototype. Essentially, users are often able to make accurate and lasting judgments about a system's usefulness without direct interaction, and these impressions typically remain stable after later hands-on experience (Davis et al., 2024).

In contrast, perceived ease of use tend to evolve significantly following direct engagement with a system. This supports the view that an accurate understanding of usability often requires firsthand experience. While it may seem unexpected that usefulness can be judged reliably without such interaction, this becomes understandable when considering that usefulness evaluations are often based on the perceived capabilities of the system and how well these align with the user's specific needs, rather than on the ease with which the system is operated (Davis et al., 2024).

These dimensions provide insight into how consumers form attitudes toward using AI-driven features that enhance visual product presentation and influence purchasing behavior online.

Perceived usefulness:

In the realm of fashion e-commerce, perceived usefulness refers to the degree to which consumers believe that AI-driven contextual product displays improve their shopping experience. These displays generate personalized and visually tailored content, showcasing clothing items in environments that reflect consumers' preferences, so such displays support a more intuitive and enjoyable decision-making process, ultimately encouraging more confident purchasing behavior. For tech-savvy users, especially younger consumers who engage with digital platforms regularly, this technology is likely to be welcomed due to familiarity and the expectation of convenience.

The increasing presence of AI in everyday life has led to greater acceptance, even among users with limited prior experience in AI. As AI technologies become more widely recognized as tools for simplifying tasks, AI-driven contextual product displays are perceived as helpful in easing the cognitive demands of online fashion shopping.

Perceived ease of use:

This dimension reflects how easily and intuitively consumers can use the technology. In the context of AI-driven contextual product displays, ease of use depends on how naturally users can navigate the interface and how seamlessly the visual elements fit into their shopping experience. Consumers tend to evaluate usability based on direct engagement such as how clear and appealing the visuals are, how responsive the platform is, and whether the technology supports rather than complicates the shopping process.

When the system is perceived as straightforward, visually coherent, and smooth to operate, consumers are more inclined to adopt it and return for future use. Conversely, if the AI-driven features are seen as overly technical, disjointed, or disrupt the user flow, potential

users may avoid them, regardless of the system's intended benefits. Therefore, perceived ease of use plays a pivotal role in whether AI-driven contextual product displays are embraced or rejected by online fashion consumers.

3.3 Theory of Planned Behavior (TPB)

The Theory of Planned Behavior builds upon the earlier Theory of Reasoned Action (Ajzen & Fishbein, 1980; Fishbein & Ajzen, 1975), addressing its limitations in explaining behaviors that are not entirely under a person's voluntary control (Ajzen, 1991).

At the core of the theory is the concept of behavioral intention, which represents an individual's motivation to perform a specific action. Intentions reflect the degree of effort a person is prepared to invest and how determined they are to act. Generally, the stronger the intention, the greater the likelihood that the behavior will be carried out. However, for an intention to lead to actual behavior, the individual must have sufficient control over the action (Ajzen, 1991).

The theory identifies three distinct factors that shape behavioral intention. The first is attitude toward the behavior, which involves an individual's positive or negative evaluation of performing the behavior. The second is the subjective norm, referring to the social influence or perceived pressure from others regarding whether or not to engage in the behavior. The third factor is perceived behavioral control, which relates to the individual's perception of how easy or difficult the behavior will be to perform. This perception is shaped by past experiences and expected challenges (Ajzen, 1991).

Within the scope of this thesis, TPB provides a useful foundation for understanding the factors that shape consumers' intentions to adopt AI-driven contextual product displays in Egypt's fashion e-commerce sector.

Attitude:

Refers to the consumer's overall evaluation of using AI-driven contextual product displays. When consumers have a favorable view of AI, perceiving it as helpful or innovative, they are more inclined to adopt AI-driven contextual displays during their e-commerce interactions. Conversely, if consumers hold negative perceptions of AI, associating it with privacy concerns, mistrust, or manipulated product presentation, they are more likely to reject the technology during their online shopping journey.

Subjective norm:

Capture the influence of social expectations and peer behavior on the individual's decision. In the fashion e-commerce context, customers may be encouraged to adopt AI-driven contextual displays if they observe that others in their social circle; friends, influencers, or online communities, value and use such feature. In Egypt, where social influence and cultural trends play a prominent role in shaping consumer choices, the visibility and endorsement of AI-driven contextual displays by influential figures or peer networks can significantly impact user adoption.

Perceived behavioral control:

Reflects the degree to which consumers feel capable of using AI-driven contextual displays successfully. If the e-commerce platform presents these visuals in a way that is user-friendly, and visually clear, consumers are more likely to feel confident and in control, so they can use the feature without difficulty and it improves their decision-making, they are more inclined to try and continue using it. On the other hand, if the AI technology appears complex, overwhelming, or unfamiliar, users may feel discouraged from engaging with it.

3.4 Diffusion of Innovations Theory (DOI)

As mentioned in Diffusion of Innovation. The international Encyclopedia of media psychology, 2020:

The Diffusion of Innovation (DOI) theory, introduced by communication scholar and sociologist Everett M. Rogers, was originally developed through research in the agricultural sector rather than through high-tech contexts.

Rogers defined diffusion as "the process by which an innovation is communicated through certain channels over time among the members of a social system." Diffusion is a unique form of communication in which individuals share new information with the goal of reaching mutual understanding. The novelty of the idea being communicated introduces a degree of uncertainty, which is central to the diffusion process. Rogers referred to this as "an uncertainty reduction process" and identified specific attributes of innovations that help reduce this uncertainty through information exchange.

An innovation is described as any idea, practice, or object that is perceived as new by an individual or another unit of adoption. Technology, according to Rogers, is "a design for instrumental action that reduces the uncertainty in the cause-effect relationships involved in achieving the desired outcome." However, the introduction of technological innovation also

generates a different type of uncertainty due to its unfamiliarity, prompting individuals to seek information in order to assess its value.

DOI theory draws upon rational theories from disciplines such as sociology, management, and communication. Its purpose is to create predictive frameworks that support the dissemination of innovations by explaining the conditions under which technologies are more likely to be adopted.

The theory highlights that the rate of diffusion is influenced by both the characteristics of the innovation itself and the surrounding social system. Rogers proposed a classification system for adopters, segmented into five categories based on their willingness and speed in adopting new ideas. These include: innovators, who are the first to introduce an innovation; early adopters, who quickly follow; the early majority, who adopt after observing success; the late majority, who take longer and adopt due to peer influence or pressure; and laggards, who resist change the longest. These categories are conceptual types developed to enable comparison and understanding of adoption behaviors. Adoption typically follows an S-curve over time, reflecting the growing influence of social networks and peer interactions on individual decision-making.

Within the scope of this study, the DOI theory offers a valuable framework for understanding the differing rates at which fashion e-commerce businesses adopt AI-driven contextual product displays. The model helps illustrate how businesses across various stages of technological readiness respond to innovation, particularly in the integration of AI in their e-commerce, improving product presentation and enhance user engagement.

Innovators and early adopters:

These businesses are typically led by tech-savvy entrepreneurs or younger founders who are open to experimentation and actively seek tools that can provide them with a competitive edge. Familiar with AI technologies and digital trends, this group is quick to explore innovations that streamline operations and enhance the customer journey. In the context of fashion e-commerce, they are the first to adopt AI-driven contextual product displays to create immersive shopping experiences, personalize customer interaction, reduce operation expenses, and boost conversion rates.

Early Majority:

Consists of more pragmatic fashion e-commerce businesses that prefer to wait until an innovation has demonstrated measurable success. They often rely on industry case studies,

WOM, and the proven effectiveness of new tools before making adoption decisions. For these companies, the adoption of AI-driven contextual product displays is likely influenced by the credibility and visible benefits realized by earlier adopters, especially as positive narratives build momentum within the fashion industry.

Late Majority:

This group includes more traditional or mid-sized fashion businesses that tend to adopt innovations only once they become standard within the market. Their hesitation is typically tied to limited budgets, lack of technical expertise, or organizational resistance to change. However, adoption becomes more feasible when implementation costs decline or when vendors offer competitive packages. Increasing pressure from competitors and rising customer expectations may also drive these businesses to eventually integrate AI-driven contextual product displays into their platforms.

Laggards:

Are the most resistant to adopting new technologies. In the fashion e-commerce context, they are often represented by older, well-established companies with long-standing business models that have not relied heavily on digital transformation. These firms may hesitate to adopt AI-driven contextual product displays due to perceived risks, uncertainty about return on investment, past negative experiences with AI tools, or the fear that such innovations could disrupt their existing brand image or operations.

4 METHODOLOGY

This chapter outlines the methodological approach adopted to address the research questions and goal of this thesis. By combining qualitative and quantitative methods, this framework ensures a structured yet flexible pathway to gather meaningful data, interpret findings, and draw conclusions that align with both theoretical foundations and real-world applications.

4.1 Main goal of the thesis

4.1.1 Aim of the thesis

The goal is to evaluate the impact of AI-driven contextual product display on consumer purchasing behavior in Egypt's fashion e-commerce market.

It aims to offer insights into how personalized and interactive product displays can boost engagement and support the growth of Egypt's fashion e-commerce industry.

4.1.2 Purpose of the thesis

This thesis investigates how AI-driven contextual product displays can enhance product presentation, improve customer satisfaction, and drive purchase decisions.

4.2 Research Questions

RQ1: How does AI-driven contextual product display influence consumer purchase decisions on fashion e-commerce platforms?

RQ2: How does AI-driven contextual product display contribute to building customer loyalty and encouraging repeat purchases among fashion e-commerce users in Egypt?

RQ3: What factors affect fashion e-commerce customers' willingness to adopt AI-driven contextual product display during their online shopping journey, and the readiness of fashion entrepreneurs to implement this technology?

RQ4: What are the technological, financial and infrastructural challenges faced by Egyptian fashion e-commerce in adopting AI-driven contextual product display?

4.3 Research Methods

This study adopts a mixed-methods approach to investigate how AI-driven contextual product displays could influence consumer purchasing behavior in the Egyptian fashion e-

commerce market. Quantitative and qualitative approaches were used to capture accurate results. Each method was selected for its ability to capture specific dimensions of the research questions, offering both depth and breadth in understanding consumer behavior and industry readiness toward AI adoption.

The quantitative approach emerged in the late 19th century and became more established throughout the 20th century, particularly within fields such as physiology and psychology. It is often associated with the post-positivist perspective and includes research designs such as true experiments and quasi-experiments. This approach typically follows a structured format, focusing on identifying and examining variables that influence specific outcomes. Data collected in quantitative studies commonly consists of closed-ended responses, such as those found in structured questionnaires or standardized measurement tools (Creswell et al., 2023).

So, an online survey was used, targeting consumers across various Egyptian cities. To ensure broad visibility, the survey was distributed through various social media channels. It aimed to gather data on consumer perceptions, behaviors, and their openness to use AI-driven contextual product displays while shopping online. This method allowed for the collection of structured, quantifiable responses that reflected overall consumer sentiment. However, most responses originated from urban areas, especially major cities, potentially limiting the geographical diversity of the sample.

The qualitative approach often begins with a flexible and varied structure. It is typically used to explore a research problem that requires a deeper understanding of a particular concept or phenomenon. Historically, this approach has its roots in disciplines such as anthropology, sociology, the humanities, and program evaluation. The data collected is usually open-ended, allowing participants to respond freely without being limited to predefined answer choices (Creswell et al., 2023).

Thus, individual interviews were conducted with fashion e-commerce entrepreneurs. This method was chosen to gain in-depth insights from business owners and professionals directly involved in the fashion industry. Their perspectives offered a clearer understanding of how AI-driven contextual displays could support revenue growth, improve product presentation, and strengthen consumer engagement. However, this approach faced certain limitations as some local brand owners were unavailable or hesitant to participate, particularly due to concerns about sharing strategic or sensitive business information.

In addition, an experiment was incorporated into both methods to examine consumer responses and industry perspectives on the implementation of AI-driven contextual product displays in e-commerce. Participants were presented with product images designed using AI context display features alongside traditional context display formats, enabling direct comparison between the two. This element of the study provided practical insight into how AI features could influence consumer preferences and potentially guide strategic decisions within fashion e-commerce operations. However, the experiment focused only on selected product categories, specifically clothing and bags, which may have limited the scope of responses and reactions.

The following chapters will provide a detailed examination of each method, highlighting how they were applied and the value they added to this study.

II ANALYSIS

5 FASHION E-COMMERCE INDUSTRY IN EGYPT

5.1 E-commerce Industry Overview

5.1.1 Defining Fashion E-commerce

E-commerce, short for electronic commerce, refers to the buying and selling of goods and services through digital platforms and internet. It involves businesses utilizing online systems and IT infrastructure, such as electronic data interchange (EDI), to facilitate transactions. In this context, e-commerce includes online vendors operating websites where customers can purchase products or services directly (Jain et al., 2021).

E-commerce takes multiple forms, including B2C (business-to-customer, commonly known as e-retail), B2B (business-to-business transactions), C2B (customer-to-business interactions), and C2C (customer-to-customer exchanges) (Morsi, 2023).

The rise of digital transformation has significantly reshaped the fashion retail sector. With advancements in technology and greater internet accessibility, online fashion retail platforms have become a prominent alternative to traditional brick-and-mortar stores (Adeola et al., 2024).

As online shopping continues to expand within local and international markets, it has opened new avenues for businesses that were previously difficult to access through traditional retail. Selling goods and services online enables businesses to reach a broader customer base, allowing even small and medium enterprises to enter domestic and global markets. This expansion provides consumers with a wider selection of products while offering businesses a cost-effective and efficient way to establish themselves. One of the primary advantages of e-commerce is its ability to facilitate market entry with minimal investment, making it accessible to entrepreneurs seeking to start an online business with lower financial barriers (Adel, 2024).

Fashion, as a concept, is shaped by collective societal influences and is heavily impacted by marketing dynamics, including unpredictable demand, impulsive purchasing behavior, short product life cycles, and rapid market fluctuations. The increasing prominence of digital retailing in the fashion industry has created vast opportunities for businesses to engage with diverse consumer demographics, particularly among Generations X, Y, and Z (Adeola et al., 2024).

5.1.2 Development of Fashion E-commerce in Egypt

During the 1990s, information and communication technology emerged as a crucial platform for socioeconomic development. This advancement facilitated the growth of the internet and the establishment of a digital infrastructure, marking the beginning of a global information society centered around knowledge acquisition and information dissemination (Kamel et al., 2001).

Therefore, in October 1997, the Internet Society of Egypt E-commerce Committee was formed to promote awareness and accelerate the adoption of e-commerce in Egypt. As part of its efforts, the committee co-organized Egypt's first national seminar on e-commerce in 1998, bringing together key stakeholders from both the government and private sector to address essential national priorities related to digital commerce (Kamel et al., 2001).

Egypt's information and communication technology (ICT) sector plays a fundamental role in facilitating digital transactions, both within the country and internationally, aligning with the nation's Vision 2030 strategy for economic development. In 2019, internet penetration had risen to 53.5 million users, with approximately 8% of them actively participating in online transactions, the highest engagement rate in the MENA region. Experts predict that this figure will continue to grow due to Egypt's large population with internet access. As of 2023, the number of internet users in the country has reached 80 million, solidifying Egypt's position as one of the region's most connected markets. This rapid digital expansion has propelled Egypt into the ranks of the world's 48 largest e-commerce markets (Elsaeed et al., 2024).

Therefore, the e-commerce sector in Egypt has seen substantial growth, driven by advancements in digital infrastructure, increasing internet accessibility, and a rising number of online shoppers. The shift toward digital commerce was further accelerated by the COVID-19 pandemic, which reinforced the need for online shopping as consumers adhered to social distancing measures (Morsi, 2023). E-commerce transactions account for 22% of total online commercial activities, reflecting the increasing integration of digital retail into everyday life (Elsaeed et al., 2024).

So, the fashion e-commerce market in Egypt has particularly benefited from this digital transformation, with greater internet penetration and smartphone usage enabling businesses to connect with a broader customer base. As online retail continues to expand, the fashion

sector remains a promising avenue for growth, offering businesses opportunities to attract and engage more consumers (Morsi, 2023).

Despite the significant progress in digital retail, studies indicate that many Egyptian consumers remain hesitant to fully embrace online shopping. Concerns over trust and negative past experiences with online transactions have contributed to this reluctance, underscoring the need for businesses to enhance credibility and customer confidence in digital shopping platforms (Elsaeed et al., 2024).

5.2 Consumer preferences and online shopping behavior

5.2.1 Consumers' adaptation to e-commerce and online shopping

Demographic factors, including gender, occupation, income, education, and age, play a crucial role in determining consumers' decisions when purchasing products online. Studies suggest that individuals with higher education and income levels are more likely to engage in online shopping compared to those with lower income or less digital exposure (El-tahawy, 2019). Therefore, employment status has been identified as a key factor influencing e-commerce adoption. Previous research findings confirm that individuals with stable incomes are more likely to make online purchases than those who are unemployed. Higher-income individuals tend to engage in online shopping more frequently, as they can afford internet access and digital devices, while lower-income individuals may perceive these costs as barriers to entry (Tarek, 2022).

Online shopping offers numerous benefits and advantages for consumers. They can conveniently browse and purchase products anytime and from anywhere, requiring only internet access and a personal device such as a computer or smartphone. Once connected, they can explore various websites and online stores to check available products and services. This ease of access significantly reduces the time spent in physical shopping malls and eliminates the effort needed to visit multiple stores in search of specific items. Additionally, online shopping provides competitive pricing across various products, offering consumers a wider range of choices (El-tahawy, 2019).

Unlike traditional stores, online marketplaces are accessible 24/7, allowing customers to shop without waiting in long queues or dealing with crowded spaces. The digital payment process is also streamlined, enabling transactions via credit cards, electronic money, or other online payment methods (Adel, 2024).

Another essential benefit of e-commerce is the immediate availability of detailed product information. Online shopping platforms provide consumers with comprehensive and accurate descriptions of products within minutes, an advantage that traditional retail environments often lack. In physical stores, obtaining the same level of information may take days or even weeks (Adel, 2024).

5.2.2 Factors Influencing Consumer Purchasing Decisions

Consumers who spend significant time online as part of their daily routines tend to develop a stronger inclination toward online shopping. Research has shown that as individuals become more accustomed to navigating the internet, their familiarity with online platforms and purchasing processes increases. This heightened digital engagement naturally leads to a greater likelihood of engaging in online shopping, as consumers become more comfortable and confident in exploring and making transactions through e-commerce platforms (El-tahawy, 2019).

For online fashion retailers to remain competitive, they must offer a superior shopping experience and greater value than their competitors. Achieving this requires identifying and prioritizing key success factors that align with consumer preferences. Understanding these factors enables retailers to enhance customer satisfaction, foster brand loyalty, and ultimately drive sales (Morsi, 2023).

Trust is a fundamental factor influencing consumer behavior in e-commerce. For consumers to engage in online transactions with confidence, they must trust both the e-commerce platform and the individual sellers. Trust can be fostered through various elements, including secure website design, privacy policies, user reviews, and strong security measures. Studies have highlighted that trust significantly impacts consumers' willingness to shop online and share personal information. Prior research has categorized e-trust factors into two main groups: consumer-related aspects such as trust tendencies, age, and gender, and system-related aspects such as security and privacy protocols (Elsaeed et al., 2024).

Therefore, Website design is important in shaping consumer behavior in online shopping, often carrying more weight than the in-person service experience offered in physical stores. Customers assess and form impressions of an online retailer's service quality based on the website's design and functionality before proceeding with a purchase. Previous studies have shown that well-structured, visually appealing websites attract more visitors and encourage

higher purchase rates. This underscores the importance of website design in influencing both consumer perceptions and purchasing behavior (Morsi, 2023).

Product quality is another vital determinant of consumer satisfaction in online shopping. A high-quality product meets or exceeds customer expectations, reinforcing trust and encouraging repeat purchases. Enhancing product quality has a direct impact on increasing customer retention. Additionally, offering a diverse range of products is crucial for online retailers seeking to expand their customer base. Providing consumers with more choices increases the likelihood of conversions and long-term engagement with the brand (Morsi, 2023).

So, comprehensive and detailed product information plays a significant role in facilitating consumer decision-making in e-commerce. Online retail platforms should ensure that product descriptions include clear, high-quality images and thorough text descriptions to enhance the shopping experience. Research indicates that consumers retain more information about products when visuals are paired with descriptive text, reinforcing the importance of an effective presentation. A well-structured product display significantly influences consumer engagement, trust, and the likelihood of purchase (Morsi, 2023).

5.3 AI Integration in E-commerce in Egypt

The rapid advancement of AI on a global scale has driven various industries, including e-commerce, to incorporate AI-driven solutions. Egypt first recognized the significance of AI in 2014 as part of its sustainable development strategy, leading to the establishment of the National Council for Artificial Intelligence (NCAI) in 2019, with the objective of fostering AI development and implementation in different sectors (Elsafty et al., 2025). The goal of the National Strategy for AI is to significantly enhance Egypt's economic growth by leveraging AI technologies. The strategy aims to increase AI's contribution to the country's GDP to more than \$42.7 billion by 2030, representing approximately 7.7% of total GDP (Egypt's vision for artificial intelligence and economic impact. @2024).

So, to support AI-driven innovation, an AI venture fund should be established to provide financial assistance to start-ups. This fund could be supported by a combination of government initiatives, private sector investments, and international contributions. Its purpose is to mitigate financial risks for emerging businesses, facilitate early-stage development, and attract both local and international investors to Egypt's growing AI sector (Egypt National Artificial Intelligence Strategy. @2025).

Additionally, AI incubators and accelerators should be created to offer targeted support to start-ups. These facilities would provide essential resources such as office space, technical guidance, entrepreneurial mentorship, and market access. They could also organize training sessions, innovation competitions, and networking events to encourage collaboration and knowledge exchange among start-ups, fostering a dynamic and sustainable innovation ecosystem (Egypt National Artificial Intelligence Strategy. @2025).

The increasing volume of e-commerce transactions has accelerated the adoption of AI-based services, such as voice assistants, chatbots, and personalized recommendations, within the retail sector to enhance customer experiences. AI possesses the capability to analyze external data, learn from it, and apply these insights to achieve specific objectives. Through consumer interactions with online retail platforms, vast amounts of transactional and attribution data such as purchase history and referral activities, are generated. AI leverages this data to identify customer preferences, predict purchasing behaviors, and provide real-time personalized recommendations (Elsayad et al., 2024).

The role of AI-driven innovation is crucial in shaping customer attitudes and intentions toward adopting AI-powered services in e-commerce. AI applications enhance the shopping journey by offering personalized recommendations that align with individual consumer preferences, making them an integral part of the online shopping experience. Furthermore, AI's cognitive capabilities influence customer trust and streamline the decision-making process, fostering a more efficient and engaging shopping environment (Elsayad et al., 2024).

Further AI tools contribute significantly to personalization in e-commerce by incorporating advanced techniques such as sentiment analysis, emotion detection, and smart content creation. Sentiment analysis focuses on evaluating and interpreting customer emotions throughout the shopping process, allowing businesses to adjust interactions accordingly. Meanwhile, emotion detection utilizes sophisticated image-processing technology to assess facial expressions and tailor shopping experiences accordingly. Another key AI application is smart content creation, which gathers and processes data from multiple sources to generate customized content suited to individual users. Additionally, virtual assistants and chatbots process customer data to deliver personalized support, offering text and voice-based assistance. Well-known examples of AI-powered virtual assistants include Siri and Cortana, which enhance customer engagement through AI-driven interactions (Elsafty et al., 2025).

6 RESEARCH CHARACTERISTICS

6.1 Research Design

6.1.1 Overall Approach

Through integrating quantitative and qualitative approaches, the research aims to capture a comprehensive view of the adoption, usage and impact of AI features in this evolving digital landscape.

In the quantitative phase, an online questionnaire was distributed to a diverse pool of Egyptian consumers. This survey targeted individuals with varying degrees of familiarity with online shopping and AI technologies. Questions were designed to assess consumer attitudes, perceptions, and willingness to interact with AI-driven contextual product displays during their online shopping journey, thereby providing insights into broader market sentiment.

The qualitative phase involved conducting individual interviews with local fashion e-commerce entrepreneurs and industry professionals. Through in-depth discussions, participants shared their perspectives on the operational and infrastructural challenges associated with adopting AI-driven contextual product displays in the Egyptian e-commerce sector. Furthermore, these interviews also offered a nuanced understanding of how industry professionals evaluate the potential benefits of integrating AI features into their business models, while revealing how consumers prefer product presentations to better meet their expectations and achieve higher levels of satisfaction.

To bridge theoretical insights with practical application, a small-scale experiment was embedded in both the quantitative and qualitative components of the study. During the online survey, participants were shown two product images side by side: one featuring an AI-driven contextual product display and the other showcasing a traditional contextual product display to measure their preferences, likelihood of purchase, and overall satisfaction with each display. Meanwhile, e-commerce entrepreneurs reviewed the same set of images during the qualitative approach, providing further insight into whether the AI-driven contextual product display could feasibly drive engagement or boost sales while preserving product authenticity within their own platforms.

Overall, this integration of quantitative and qualitative ensures that the findings not only capture prevailing market sentiment but also illuminate the practical considerations of

implementing AI-driven contextual product displays. By examining both consumer responses and industry viewpoints, the study aims to inform best practices for Egyptian e-commerce retailers seeking to leverage AI technologies for sustained growth, enhance customer satisfaction and optimize product presentation while minimizing costs.

6.1.2 Sampling Strategy

In the quantitative survey, a combination of random sampling and the snowball method was employed to reach a broad cross-section of Egyptian consumers. This approach maximized diversity in terms of participants' familiarity with fashion shopping, capturing a total of 201 respondents who provided valuable insights into their preferences for both online and traditional shopping experiences. Among them, 28 expressed a consistent preference for traditional, offline shopping, underscoring the continued presence of consumers who are hesitant to engage with e-commerce platforms. Although these individuals did not directly align with the study's primary objectives, their responses highlight the variety of shopping behaviors within Egypt. Of the 173 respondents, 101 were women and 72 were men, suggesting not only a significant female inclination toward fashion e-commerce purchases but may also play a more significant role in driving engagement and supporting digital retail ecosystems.

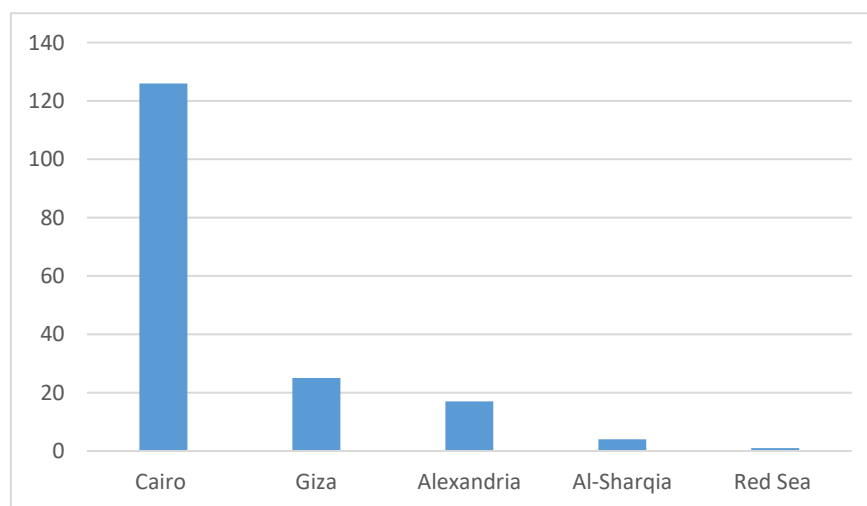


Figure 2 Geographic of the respondents

(Source: Own Research)

Furthermore, while the survey primarily reached participants in major urban centers, as illustrated in Figure 2, many respondents likely originated from other regions, reflecting the ongoing trend of internal migration in Egypt. This movement is largely driven by

socioeconomic and environmental challenges, including poverty, unemployment, and limited resources, which push individuals to seek better opportunities in metropolitan areas (Hatab et al., 2022).

According to CAPMAS (2017), the steady decline in illiteracy rates, from 39.4% in 1996 to approximately 25% in 2017, with the lowest rate (8.6%) observed among the 15–24 age group, suggests that migration to urban centers is likely to continue, particularly among younger populations seeking educational and economic advancement (Hatab et al., 2022).

As for the qualitative method, an intentional (purposive) sampling technique was adopted to focus on fashion e-commerce entrepreneurs whose insights could directly support the research objectives. It involved people who are owners of fashion e-commerce to fit the research study. Four participants were recruited for online calls: two women and two men, each between 25 and 35 years old. This relatively balanced representation of gender and age provided perspectives from young professionals who were open to discussing emerging technologies and potential future developments in AI-driven contextual product displays. Despite concerted efforts to broaden participation, it proved challenging to engage older business owners due to time constraints and showed less inclination to discuss AI-driven features, thus narrowing the qualitative sample. Nonetheless, the discussions held provided important viewpoints on integrating AI-driven contextual displays, revealing both enthusiasm for technological innovation and practical considerations unique to Egypt's evolving e-commerce landscape.

6.1.3 Data collection methods

This study employs both quantitative and qualitative techniques to capture diverse perspectives on AI-driven contextual product displays in the Egyptian fashion e-commerce market. By gathering data from consumers, industry professionals, and external resources, the research aims to provide a well-rounded view of AI adoption. A pilot study further refined the primary data collection instrument, ensuring clarity and relevance before widespread distribution.

For the quantitative component, a Google Forms questionnaire was distributed to Egyptian consumers across various cities, leveraging social media platforms to ensure wide reach. The survey remained open from January 31, 2025, until February 9, 2025, allowing sufficient time for participants to respond. A total of 23 questions were included, structured predominantly as close-ended with straightforward answer choices to streamline the

response process, encourage completion within approximately three to six minutes and ensure that participants could easily grasp both the questions and the overarching research objective. One of these questions served as a filter, excluding individuals who had never made fashion-related purchases from online stores. This step was critical for ensuring data relevance, as it aligned the sample with the study's focus on AI adoption in fashion E-commerce. By employing a digital format, the survey capitalized on broad internet accessibility in Egypt, facilitating contributions from diverse demographic segments.

Before launching the main questionnaire, a pilot survey was conducted between January 26 and 29, 2025 with a small group of respondents representative of the target population. This pre-testing aimed to assess the clarity of the questions, optimize the instrument design, and gauge the approximate time needed for completion. Feedback highlighted a few ambiguous items and complex expressions, leading to refinements such as rewording difficult questions, removing redundancies, and simplifying answer choices. A filtration question was also incorporated to improve data validity by ensuring that participants had relevant shopping experience. These adjustments helped enhance the overall reliability and user-friendliness of the final questionnaire.

To gain deeper insights into the operational and strategic dimensions of adopting AI-driven contextual product displays, semi-structured individual interviews were conducted with local fashion e-commerce entrepreneurs and industry professionals. These interviews ran from January 31, 2025, to February 7, 2025, typically lasting between 30 and 45 mins. Interviews were conducted online via Teams meeting and video-recorded (with participant consent) for subsequent analysis. The open-ended nature of the interview questions allowed participants to elaborate on their industry experiences, challenges, and attitudes toward implementing AI in their online retail, offering context-specific reflections on market trends and consumer engagement.

A brief experiment was integrated into both the survey and the interviews to demonstrate the potential impact of AI-driven contextual product displays. Participants were shown two product images side by side, one enhanced by AI-driven contextual display and another featuring a traditional display. In the online survey, respondents selected their preferred image based on certain questions. During the interviews, fashion e-commerce stakeholders were asked to review the same images and predict whether an AI-driven display could feasibly enhance consumer interest or drive sales on their platforms. After making their initial selections, participants were informed about which image employed AI-driven

features, prompting further discussion on perceived advantages and potential implementation strategies. This side by side comparison helped clarify how advanced AI tools might reshape and enhance online shopping behaviors and strategic planning within the Egyptian market.

In addition to primary data, the research drew on books, articles, and industry reports examining AI applications in e-commerce and digital consumer behavior. While these sources shed light on the broader influence of AI on purchasing decisions and brand engagement, there remains a notable gap in studies specifically focused on Egypt's fashion e-commerce market. By synthesizing relevant international literature with the findings of this study, the research aims to fill part of that gap and propose informed recommendations tailored to local market dynamics.

6.1.4 Questionnaire Design

In designing the questionnaires for both the online survey and individual interviews, four thematic areas were covered to gain a comprehensive understanding of Egypt's fashion E-commerce landscape and how AI-driven contextual product displays could shape consumer purchasing behavior. These areas encompass the potential impact of AI on purchase decisions and product presentation, the influence of AI on customer loyalty and repeat purchases, the readiness of local brands to integrate AI-driven contextual displays for enhanced consumer engagement while consumers's willingness to embrace that feature during their shopping journey and the challenges faced by e-commerce businesses in adapting such feature. Collectively, these focus points align with the study's research questions, ensuring a holistic assessment of AI's role in Egypt's fashion e-commerce market.

Given that the research is conducted in Egypt, the questionnaires were designed in the Arabic language to reach a broader audience, encourage higher response rates, and convey complex concepts more clearly. Interviews were likewise conducted in Arabic to maintain accuracy and depth in both the questions posed and the responses given by participants. To support consistent and precise translation, an Egyptian bilingual translator assisted in ensuring that the terminology related to AI-driven contextual product displays was conveyed accurately, thereby minimizing ambiguity and helping participants fully understand the study's objectives.

6.2 Research Limitations

Although this study focuses on AI-driven contextual product displays as one factor influencing consumer behavior in Egypt's fashion e-commerce sector, it does not encompass other elements that may shape online purchasing decisions. By highlighting on clothes and bags, the experiments covered only a proportion of the broader fashion industry's scope, and different reactions may emerge when considering other product categories. Nevertheless, this focus provides a foundational perspective on how AI solutions can engage consumers with brands in an online environment.

As an international student conducting research from the Czech Republic, it has posed challenges in accessing a sufficiently diverse range of Egyptian respondents. Although Google Forms facilitated relatively broad distribution, the majority of participants were still clustered in major cities, particularly the capital. While the capital often attracts individuals from various regions of the country, the resulting sample may still misrepresent the perspectives of those residing in less urbanized areas. Furthermore, many local fashion brands had limited availability and hesitations to share potentially sensitive information, limiting the diversity of perspectives and depth of qualitative insights. These factors inevitably influenced the scope and representativeness of the data.

Despite these constraints, the study offers valuable insights into how AI-driven contextual product displays can enhance product presentation and foster stronger consumer interactions in Egypt's fashion e-commerce market. In conclusion, recognizing these limitations can guide future research to explore additional fashion categories, broaden participant recruitment strategies, and engage more stakeholders, thereby contributing to a richer understanding of AI potential in this evolving landscape.

7 RESEARCH EVALUATION AND INTERPRETATION

7.1 Analysing the relation between AI-Driven Contextual Product Displays and Consumer Purchase Behavior

The experience of purchasing a product or service differs significantly between physical and online environments, offering distinct forms of value beyond the transaction itself. The contrast between these two shopping experiences becomes apparent when examining consumer behaviors and preferences in different settings (Solomon, 2019).

While online shopping prioritizes convenience, autonomy and accessibility, allowing consumers to browse and make purchasing decisions independently, often without external influences, it also presents unique challenges. Online customers often appreciate the comfort and control of making decisions at their own pace, free from external pressures. However, the absence of direct product interaction can create uncertainty about authenticity and quality, potentially impacting consumer confidence and expectations (Solomon, 2019).

To further address these e-commerce challenges, this analysis explores how AI-driven contextual product displays enhance purchase decisions, consumer engagement, and build trust in online fashion shopping.

In this study, an online survey was conducted with 201 respondents, out of which 173 participants, who prefer shopping for fashion online, were considered valid for analysis. The survey examined demographic patterns, revealing that the largest segment 59% falls within the 26-35 age group, indicating a strong preference for online fashion shopping among adults. Additionally, 18% of respondents belong to the 36-45 age group, while 16% are aged 18-25. These findings suggest that both adults and younger consumers favor online fashion shopping over traditional retail channels, highlighting a generational shift toward digital purchasing behaviors.

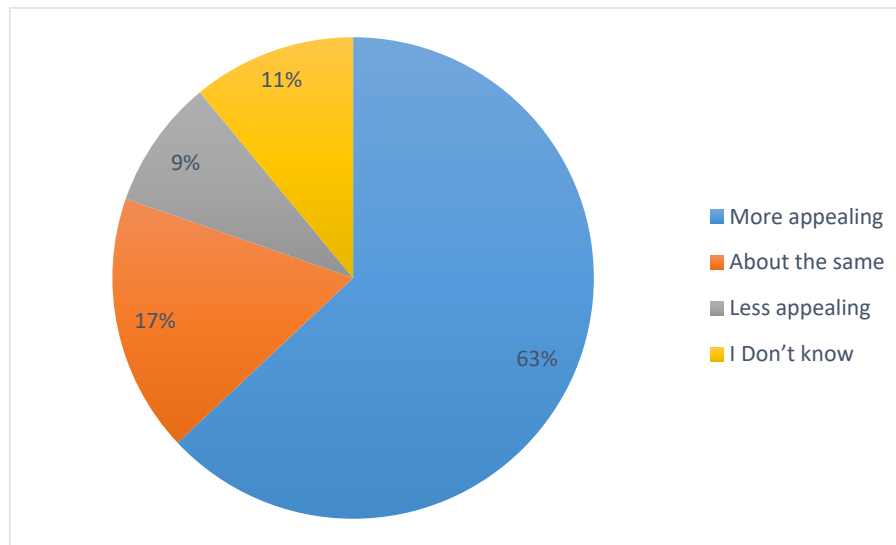


Figure 3 Visual appeal of AI-driven contextual product display

(Source: Own Research)

As illustrated in Figure 3, when respondents were asked in the online survey to compare the visual appeal of AI-driven contextual product displays to traditional ones, the results revealed that a notable majority, 63%, found AI-driven contextual product displays to be more visually appealing. This suggests that AI-driven contextual product displays adapt to individual consumer preferences, and provide a more engaging and personalized experience. The dynamic nature of AI-driven displays likely enhances the overall shopping journey, making it more attractive and motivating quicker purchase decisions.

In contrast, 17% of respondents indicated that the visual appeal of AI-driven contextual product displays was about the same as traditional displays. This suggests that while AI-driven visuals offer certain advantages in product presentation, there is still a portion of consumers who do not perceive a significant difference in appeal. This implies that for consumers who are not initially inclined toward AI, the introduction of AI-driven contextual product displays may not cause a noticeable change in their shopping experience. However, over time, these consumers may become more accepting of AI feature as they are exposed to it, ultimately leading them to embrace it as part of their shopping journey.

A smaller group, 9%, reported that AI-driven contextual displays were less appealing than traditional displays. This group may be skeptical of AI technology, possibly due to concerns over the accuracy of product presentation and discomfort with the perceived complexity of the technology.

Furthermore, 11% of respondents were unsure, selecting "I don't know" option. This indicates that a segment of the population has not yet been exposed to AI-driven contextual product displays, and therefore, has not developed an opinion on their visual appeal. However, this also suggests potential for growth, as this group may engage with AI-driven displays in the future during online shopping.

These findings are further corroborated by individual interviews with fashion owners, who highlighted the visual appeal of AI-driven displays in attracting customers. As noted by M.A. (Female, Founder of Bag & shoe store): „*The advantages include: enhancing backgrounds while keeping product details clear and increasing product appeal to customers*“ continued „*AI-driven contextual product display may help create a strong first impression*“. The participants also added the growing recognition of AI's role in improving the visual appeal and effectiveness of online product displays that is Mentioned by A.B. (Male, Founder of clothes store): „*AI allows for quick image enhancements and the addition of appealing visual elements without the need for expensive photoshoots*“. M.E. (Female, Founder of two clothes stores): „*AI can enhance images and showcase products*“.

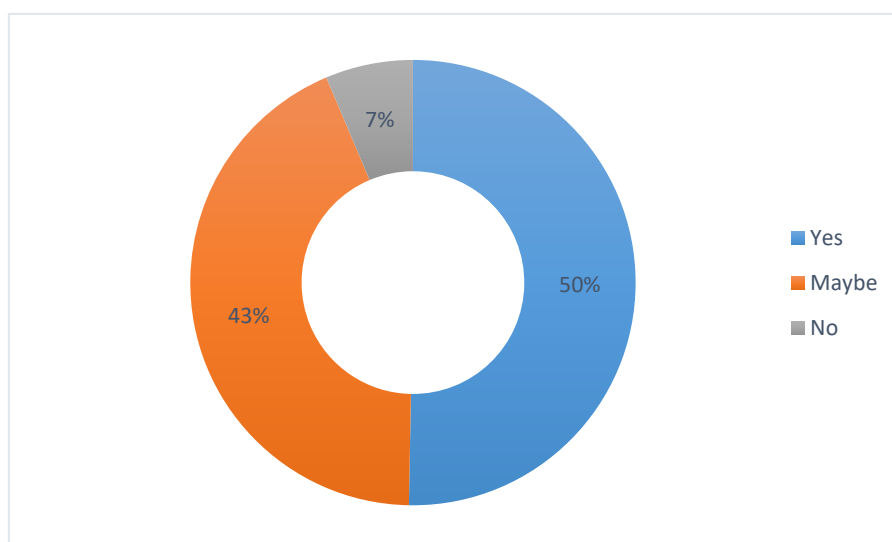


Figure 4 Likelihood of making an online purchase

(Source: Own Research)

Figure 4 represents consumers' perceptions of how AI-driven contextual product displays influence their likelihood of making an online purchase. According to the data, 50% of respondents believe that AI-driven contextual product displays would increase their chances of making a purchase. This highlights a significant portion of consumers recognize the potential of personalized, context-specific product presentations to improve the shopping

experience and motivate purchasing behavior. For e-commerce platforms looking to boost conversion rates, as consumers who find the displays engaging are more likely to act on the product presentation and proceed with a purchase.

In contrast, 43% of respondents were uncertain, answering "Maybe". This suggests that while many acknowledge the potential benefits of AI-driven displays, other factors may also influence their decision-making process. For this group, the decision to purchase may depend on additional variables such as product relevance, price, or trust in the brand. The uncertainty expressed by this portion of respondents could also be tied to their earlier experiences with AI or the perceived complexity of the technology. However continued exposure to AI-driven displays could change their outlook over time.

A smaller segment, 7%, felt that AI-driven contextual product displays would decrease their likelihood of making a purchase. This group could be more hesitant toward AI technology, possibly due to concerns over the accuracy of product presentation or an overall preference for traditional display methods. These individuals might feel that AI disrupts the simplicity or authenticity of their shopping experience, making them less inclined to engage with personalized recommendations.

When considering the findings from Figure 3, which showed that 63% of respondents find AI-driven contextual product displays more visually appealing, it becomes evident that the visual attractiveness of these displays plays a crucial role in influencing purchasing behavior. The fact that 50% of respondents believe AI-driven displays will increase their likelihood of making a purchase further supports that view. This alignment between the visual appeal and the increased likelihood of purchase suggests that when AI-driven contextual displays are designed to be both visually engaging and relevant, they can significantly enhance consumer interaction and encourage purchases. This connection underscores the potential of AI-driven product displays to not only capture attention but also drive consumer action, ultimately boosting sales for e-commerce platforms.

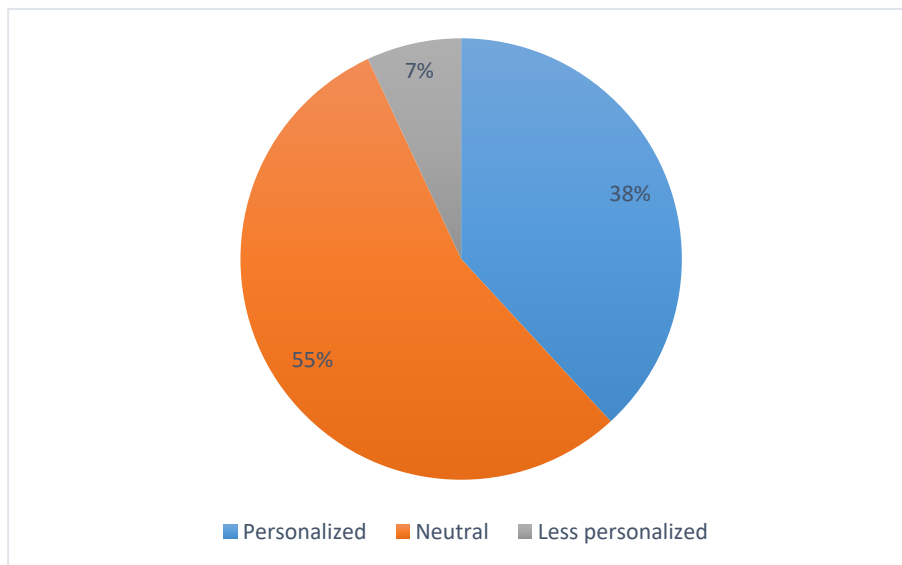


Figure 5 Personalizing the shopping experience

(Source: Own Research)

The respondents were asked how AI-driven contextual product display would personalize their experience compared to traditional shopping methods. According to the data illustrated in Figure 5, 55% of respondents reported feeling neutral about the personalization level provided by AI-driven displays, reflecting mixed interactions with e-commerce platforms employing AI features. This ambivalence could indicate that while personalization through AI-driven contextual displays exist, it may not always be markedly superior to what traditional shopping methods provide, or its effectiveness might fluctuate based on how users interact with AI features. Conversely, 38% confirmed that AI-driven context would personalize their shopping experience, highlighting the impact of AI on their buying decisions as previously detailed in Figure 4 and this underscores the growing acceptance of AI in e-commerce environments. These consumers value the personalized product presentations that AI facilitates, which are tailored to their individual preferences. This advantage of AI is supported by the findings in Figure 3, which showed a significant preference for the visual appeal of AI-driven contextual product displays. The tailored product presentations, facilitated by AI technology, are highly valued by consumers for their alignment with individual shopping preferences, demonstrating AI's capability to profoundly enhance the interaction with product displays.

On the other hand, 7% of respondents felt that AI-driven displays provided a less personalized experience than traditional methods. This minority likely includes individuals who favor the straightforward, less dynamic approach of traditional shopping, suggesting a segment of the market remains unconvinced by the benefits of AI in product presentation.

Despite the significant portion expressing neutrality, the overall findings from the figures underline a clear preference for AI-driven contextual product displays among consumers. These displays are recognized for their ability to engage users more effectively, influence their purchasing decisions, and better visualize products within realistic environments that traditional methods often lack.

- **Assessing the Impact of AI-driven Contextual Visuals on Online Shopping Behaviors**

In this study, an online experiment was conducted to assess consumer responses to three pairs of product images, each presented in distinct contexts. One set of images utilized AI-driven contextual product displays, while the other employed traditional displays. To ensure the integrity and objectiveness of the experiment, respondents were not informed which images were enhanced by AI technology. The primary objective was to empirically determine how consumers perceive these different presentations in e-commerce environment, particularly in terms of their ability to attract purchases and convey the authenticity of the products. Additionally, the survey aimed to evaluate whether these images aid consumers in visualizing the products in real-life scenarios. This investigation also extends to capturing insights from fashion industry entrepreneurs, offering a comprehensive view of current trends and preferences in product visualization within e-commerce platforms.

**A****B**

Figure 6 Influence the consumer decision to purchase the product

(Source: Rayam.co)

As depicted in Figure 6, respondents were shown two images of the same handbag product; one featuring an AI-driven contextual product display, and the other using a traditional, white context. They were then asked to indicate which product image would influence their decision to purchase the product. The results showed a clear preference, with 87% of respondents choosing Image A, which used the AI-driven contextual display. This choice reflects the effectiveness of AI in not only capturing attention but also fostering an emotional connection with the product, thereby influencing purchasing decisions. The personalized nature of Image A adapts to reflect scenarios where the product may fit into a consumer's lifestyle, enhances its relatability and aspirational appeal, making it more compelling to potential consumers. In contrast, 13% of respondents selected Image B, which utilized a traditional, plain contextual product display. While this straightforward presentation emphasizes the product's details, it lacks the contextual depth and visual appeal that AI-driven displays provide. This more neutral presentation could lead to lower engagement, as it does not provide the same level of emotional appeal or help the consumer envision the product as part of their lifestyle. The inclusion of a plain context reflects a common approach used in e-commerce, especially for fashion product displays. According to interviews with fashion entrepreneurs, there is a preference for simple, unembellished context when showcasing products on e-commerce websites. As noted by A.B. (Male, Founder of clothes

store): „It depends on the platform. On social media, dynamic backgrounds tend to be more engaging as they present the product in a more creative and eye-catching way. However, on an e-commerce website, simple, clean backgrounds“. On the other hand, M.A. (Female, Founder of a Bag & Shoe Store) argued that natural, dynamic settings often yield better results, stating, „Images that look more natural are likely to attract customers more, as they prefer products that they can visualize in real life. Conversely, white-background images appear professional but sometimes prompt customers to request additional real-life images“. These perspectives suggest that while plain contextual images may offer professionalism and simplicity, AI-driven product displays that provide more realistic and engaging context are still more likely to influence consumer purchase behavior. This reinforces the idea that the product details remain clear in AI-driven displays, without any distractions, while still adding emotional appeal and contextual relevance that traditional images may lack.

**A****B**

Figure 7 Trustworthiness in representing the actual product

(Source: [dresscodeme.com](https://www.dresscodeme.com))

In Figure 7, the author presented two images of clothing, each with a distinct context, one using an AI-driven contextual product display and the other using a traditional context. The objective was to assess which image consumers found more trustworthy in representing the actual product. The results showed a close distribution, with 53% of respondents selecting Image A, which utilized the AI-driven contextual display, while 47% chose Image B, which

employed a traditional, plain context. These findings indicate that both images were perceived as trustworthy representations of the product, without any noticeable manipulation.

However, the largest percentage of respondents who chose Image A suggests that AI-driven displays, which place the product within a real-life scenario, may enhance its believability and engagement. Consumers are often drawn to images that depict products in relatable environments, as these visuals allow them to imagine how the product would fit into their own lives, fostering a deeper sense of trust in the image's authenticity. While image B emphasizes the product's details and provides clarity, it may lack the contextual depth needed to establish a stronger emotional connection with the consumer. Traditional displays, though effective in highlighting the product, may not evoke the same level of trust or appeal as AI-driven contextual displays because they lack the dynamic and immersive environment that resonates with today's consumers.

These findings highlight the significant role that contextual and immersive imagery plays in shaping consumer trust. The ability of AI-driven contextual product displays to showcase the product in real-world scenarios appears to resonate with consumers, making them feel more confident in their purchasing decisions. As indicated by these results, product presentation is not just about clarity but also about relatability and emotional connection.

This observation was further supported by interview responses. While some participants expressed concerns that AI-driven displays could overwhelm the product with excessive visual elements, others acknowledged the advantages of contextual displays where few interviewees expressed a preference for image A which focused solely on the product, free of distractions. M.E. (Female, Founder of two clothes stores): *„I believe that images without distracting elements, such as cars or excessive background objects, are more likely to attract customers since they focus attention entirely on the product itself“*. Supported by M.A. (Female, Founder of Bag & shoe store): *„In some cases, small differences in background elements—like whether cars are present or not—can influence clarity and focus“*.



Figure 8 Imagine the product in real life

(Source: *dresscodeme.com*)

In Figure 8, the author presents two images of a clothing product; one using an AI-driven contextual product display and the other featuring a traditional, plain context. The purpose of this test was to evaluate how well each image helped respondents imagine the product in real life, particularly in a setting with an overcrowded, colorful context versus a simpler, plain background. The results indicated a clear preference for the AI-driven contextual product display, with 64% of respondents choosing Image B, while 36% preferred the plain context of Image A. These findings emphasize the greater effectiveness of AI-driven contextual product displays in enhancing consumers' ability to envision how a product would appear in their everyday lives.

Image B, featuring the model in an overcrowded colorful, outdoor setting, provided an immersive environment that allowed consumers to picture themselves wearing the product in real life. The dynamic AI-driven context established a stronger emotional connection with the product, making it feel more tangible and realistic despite the overcrowded environment. In contrast, Image A uses a plain white context, presenting a straightforward and clear view of the product. While this approach ensures clarity, it lacks the contextual depth that allows consumers to envision the product as part of a real-life scenario.

Interestingly, the interviews with fashion owners showed a different perspective. All interviewees preferred Image A, which used a traditional, less cluttered background. They

felt that this approach offered a more focused and engaging product presentation, free from distractions that could affect the consumer's perception of the product. Added by A.B. (Male, Founder of clothes store): „*Customers tend to avoid images that appear overly edited, as they may question the product's authenticity*“. Continued with M.A. (Female, Founder of Bag & shoe store): „*A less cluttered background helps highlight the product better, making it more suitable for e-commerce platforms. Some images appear overcrowded with colors or details, which can distract customers from focusing on the product itself*“.

The findings from the experiment, which involved both respondents and fashion entrepreneurs, highlight the differing ways in which consumers interact with product images on e-commerce, which challenge the perspectives held by fashion entrepreneurs regarding product presentation. The analysis of Figures 6, 7, and 8 underscores the significant impact of AI-driven contextual product displays on consumer engagement, trust, and purchasing behavior by offering dynamic and relatable settings, not only capture consumer attention but also foster stronger emotional connections and trust. A consistent trend emerges across all three figures, illustrating the advantages of AI-driven displays over traditional, plain context images. While traditional contexts continue to be valuable for their clarity and simplicity, particularly in e-commerce environments, the results emphasize that integrating more immersive and contextually relevant visuals can significantly enhance consumer engagement.

For fashion entrepreneurs, these insights offer valuable guidance when creating online product presentations. The results indicate that AI-driven displays are more effective in driving consumer purchasing decisions than traditional images. Entrepreneurs should consider transitioning from simple, plain backgrounds to more realistic, contextually rich settings that reflect real-life environments in their e-commerce. This approach would better align with consumer preferences, which are moving towards more dynamic and relatable imagery. As noted by fashion entrepreneurs, there is a preference for simpler, unembellished contexts on e-commerce platforms, particularly when the aim is to highlight product details. M.E. (Female, Founder of two clothes stores): „*If we are talking about social media, an image with a natural background would be more engaging, as it helps customers visualize the product in real-life contexts. On the other hand, for an e-commerce website, plain white backgrounds are preferable since they highlight product details more clearly*“. Continued by O.M. (Male, Founder of clothes store): „*The plain background image appears more appealing because it presents the product in a way that makes customers feel as though they*

are seeing it in real life, helping them make a purchasing decision“. In addition, concerns about over-editing were raised, as some fashion entrepreneurs worry that AI-driven contextual displays could result in unrealistic product representations. M.A. (Female, Founder of Bag & shoe store): *„Disadvantage is the risk of over-editing the background, which might result in a product that does not match reality“.*

7.2 Understanding Repeat Purchases and Customer Loyalty Under AI-Driven Contextual Displays

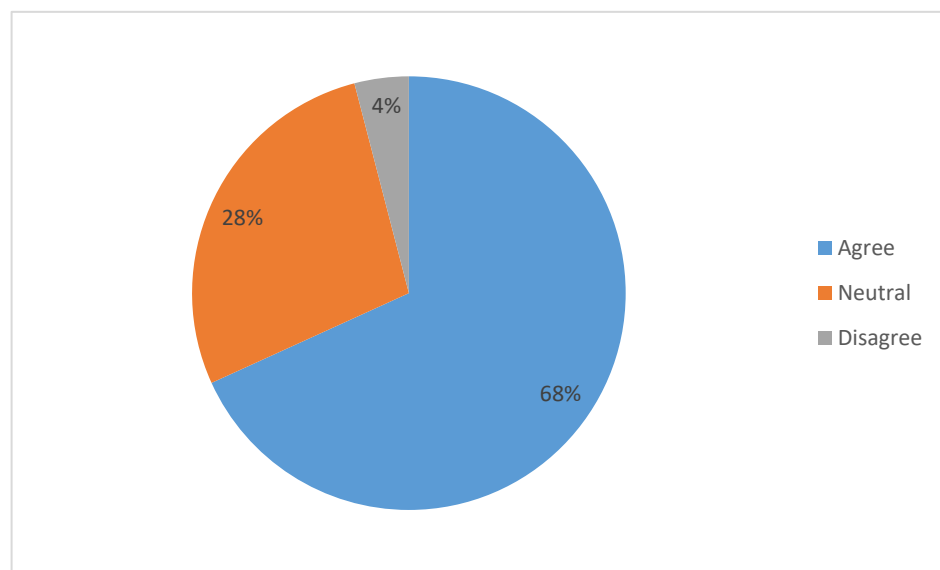


Figure 9 Making the shopping experience more convenient

(Source: Own Research)

The respondents were asked to what extent they agreed that AI-driven contextual product displays can make their shopping experience more convenient. As illustrated in Figure 9, 68% agree that AI-driven contextual product displays would make their shopping experience more convenient which is reflected in lower e-commerce bounce rates and longer session durations. This positive perception suggests that making the shopping journey easier can encourage repeat visits and foster customer loyalty. Those who favor AI-driven features appear to value tools that simplify product discovery and selection, making the overall process more seamless.

In contrast, 28% chose neutral that AI-driven contextual product displays would make their shopping experience more convenient in which may influence their likelihood of making repeat purchases. This group could shift its outlook once they become more familiar with AI-driven contextual displays, as some respondents might not yet have experienced notable

benefits, while others remain uncertain about the tangible advantages. A small minority of 4% disagreed, reflecting either skepticism or a preference for traditional shopping methods. This segment may doubt the accuracy of AI feature or feel uneasy about algorithm-driven presentation.

Supporting the above, participants were asked would the use AI-driven contextual product display makes them recommend e-commerce. The results showed 46% answered „yes“ suggesting a significant portion of respondents believe AI-driven features enhance the shopping experience to a point where they would advocate for it, generating WOM. This highlights the value of convenience as shown in Figure 9 and personalization as analyzed in Figure 5.

This reflects the broader role of WOM in consumer decision-making, where personal recommendations shape purchasing behaviors and build trust in AI-driven contextual displays in online shopping.

WOM is a key factor in shaping consumer decisions. In many instances, people rely on recommendations from friends, colleagues, or industry professionals when making purchasing choices. Interestingly, advertising has minimal influence in certain sectors. For example, research found that only 0.2% of respondents chose a physician based on advertisements, whereas most depended on referrals from family and friends. This underscores the strong impact of personal recommendations in building consumer trust and guiding purchase behavior (Solomon, 2019).

Meanwhile, 45% answered „Maybe“, reflecting a sizable group that remains open-minded yet cautious about fully endorsing AI-driven displays. These individuals may require additional proof of the technology's consistent benefits such as intuitive user experiences, or seamless integration with existing shopping habits before fully embracing or recommending it. Additionally, ensuring products are presented in a realistic context without overly editing and that was a concern being raised by the fashion entrepreneurs during the interview. As noted by O.M. (Male, Founder of clothes store): *„If the images presented are accurate and reflect the actual product, AI has the potential to build customer trust and encourage repeat purchases. However, if customers feel misled by overly edited or unrealistic images, they might lose confidence in the brand entirely“*. Lastly, 9% responded “No,” indicating a small but notable segment who would be unlikely to recommend e-commerce that used AI-driven contextual product display. This group may have concerns about privacy, accuracy, or simply prefer more traditional online shopping methods.

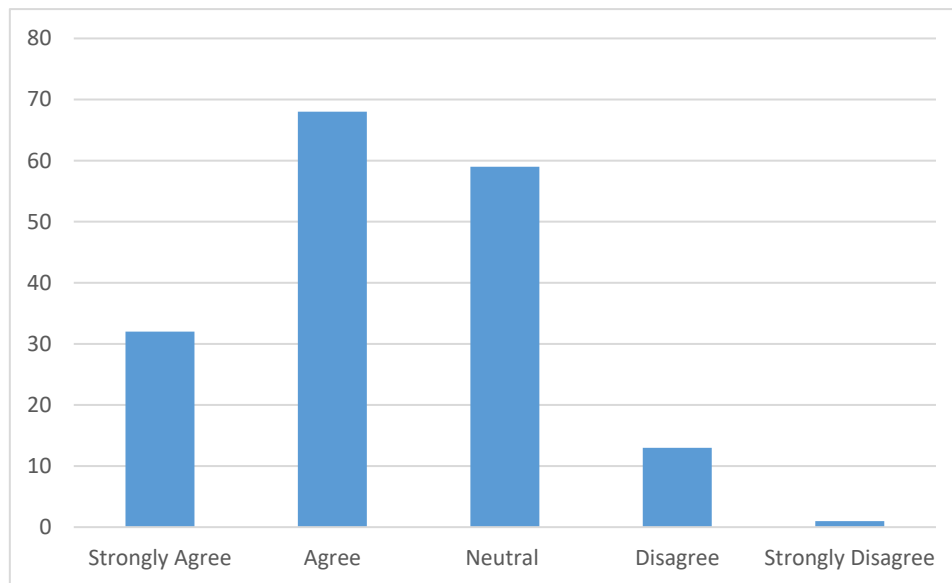


Figure 10 Improve trust in a fashion e-commerce brand

(Source: Own Research)

In Figure 10, the respondents were asked to what extent they think AI-driven contextual product display would improve their trust in a certain fashion e-commerce brand. The results reveal that 19% selected “Strongly Agree,” while 39% chose “Agree.” Together, these responses suggest that many consumers believe improved product presentation through AI-driven contextual product displays can significantly foster their confidence in a brand. Such trust may arise when the delivered product closely matches its online depiction, underscoring the notion that accurate and engaging visuals can positively influence the overall shopping experience. Meanwhile, 34% of participants indicated “Neutral,” implying uncertainty regarding how AI-driven displays might affect brand trust. Some may have encountered negative experiences with specific brands, while others may lack sufficient exposure to AI-driven technology to form a definitive opinion.

By contrast, 7% responded “Disagree” and 1% selected “Strongly Disagree.” Although these segments are relatively small, their doubts highlight potential concerns such as data security, quality of the technology, or fear of inauthentic presentations that brands should address.

Overall, these findings confirm that while many consumers see the potential of AI-driven contextual displays to enhance trust, there is still a need for transparency, consistent performance, and reliable product representations to fully realize the benefits of this technology.

In conclusion, these findings suggest that AI-driven contextual product displays have a notable impact on customer loyalty and the potential for repeat purchases by increasing convenience and recommendation of that e-commerce, ultimately enhancing brand trust. This has been argued during the interview as mentioned by M.A. (Female, Founder of Bag & shoe store): „*AI can attract customers and boost sales, but it's not the sole factor in building customer loyalty. The entire shopping experience, including product quality and after-sales service, plays a bigger role in determining customer loyalty*“ continued by O.M. (Male, Founder of clothes store): „*AI isn't the only factor influencing customer loyalty. Product quality, service efficiency, and the overall shopping experience play a much bigger role in determining whether customers will return*“. Consequently, fashion owners must focus on accurate, appealing product presentations and deliver what is promised online to foster deeper consumer trust and lasting loyalty.

7.3 Consumer Willingness and Entrepreneur Readiness in Understanding the Adoption of AI-Driven Contextual Product Displays in Fashion E-Commerce

This section explores the extent to which consumers are willing to embrace AI-driven contextual product displays in their online shopping journey, alongside fashion entrepreneurs' willingness to implement such technology in their e-commerce platforms to enhance customer engagement. The respondents and fashion entrepreneurs represent both adult and youth demographics, many of whom already interact with AI tools in various aspects of their daily lives. This familiarity contributes to their openness to AI-driven enhancements, particularly in personalized shopping experiences and dynamic product displays.

The perceived usefulness refers to the degree to which consumers believe that integrating AI into online shopping enhances the efficiency of their purchasing decisions (Suresh et al., 2023). It is widely recognized as a stronger determinant of a consumer's intention to adopt new technology compared to perceived ease of use, as it directly influences their motivation to engage with AI-driven features in e-commerce (Suresh et al., 2023). This concept aligns with the observed growing acceptance of AI-driven features among Egyptian consumers, who are increasingly shifting toward online shopping and digital interactions.

This trend is further supported by fashion entrepreneurs, who are actively leveraging AI tools to streamline operations and improve product presentation. As M.E. (Female, Founder of

two clothes stores) noted: „Now, with AI-powered tools, I can generate product descriptions within seconds. Additionally, many e-commerce platforms, such as Shopify, offer AI features that automatically create product descriptions based on images“. Similarly emphasized the role of AI in optimizing visual presentation, stated by A.B. (Male, Founder of clothes store): „We also use AI to enhance the quality of customer-uploaded designs, such as removing backgrounds and improving resolution, which saves significant time and effort“.

These findings illustrate how AI-driven features are becoming an integral part of fashion e-commerce, offering benefits that enhance operational efficiency while catering to consumer demand for more personalized shopping experiences. By improving product presentation and reducing manual effort, AI technologies are reshaping the way both consumers and businesses engage with digital fashion retail.

7.3.1 Examining consumer Willingness to Embrace AI-Driven contextual Product displays in online shopping

To assess Egyptian consumers' awareness of AI-driven e-commerce platforms that enhance product presentation, respondents were asked whether they were familiar with online websites utilizing AI for this purpose. The findings revealed that 43% of respondents answered "I am not sure," indicating a significant level of uncertainty regarding AI's role in product visualization. While AI-powered tools are increasingly being integrated into e-commerce, this response suggests that their application is not always explicitly communicated to consumers. This presents an opportunity for online retailers to bridge the knowledge gap by educating customers on how AI improves their shopping experience, thereby fostering greater trust, engagement, and adoption of AI-driven features. It also reflects consumers' limited ability to identify AI-enhanced product presentation, which could affect their perception and willingness to adopt such technologies.

Additionally, 30% of respondents stated "No," demonstrating that a portion of consumers remain unaware of AI's role in online fashion retail. Despite the rapid rise of AI applications in e-commerce, this lack of awareness highlights a potential barrier to consumer adoption to AI-driven contextual displays in product presentation. On the other hand, 27% of respondents confirmed their awareness of AI-driven product displays, reflecting a growing familiarity with AI's integration into e-commerce. This awareness is likely influenced by the increasing adoption of AI-driven features in personalization and visualization tools across both global and local online retailers. Insights from fashion entrepreneurs further reinforce

this trend, as industry professionals recognize AI's role in improving consumer engagement as noted by A.B (Male, Founder of clothes store): „*AI plays a major role in our business, particularly in design creation. We utilize AI tools such as ChatGPT to generate design ideas within seconds*“. And discussed the use of AI in content generation, explaining by M.A. (Female, Founder of Bag & shoe store): „*I use AI for writing ads and product descriptions on the website, as it helps improve content quality and saves time. It also assists in generating content that attracts customers more effectively*“.

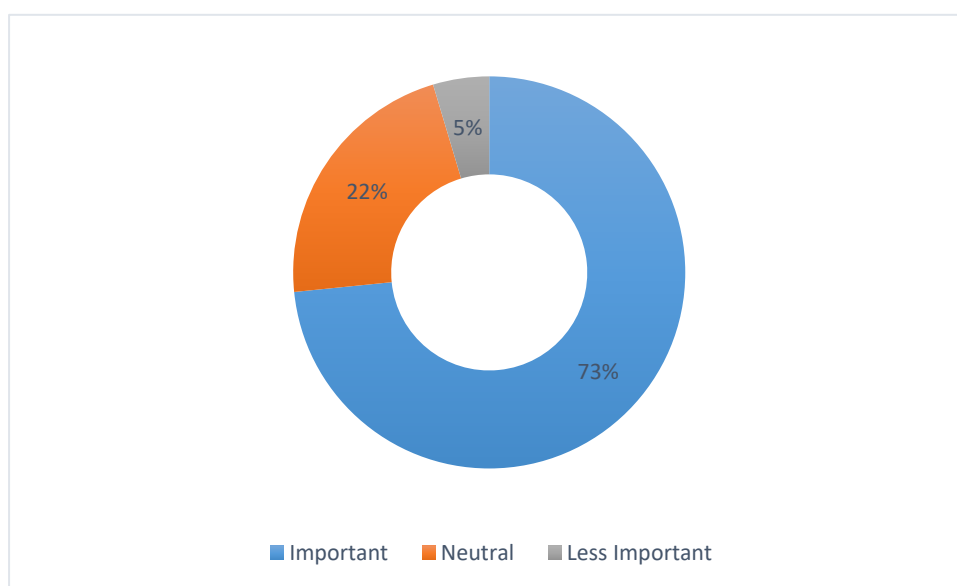


Figure 11 Educating customers about AI-driven technologies

(Source: Own Research)

The above analysis highlights a critical need for consumer education on AI tools and features, enabling them to recognize AI-enhanced product presentations and fostering greater acceptance of AI-driven contextual display technologies in online shopping. By increasing transparency and building trust, brands can enhance consumer confidence in AI applications, ultimately strengthening their market position.

As shown in Figure 11, the author examined the significance of educating consumers about AI-driven technologies to overcome resistance to their adoption. The findings revealed that 73% of respondents considered AI education important, reinforcing the vital role of awareness and knowledge in facilitating AI acceptance. This indicates that hesitation toward AI-driven product displays is often rooted in a lack of understanding rather than outright rejection of the technology. Meanwhile, 22% of respondents held a neutral respond, suggesting that while they do not dismiss the importance of AI education, they may not see

a direct correlation between AI awareness and its adoption. This could also imply that some consumers feel they have sufficient access to AI-related information, making additional education less essential.

Conversely, a small minority (5%) viewed AI education as less important, indicating that some consumers are already familiar with AI-driven features or do not believe further information would influence their shopping behavior. This perspective aligns with the growing integration of AI into everyday digital interactions, where users may already be accustomed to AI-driven product displays. During interviews, fashion entrepreneurs emphasized the role of brands in AI education, not only for consumers but also for employees, ensuring that all stakeholders can effectively engage with AI-driven innovations. As noted by A.B. (Male, Founder of clothes store): *„It is also crucial to educate both employees and customers on how to effectively use AI tools. Hosting workshops to increase AI awareness can maximize its benefits“* and reinforced this view by O.M. (Male, Founder of clothes store): *„Training employees and educating customers on how to leverage AI-driven tools can help maximize its benefits“*.

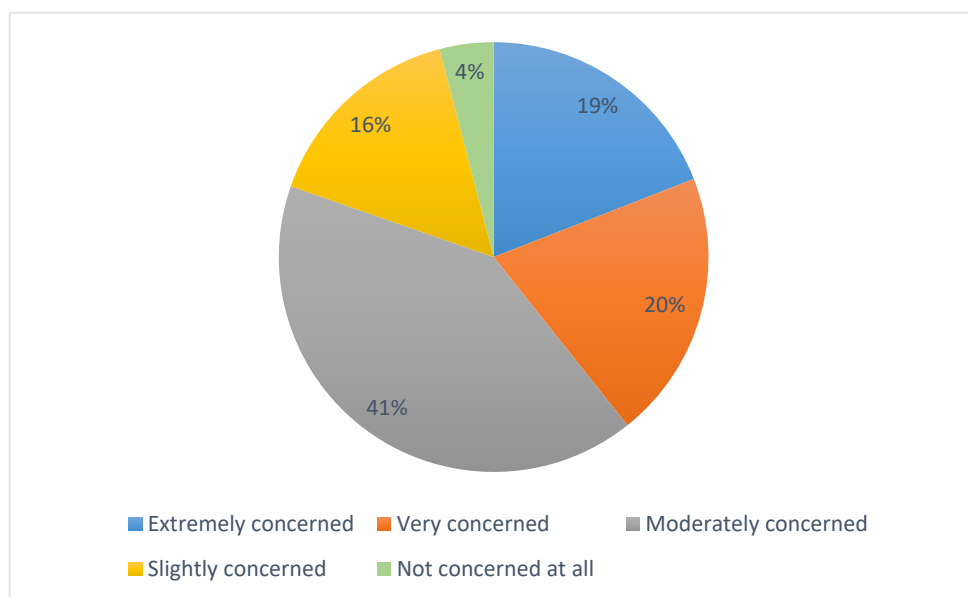


Figure 12 Concerns about the privacy of personal data when interacting with AI

(Source: Own Research)

To evaluate consumer concerns regarding data privacy when engaging with AI-driven features, respondents were asked about their level of concerns regarding the security of their personal information. As shown in Figure 12, the findings reveal that 41% of respondents are “moderately concerned”, indicating that while they recognize potential privacy risks,

their concerns are not severe. This suggests that a large segment of consumers remains cautious about data usage but is still willing to engage with AI-driven features, particularly if e-commerce platforms communicate clear privacy policies and data protection measures. However, 19% of respondents expressed being „extremely concerned“, while 20% reported being „very concerned“, highlighting a significant portion of users who perceive AI-driven features as potential risks to their personal data security. These concerns likely stem from uncertainties about how AI collects, stores, and utilizes consumer data, reinforcing the need for greater transparency and stronger privacy safeguards from online retailers.

Conversely, 16% of respondents indicated „slightly concerned“, while 4% reported „not concerned at all“, demonstrating that a segment of consumers is more open to AI integration and do not view AI-driven technologies as a major privacy threat. This also suggests that some consumers have a greater understanding of AI technologies, allowing them to engage with AI-driven shopping experiences with fewer reservations.

These findings reinforce the importance of educating consumers about AI-driven technologies, as highlighted in Figure 11, to reduce misconceptions and ease concerns about AI interactions. By equipping consumers with knowledge about how AI operates in e-commerce, businesses can enhance transparency and build consumer trust in new AI-driven solutions. Ensuring clear communication regarding data protection policies, ethical AI usage, and consumer control over personal information can significantly mitigate privacy concerns and encourage broader adoption of AI-driven features. This need for gradual education and exposure was also emphasized during the interviews. As mentioned by O.M. (Male, Founder of clothes store): *„with proper education and gradual exposure, customers may become more accepting of AI-powered solutions over time“*.

The adoption of AI-driven contextual product displays is influenced by several factors, particularly culture and generational differences, as highlighted during the interviews. Younger generations, particularly Generation Z and Generation Alpha, demonstrate a higher acceptance of AI technologies, older generations tend to approach AI-driven features with greater hesitation. This generational gap influences how consumers interact with AI-enhanced product displays, ultimately affecting their willingness to integrate such innovations into their online shopping experiences.

The shift toward digital and e-commerce has contributed to increasing consumer comfort with AI-driven contextual product display. The growing dominance of e-commerce

reinforces the adoption of new AI features, particularly among younger generations, who are more digitally fluent and adaptable.

While baby boomers may not be as comfortable with technology as younger generations, many are actively making efforts to adapt and stay updated. In contrast, Generation Z has grown up in a digital world, making them highly proficient in social media and modern technology. Having been immersed in technological advancements from an early age, Gen Z individuals are more likely to be digitally skilled and adaptable, often excelling in environments that require technological engagement. Compared to previous generations, they tend to perceive themselves as more tech-savvy and well-versed in emerging digital trends, which influences their shopping behaviors and interactions with AI-driven e-commerce platforms (Suresh et al., 2023).

This trend was emphasized by A.B. (Male, Founder of clothes store): „*Culture plays a major role in how customers perceive AI-driven product images. Some customer segments may be initially skeptical, but as they become more familiar with AI-generated visuals and see practical benefits, they are likely to embrace the technology. Younger, tech-savvy generations tend to adapt more quickly to such innovations compared to older generations*“. Similarly confirmed by M.E. (Female, Founder of two clothes stores): „*Younger generations are generally more open to this technology, viewing it as a natural progression. Older generations, such as mothers, maybe more hesitant about purchasing products with AI-enhanced images, as they may perceive them as misleading or overly altered*“.

These insights highlight the generational divide in AI adoption, where younger consumers view AI-driven features as an expected enhancement of their shopping journey, whereas older generations may approach AI-driven visuals with skepticism. As AI continues to shape fashion e-commerce, brands must consider these generational preferences when implementing AI-driven contextual product displays, ensuring that consumer trust and transparency remain at the forefront of adoption strategies.

7.3.2 Assessing Fashion Entrepreneurs' Readiness and Potential for AI-driven Product Display

During the interviews, fashion entrepreneurs expressed their willingness to integrate AI-driven contextual product displays into their e-commerce platforms, recognizing its potential to address key business challenges. Their openness to adopting this technology stems from prior experience with AI tools in various aspects of their personal and professional lives.

After participating in the experiment, many participants found the outcomes of AI-driven contextual displays to be promising, particularly in maintaining product authenticity while enhancing visual presentation. As noted by M.A. (Female, Founder of Bag & shoe store): *„Yes, I am considering it, especially after seeing examples of AI-driven contextual display. The cost and final image quality will be key factors affecting my decision“*.

A key theme that emerged from the interviews was the significant challenges entrepreneurs face in optimizing product presentation within their online stores. High photography costs, the need to stay aligned with fast-changing fashion trends, securing ideal shooting locations, website development complexities, and marketing expenses were all cited as major obstacles. As M.A. (Female, Founder of Bag & shoe store) explained: *„Professional product photography is quite expensive, whether in terms of renting shooting locations or hiring photographers. Moreover, paid advertisements on Facebook are costly, placing a burden on the budget“*. Similarly, O.M. (Male, Founder of clothes store) highlighted the difficulties in delivering an inclusive shopping experience: *„One of the major challenges is delivering a superior product display experience that caters to different tastes and body types. Additionally, continuously upgrading the website and enhancing user experience remains an ongoing challenge“*.

Despite the enthusiasm for AI-driven contextual displays, concerns were raised regarding their potential drawbacks. Some entrepreneurs worried that AI-driven contextual product displays might misrepresent the actual product presentation, leading to consumer dissatisfaction. Others expressed concerns about system errors or technical malfunctions that could impact the reliability of the technology, stemming from their past experiences with AI tools. O.M. (Male, Founder of clothes store) reflected on this issue: *„If AI technology can improve the customer experience without compromising the authenticity of the displayed products, then I would definitely consider adopting it. However, if it creates a misleading visual representation of the product that doesn't match reality, then it would be problematic“*.

While entrepreneurs recognize AI-driven contextual product display's ability to enhance product presentation and address logistical challenges, they also emphasize the importance of ensuring accuracy and maintaining consumer trust. For AI-driven displays to gain widespread adoption, they must strike a balance between innovation and authenticity, providing an enhanced shopping experience without distorting the actual product's appearance.

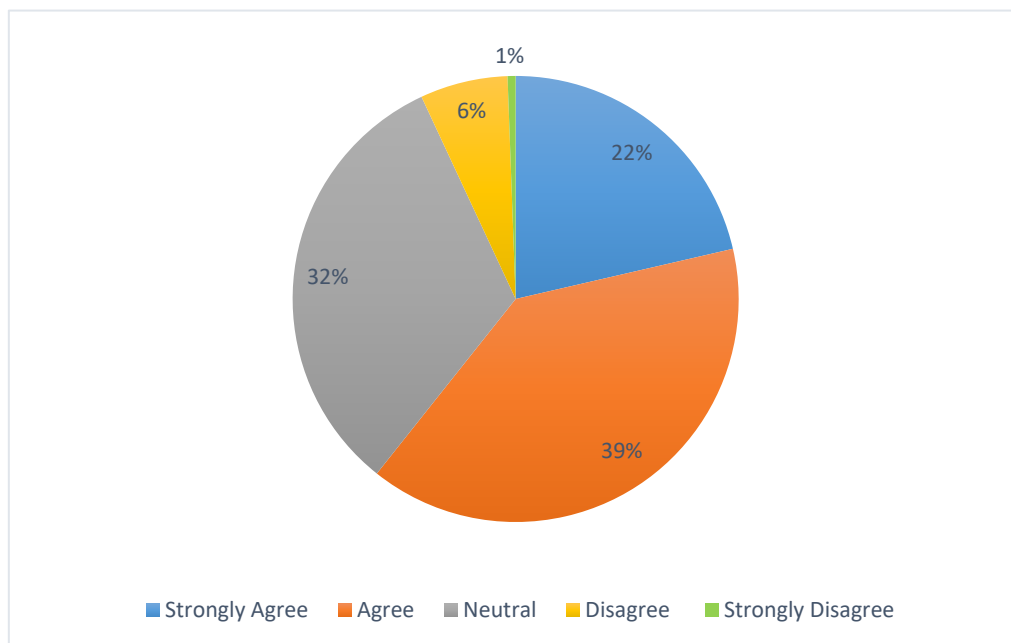


Figure 13 AI-driven contextual display might mislead the impression of the actual product

(Source: Own Research)

This analysis examines consumer concerns regarding whether AI-driven contextual displays accurately represent the actual product or contribute to unrealistic expectations. Understanding these perceptions is essential for ensuring AI-driven displays are implemented in a way that enhances consumer experience without compromising trust in the brand.

As illustrated in Figure 13, 22% of respondents selected “Strongly Agree”, while 39% chose “Agree”, indicating that a significant portion of consumers believe AI-driven contextual product displays may exaggerate or misrepresent product presentation quality. This highlights a key challenge in balancing visually appealing AI-driven presentations with authenticity. While AI-driven contexts provide an engaging and immersive shopping experience, they may also lead to discrepancies between consumer expectations and the actual product, potentially affecting satisfaction and trust. Meanwhile, 32% of respondents remained „Neutral“, suggesting uncertainty about whether AI-driven contextual displays significantly alter their perception of product quality. This group may rely on previous experiences with specific brands to determine product authenticity, trusting both the presentation and the final product. Conversely, some neutral responses may stem from prior negative experiences where AI-driven contextual displays failed to align with reality, leading to skepticism about this technology’s reliability.

On the other hand, 6% of respondents chose „Disagree“, and only 1% selected „Strongly Disagree“, representing a small minority who do not perceive AI-driven product displays as misleading. This suggests that some consumers trust that AI-driven contextual displays accurately reflect product quality or believe they can independently verify a product's authenticity through additional research, customer reviews, or direct interactions with the brand. Their responses indicate a level of familiarity with AI applications in e-commerce, showing that while skepticism exists, there is also consumer confidence in identifying authentic product representations.

The findings emphasize the critical balance between visual enhancement and accurate representation in AI-driven contextual product displays. While AI has the potential to elevate product presentation and create a more engaging shopping experience, concerns about over-editing and potential misrepresentation remain prevalent. During the interviews, fashion entrepreneurs expressed apprehension that excessive AI modifications might distort product authenticity, leading to skepticism among consumers. As highlighted by M.E. (Female, Founder of two clothes stores): *„Some customers might be skeptical of AI-edited images, fearing that the product itself has been manipulated“*. Given these concerns, it becomes the responsibility of fashion entrepreneurs to clearly communicate the role of AI in their product displays. Transparent disclosure can enhance trust and reinforce consumer confidence in the accuracy of AI-driven contextual product displays. As M.E. (Female, Founder of two clothes stores) further emphasized: *„AI should be used carefully to enhance product presentation without creating an unrealistic representation of the item. Transparency in AI usage is essential for maintaining customer trust“*. However, perspectives on transparency vary. Some entrepreneurs believe that disclosing AI usage prematurely might deter consumers who are unfamiliar with or skeptical about AI-driven displays. M.A. (Female, Founder of Bag & shoe store) expressed this concern stating: *„As for transparently disclosing that images are AI-generated, it's a sensitive topic. Some customers might feel it reduces credibility, while others may accept it if they consistently receive accurate products. I believe brand trust plays a key role here. If a brand is already reliable and consistently delivers quality products, disclosing AI usage may not be necessary. However, in the early stages of AI adoption, it might be best not to explicitly highlight AI-generated images until customers naturally accept them“*.

The broader e-commerce landscape reveals that consumer perception and overall trust are closely linked to their online shopping behavior. Trust plays a pivotal role in shaping

purchasing decisions, with interactive engagement between retailers and consumers serving as a key factor in strengthening this relationship. The ability to reduce perceived risk is fundamental in building consumer trust, and emerging technologies, including AI, act as a bridge to enhance this trust (Suresh et al., 2023).

However a notable challenge is that many consumers remain unaware of AI-driven features when browsing an e-commerce website. This lack of awareness underscores the subtle yet impactful role of AI in shaping consumer experiences. Additionally, consumer confidence and trust significantly influence the intention to complete an online purchase. A higher level of trust in an e-commerce platform directly correlates with an increased likelihood of purchase completion, reinforcing the importance of building transparent and reliable online shopping environments (Suresh et al., 2023).

Recognizing the impact of AI on consumer trust and brand credibility, fashion entrepreneurs provided recommendations for businesses seeking to implement AI-driven contextual product displays effectively. They emphasized that AI should not only serve as a tool for enhancing product visualization but also as a means to attract consumers, build trust, and strengthen business operations. A.B. (Male, Founder of clothes store) advised: *„Leveraging AI-powered analytics can greatly improve marketing decisions and operational efficiency. Businesses should integrate AI into daily processes, whether in design creation, data analysis, or customer interaction“*. Additionally, ensuring visual accuracy and ethical AI usage was highlighted as a key responsibility as stated by M.E. (Female, Founder of two clothes stores): *„Ensure that AI-edited images do not alter the product’s actual appearance“*. Transparency remains a significant concern, as O.M. (Male, Founder of clothes store) recommended: *„AI should be used cautiously to avoid misleading customers. It’s best to disclose when images are AI-generated, maintaining transparency to preserve credibility“*. These insights underscore that while AI-driven contextual product displays can be a valuable asset, their implementation must be strategic, transparent and consumer-focused.

7.4 Navigating the Obstacles in AI Adoption for Fashion E-Commerce in Egypt

This section explores Egypt's readiness to integrate AI-driven features in fashion e-commerce, examining the market's response to digital transformation and current AI advancements. Insights were gathered through online surveys, individual interviews, and external sources to assess the country's capabilities in supporting AI adoption.

In the online survey, respondents were asked about their views regarding the technological infrastructure in supporting AI implementation in fashion e-commerce in Egypt. The results reflect mixed opinions with both optimism and skepticism about the country's digital readiness for AI integration. A significant portion of respondents 48% selected „maybe“ indicating uncertainty about whether Egypt's current infrastructure can fully support AI-driven innovations. While there have been improvements in digital infrastructure, concerns persist over internet stability, data processing capabilities, and overall system performance.

However, 28% selected „No“, expressing doubts about the adequacy of existing technological resources to facilitate AI adoption in fashion e-commerce. Their concerns may stem from issues such as inconsistent internet connectivity, insufficient access to high-performance computing tools, and a lack of AI-related expertise within the industry. Additionally, the absence of advanced cloud computing solutions and regulatory frameworks tailored to AI integration may contribute to skepticism about its feasibility. This response may also reflect firsthand experiences with technical inefficiencies in existing digital platforms, highlighting the need for more comprehensive digital transformation initiatives.

On the other hand, 24% of respondents answered „Yes“, suggesting confidence in the current infrastructure's ability to support new AI features in fashion e-commerce. This group may have positive experiences with AI applications in daily life or observed businesses successfully implementing AI technologies. Their perspective could be influenced by Egypt's growing digital transformation efforts, which include the expansion of tech-driven initiatives, increased cloud service accessibility, and rising investments in AI by both local and international firms.

The findings suggest that while there is a foundation for AI adoption in Egypt's fashion e-commerce sector, significant improvements are needed in digital infrastructure to ensure seamless integration.

While the survey results highlight both progress and challenges in Egypt's digital infrastructure for AI adoption, broader systemic factors must also be considered. The effectiveness of AI-driven contextual product display in fashion e-commerce depends not only on technological readiness but also on the overall digital ecosystem, which includes regulatory frameworks, financial accessibility, and consumer trust.

For digitalization to reach its full potential, Egypt requires a strong and adaptable digital ecosystem that fosters innovation and accessibility. This includes widely available and affordable high-speed internet, a workforce equipped with digital skills, digital platforms that connect businesses with consumers, seamless digital financial and payment services, digital identities, and a legally supportive regulatory framework. Additionally, ensuring that consumers are digitally literate and fostering an entrepreneurial environment are crucial components. Over the years, several of these elements have been gradually and simultaneously introduced (Kamel, 2021).

However, addressing the risks associated with digitalization is equally important. Issues such as the digital divide, inadequate cybersecurity measures, and lack of protection against cyber threats could undermine the benefits of digital transformation. If these risks are not effectively managed, they may lead to further marginalization of certain segments of society, particularly those facing barriers such as illiteracy, financial constraints, or limited infrastructure access (Kamel, 2021).

Other pressing challenges include interoperability between different digital systems, cybersecurity vulnerabilities, and risks such as data breaches and privacy concerns, which could weaken consumer trust and confidence. Additionally, a limited understanding among entrepreneurs and professionals regarding the advantages of digital financial services further complicates the adoption of digitalization. Effective policies should prioritize individuals, households, and businesses that previously lacked financial access, particularly low-income populations and those in underserved rural areas. Moreover, integrating women and youth into the digital economy requires targeted efforts. Beyond regulatory measures, there is also a need to tackle broader challenges, including disparities in access and adoption of digital technologies, knowledge gaps, cultural perceptions, and concerns over trust and transparency. These issues cannot be resolved solely through legal frameworks but necessitate comprehensive nationwide awareness campaigns to drive acceptance and inclusion across society (Kamel, 2021).

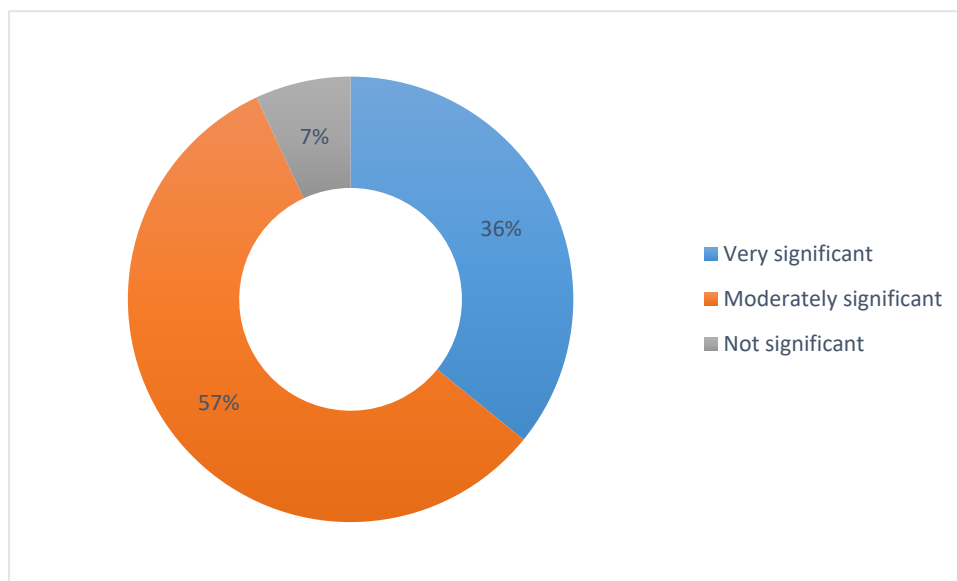


Figure 14 Lack of technical expertise in implementing AI-driven contextual product display

(Source: Own Research)

As shown in Figure 14, the author explores consumer perspectives on the extent to which a lack of technical expertise serves as a barrier to adopting AI-driven contextual product displays in Egyptian fashion e-commerce. The findings revealed that 57% of respondents consider it moderately significant, suggesting that while technical expertise is a challenge, it is not an inevitable one. This indicates that businesses may struggle with integrating AI due to limited in-house knowledge but can still explore solutions such as outsourcing AI services or investing in employee training to bridge the gap.

However, 36% of respondents view the lack of technical expertise as a very significant barrier, reflecting deeper concerns among fashion entrepreneurs about the complexity of AI-driven context adoption. This may stem from challenges such as limited access to AI training programs, a shortage of skilled developers, or the high costs associated with hiring AI professionals. The responses suggest that without proper training and accessible AI solutions, many businesses may find it difficult to implement AI-driven contextual product displays effectively, potentially delaying their adoption.

On the contrary, 7% of respondents indicated that the lack of technical expertise is not a significant barrier to implementing AI-driven contextual product displays. This suggests that a small segment of businesses either already possess the necessary technical skills or do not view AI integration as a major challenge. These businesses may include those that have

previously invested in AI tools, established internal AI capabilities, or have the financial resources to outsource AI new features. However, it is also possible that this minority group lacks full awareness of the complexities involved in AI adoption, leading them to underestimate the technical challenges associated with implementing AI-driven contextual product displays effectively.

These results emphasize the need for greater investment in technical training and accessible AI solutions tailored to the needs of Egyptian fashion e-commerce businesses. Without addressing this gap, the implementation of AI-driven contextual product displays may remain limited, preventing many businesses from fully leveraging the potential of AI to enhance their online shopping experience.

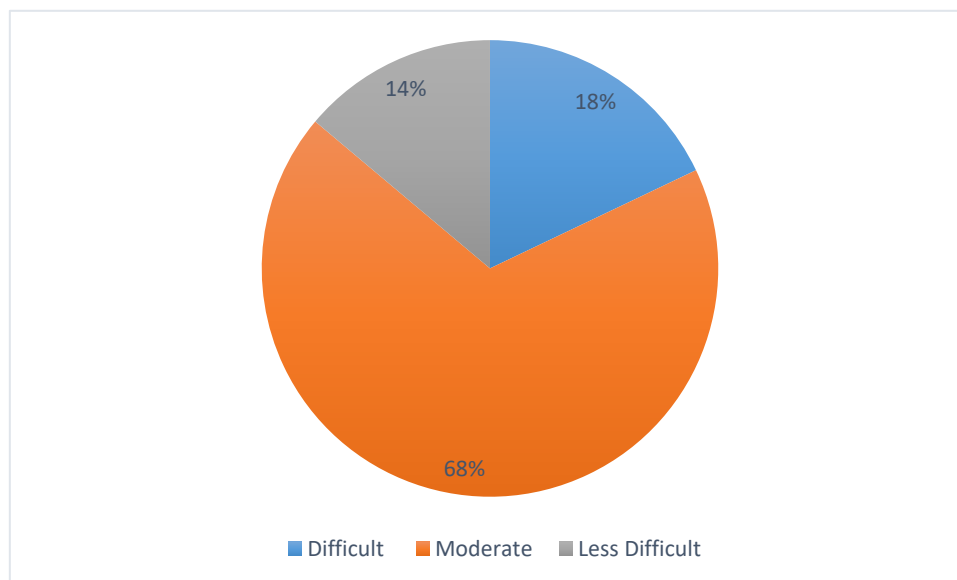


Figure 15 Difficult for small businesses to invest in AI-driven contextual product display

(Source: Own Research)

As illustrated in Figure 15, the author explores the perceived difficulty of small businesses investing in AI-driven contextual product displays for their e-commerce platforms. By examining both consumer perspectives and fashion entrepreneurs' viewpoints, this assessment provides insight into how consumers perceive the ability of small businesses to integrate AI into their operations. The data revealed, 68% of respondents selected "Moderate," indicating that while AI adoption presents some challenges, it is not entirely out of reach for small businesses. This suggests that emerging AI technologies are becoming more accessible, yet financial constraints, lack of awareness, and operational hurdles still make implementation a complex decision. Many small business owners recognize the

potential benefits of AI-driven product displays but struggle with the necessary budget allocation and technical expertise required for effective adoption. This aligns with findings from Figure 14, where respondents indicated that the lack of technical expertise is only a moderately significant barrier, implying that these challenges can be overcome with the right strategies. The interview findings also support this perspective, as many fashion entrepreneurs acknowledge AI's potential while recognizing the need for careful integration. As noted by A.B. (Male, Founder of clothes store): *„The technical limitations of AI are a key concern, as some AI-generated visuals lack precision in certain details. It is also essential to maintain visual consistency across all product images to ensure a seamless browsing experience for customers“*. Additionally M.E. (Female, Founder of two clothes stores) highlighted the financial concern: *„If AI technology comes with high costs, it may not be sustainable in the long run“*. Similarly, O.M. (Male, Founder of clothes store) pointed out the operational risks: *„some AI technologies may slow down the website, potentially affecting the overall user experience“*.

Meanwhile, 18% of respondents considered AI investment „Difficult“, suggesting that for some small businesses, the cost of acquiring AI-driven contextual tools, hiring skilled professionals, and integrating AI within existing e-commerce platforms presents a major challenge. For businesses with tight budgets, these expenses may discourage AI adoption despite its potential advantages in enhancing consumer engagement and improving sales conversion rates.

This challenge reflects a broader trend among MSMEs in Egypt's retail sector, where limited resources and technological constraints continue to hinder their ability to integrate advanced e-commerce solutions effectively. Similar to MSMEs globally, many small and medium-sized enterprises in Egypt's retail sector struggle with limited resources and lack the capability to fully utilize e-commerce sales channels (Kamel, 2021). As a result, they fall behind larger enterprises in adopting the advanced technologies necessary for effective e-commerce integration (Kamel, 2021). Studies on MSMEs and their digital engagement have also highlighted their slow adoption of online business transactions, further emphasizing the challenges they face in leveraging technological advancements (Kamel, 2021).

On the other hand, 14% of respondents chose „Less Difficult“, implying that some consumers view AI adoption as a strategic opportunity for small businesses to develop and enhance their e-commerce presence. This group believes that AI integration when strategically planned and executed, can provide a competitive edge and create new growth

opportunities for brands. Businesses in this category may already have access to AI-related resources, and external funding, or operate in industries where AI-driven solutions are more feasible.

These findings emphasize the importance of addressing financial and technical barriers while educating and equipping small businesses with the necessary tools to facilitate the adoption of AI-driven contextual product displays in Egypt's fashion e-commerce industry.

8 ANSWERING THE RESEARCH QUESTIONS

Question 1: How does AI-driven contextual product display influence consumer purchase decisions on fashion e-commerce platforms?

AI-driven contextual product displays play a crucial role in shaping consumer purchase decisions in fashion e-commerce by enhancing product presentation, increasing engagement, and fostering trust. These displays provide visually appealing, personalized experiences that make products more relatable and aspirational, encouraging consumers to interact with and consider purchasing them. By integrating AI-driven visuals, e-commerce platforms create a more dynamic shopping experience that aligns with consumer preferences, influencing their decision-making process.

Moreover, AI-driven product displays help bridge the gap between online and physical shopping by offering immersive and contextually relevant images, allowing consumers to better visualize products in real-life settings. This added sense of realism strengthens emotional connections, making consumers feel more confident in their purchases.

However, concerns remain regarding the accuracy of AI-enhanced product presentations. While AI can refine images and create more engaging visuals, there is a need for transparency to ensure that product representations remain authentic and do not mislead consumers. Fashion entrepreneurs recognize AI's potential but stress the importance of balancing aesthetics with trustworthiness to maintain customer confidence.

Overall, AI-driven contextual product displays enhance the online shopping experience by making products more attractive, reducing uncertainty, and driving purchase decisions. Their ability to personalize and refine product presentation positions AI as a powerful tool for improving consumer engagement and boosting sales in fashion e-commerce.

Question 2: How does AI-driven contextual product display contribute to building customer loyalty and encouraging repeat purchases among fashion e-commerce users in Egypt?

AI-driven contextual product displays contribute to customer loyalty and repeat purchases in fashion e-commerce by enhancing convenience, personalization, and trust. Consumers perceive AI-driven displays as tools that improve their shopping experience by making product discovery and selection easier, which encourages repeat visits. The ability to

personalize product presentation strengthens engagement and fosters brand trust, increasing the likelihood of customer retention.

Additionally, AI-driven displays influence WOM marketing, as satisfied consumers are more likely to recommend e-commerce platforms that enhance their shopping experience. However, trust remains a crucial factor in customer loyalty. While AI can create visually appealing and immersive product presentations, concerns about over-editing and misleading representations must be addressed to maintain transparency and credibility. Fashion entrepreneurs emphasize that AI is not the sole driver of loyalty; product quality, service efficiency, and overall shopping satisfaction play significant roles in securing repeat purchases.

To maximize the benefits of AI-driven contextual displays, fashion e-commerce brands must balance innovation with authenticity. Delivering product expectations and maintaining transparency in AI usage are key to strengthening consumer trust, ultimately ensuring long-term loyalty and sustainable business growth.

Question 3: What factors affect fashion e-commerce customers' willingness to adopt AI-driven contextual product displays during their online shopping journey, and the readiness of fashion entrepreneurs to implement this technology?

The adoption of AI-driven contextual product displays in fashion e-commerce depends on several key factors, including consumer awareness, perceived usefulness, trust, and generational differences. Consumers who recognize AI's ability to enhance product visualization and streamline decision-making are more willing to adopt this technology, particularly younger generations who are more digitally fluent. However, limited awareness remains a barrier, as many consumers struggle to identify AI-enhanced product displays, emphasizing the need for education and transparency from e-commerce brands.

While AI offers personalization and efficiency, concerns about trust and authenticity influence adoption. Consumers expect AI to improve, not misrepresent product presentation, and skepticism arises when AI-generated visuals appear overly altered. Additionally, privacy concerns affect consumer willingness, as some are cautious about data security when interacting with AI-driven features. Clear communication about data protection policies is essential for accepting AI-driven contextual product displays.

On the entrepreneurial side, fashion business owners acknowledge AI's potential to enhance product presentation and streamline operations but face challenges in implementation. High costs, technical limitations, and concerns about misleading product visuals are key obstacles. Some entrepreneurs emphasize the need for transparency in AI use, while others believe that gradual consumer exposure will lead to greater acceptance over time.

To drive adoption, businesses must focus on accurate product representation, AI education, and consumer trust-building strategies. Addressing these factors will ensure that AI-driven contextual product displays create a seamless and reliable shopping experience while fostering long-term consumer engagement and brand credibility.

Question 4: What are the technological, financial and infrastructural challenges faced by Egyptian fashion e-commerce in adopting AI-driven contextual product display?

The adoption of AI-driven contextual product displays in Egyptian fashion e-commerce is influenced by several technological, financial, and infrastructural challenges. The findings indicate that while Egypt is undergoing digital transformation, uncertainties remain regarding the country's ability to support AI integration. A significant portion of respondents expressed concerns over technological infrastructure, citing issues such as inconsistent internet connectivity, limited access to high-performance computing resources, and regulatory gaps. While some businesses have successfully implemented AI tools, the broader ecosystem still requires advancements in digital infrastructure, cloud computing solutions, and AI-friendly policies to ensure seamless adoption.

Another major challenge is the lack of technical expertise among fashion entrepreneurs and small businesses. Many struggle with AI implementation due to a shortage of skilled professionals and limited access to training programs. While some businesses view this as a moderate challenge that can be addressed through outsourcing or upskilling, others see it as a significant barrier, preventing them from effectively utilizing AI-driven contextual product displays. Without investment in AI literacy and specialized workforce development, the widespread adoption of AI-driven contextual product display features in e-commerce remains constrained.

Financial constraints also present a significant hurdle, particularly for small and medium-sized enterprises (SMEs). Many entrepreneurs recognize the benefits of AI-driven displays but struggle with the high costs associated with acquiring AI tools, hiring professionals, and

integrating these technologies into their e-commerce platforms. Limited budgets and competing business expenses often make AI investment a lower priority, despite its potential to enhance consumer engagement and improve sales performance. Some businesses, however, see AI adoption as an opportunity to gain a competitive edge, emphasizing the need for strategic planning and financial support to facilitate the transition.

Overall, the successful integration of AI-driven contextual product displays in Egyptian fashion e-commerce depends on addressing these interconnected challenges. Strengthening digital infrastructure, increasing access to AI training, and providing financial incentives for small businesses are essential steps in overcoming barriers to adoption. Ensuring transparency, educating consumers, and fostering trust in AI-driven solutions will also play a crucial role in shaping the future of AI implementation in the fashion e-commerce sector.

III PROJECT PART

9 PROJECT OVERVIEW AND OBJECTIVE

9.1 Project Introduction

As a result of in-depth analysis and extensive data collection from consumers and fashion e-commerce entrepreneurs, it became evident that the market is highly receptive to AI-driven contextual product displays. Respondents and business owners recognized the superior ability of AI-driven visuals to attract consumers compared to traditional displays. The research demonstrated strong enthusiasm for integrating this technology into online shopping, with fashion entrepreneurs eager to adopt AI-driven contextual displays within their e-commerce platforms. The willingness of both consumers and business owners to embrace AI solutions highlights the transformative potential of this innovation in the fashion e-commerce industry.

The findings also revealed that younger generations, including both consumers and fashion entrepreneurs, are more open to adopting AI-driven contextual product displays. Exposure to various AI tools in different aspects of their digital interactions has made them more adaptable to this AI feature compared to older generations.

Motivated by these findings, the author developed Circle AI, the first generative AI platform in Egypt tailored specifically for fashion e-commerce businesses. This innovative solution integrates AI-driven contextual features to enhance product presentation and optimize the online shopping experience while maintaining authenticity, aiming to improve consumer satisfaction and drive higher purchase conversion rates. By refining product visualization without altering the product image itself, Circle AI generates realistic, AI-driven contexts that allow consumers to envision fashion items in authentic, real-life settings. Aligning contextual presentation with product attributes enhances the overall shopping experience, making it more compelling and personalized.

The development of Circle AI addresses key challenges faced by fashion businesses in the digital marketplace, including high photography costs, difficulty in securing quality shooting locations, lack of personalized product presentations, rapidly evolving fashion trends, and significant marketing expenses. With a simple and efficient process, business owners can upload a product image, and the platform will automatically enhance its visual contextual appeal, providing an innovative and cost-effective solution.

By leveraging AI-driven contextual product displays, Circle AI empowers fashion businesses to elevate product presentation, increase customer satisfaction, and drive purchase decisions. This fosters deeper consumer engagement and supports the growth and modernization of Egypt's fashion e-commerce industry, aligning seamlessly with the objective of this thesis.

9.2 Project objective

Circle AI is set to launch in the Egyptian market with the aim of revolutionizing the fashion e-commerce sector by providing a scalable digital solution for product visualization. By leveraging AI-driven contextual product displays, the platform empowers established fashion brands, making high-quality product presentations more accessible and cost-effective.

The objectives of Circle AI are to:

- **Optimize operational costs:** Eliminate the need for expensive and time-consuming traditional photography by reducing dependency on physical studios. This enables fashion entrepreneurs to allocate resources more efficiently toward marketing, product development, and customer acquisition.
- **Enhance product presentation:** Through AI-driven realistic backgrounds and contextual displays, ensuring a more engaging and professional appearance that resonates with consumers. This helps brands present their collections in a way that enhances their value proposition.
- **Increase efficiency:** By allowing fashion entrepreneurs to upload product images and instantly receive enhanced visuals tailored to the consumers' needs. This reduces the time and effort required for manual design editing.
- **Expand market accessibility:** By offering an affordable AI solution tailored to the needs of both small and large fashion e-commerce brands to leverage cutting-edge technology without the burden of high costs.
- **Improve online shopping experience:** Offer consumers an interactive and realistic visualization of products in relevant, real-life settings, making it easier to assess the look and feel of fashion items before purchasing. This enhances decision-making and reduces uncertainty, leading to a more enjoyable and seamless shopping journey.

- **Influence purchasing behavior:** Strengthen consumer confidence by providing high-quality, AI-driven product presentations that capture attention, encourage engagement, and create an emotional connection with the product. This results in improved customer satisfaction and higher purchase intent.
- **Boost sales and conversion rates:** Increase e-commerce success by offering immersive AI-driven visuals that build trust in brands and enhance consumer confidence in their purchasing decisions. Well-presented products lead to more successful transactions, higher conversion rates and stronger brand loyalty.
- **Reduce bounce rates and increase retention:** Deliver personalized product displays that align with consumer expectations and preferences, keeping visitors engaged on the platform for longer periods. By providing relevant and appealing product visuals, businesses can reduce cart abandonment and encourage repeat visits, ultimately driving higher customer retention rates.

By fulfilling these objectives, Circle AI is set to reshape the Egyptian fashion e-commerce landscape, offering a cost-effective, AI-driven approach to product presentation that fuels business expansion and enhances consumer shopping experiences.

10 PROJECT SCOPE AND FUNCTIONALITY

This section provides an in-depth overview of Circle AI's scope and functionalities, outlining how it serves as a transformative tool for fashion business owners. The platform is designed to revolutionize the way fashion e-commerce businesses operate by introducing AI-driven contextual product display features, enabling businesses to enhance product presentation while aligning with consumer expectations and market trends. Additionally, Circle AI aims to bridge the gap between high-cost professional photography and affordability, high-quality AI-driven context visuals, making advanced product presentations accessible to businesses of all sizes.

10.1 Target Audience

Circle AI is specifically designed to support fashion e-commerce businesses operating in the Egyptian market. It caters to small, medium, and large enterprises by offering AI-driven features that improve product visualization without compromising product authenticity. The platform provides flexible subscription plans tailored to different business sizes and budgets, ensuring accessibility to a wide range of users. Furthermore, the AI-driven context solution is adaptable, catering to both technologically advanced businesses and those with minimal technical expertise, making it a versatile tool in the evolving digital fashion landscape.

Primary Target Audience:

- **Fashion E-Commerce Businesses:** Circle AI offers a transformative solution for small and medium-sized fashion entrepreneurs managing online stores with limited resources, as well as large enterprises. By streamlining the contextual design process, the platform enables business owners to upload product images and instantly generate AI-driven enhanced visuals, significantly reducing the time and costs typically associated with traditional photography and manual design adjustments.
- **Digital Marketing Agencies:** Marketing agencies that manage digital operations on behalf of fashion e-commerce businesses can utilize Circle AI to efficiently enhance product imagery. By automating design adjustments, the platform streamlines visual creation, reducing the time and effort required for manual editing. This makes it particularly beneficial for smaller agencies with limited design teams, allowing them to produce high-quality visuals at scale.

Secondary Target Audience:

- **Fashion Brands Without E-Commerce Platforms:** Businesses that primarily operate through social media platforms, can also benefit from Circle AI. Although the primary focus is on e-commerce businesses, social media-based fashion retailers can use the platform to enhance their product images for better audience engagement and driving sales. Since social commerce is growing in Egypt, Circle AI provides these businesses with an opportunity to improve their online presence and attract more customers. This segment is anticipated to develop and expand as the platform gains traction after its launch.
- **Freelance Designers:** Independent designers working on fashion product visuals can integrate Circle AI into their workflow to achieve high-quality, AI-enhanced designs in a fraction of the time. The platform eliminates the need for extensive manual context selection and lighting adjustments, making it a cost-effective and time-saving solution for freelancers looking for a competitive edge. By streamlining their design processes, freelance designers can focus more on creativity and client engagement rather than tedious image editing.
- **Fashion Photographers:** While traditional photography remains a vital part of the industry, photographers can use Circle AI to complement their work by offering AI-enhanced context and adjustments. This technology enables them to offer additional value to clients. By reducing the need for extensive location scouting and minimizing production costs, Circle AI helps photographers streamline their workflow and provide more budget-friendly shooting options for their clients.

Extensive market research has highlighted fashion e-commerce businesses and digital marketing agencies as the core user base for Circle AI. However, as awareness of AI-driven contextual product displays would increase in the Egyptian market, there might be a significant potential for secondary users to adopt the platform. With the rise of digital transformation, businesses beyond the initial target audience may find value in integrating AI-driven contextual product displays into their workflows. Furthermore, industry adoption and WOM recommendations are expected to contribute to broader market penetration. As AI technology continues to evolve, Circle AI's capabilities can be expanded to serve additional industries and applications, reinforcing its long-term relevance and adaptability.

10.2 Key features and functionalities

For Circle AI to establish a competitive presence in the market and successfully meet its objectives, it must showcase its unique features that empower fashion e-commerce business owners. The platform is designed to be user-friendly, smart, and highly accessible, integrating generative AI with streamlined navigation and real-time notifications for an efficient user experience. One of the primary advantages of Circle AI is its ability to generate authentic, real-world contexts with minimal copyright concerns. Circle AI derives backgrounds and enhancements from real-life environments rather than human-created designs, ensuring originality while refining the final product image.

Below are the key features and functionalities that distinguish Circle AI.

- **Persona Creator:** Users can generate personalized context visuals by inputting a short text description about the target audience. Based on the provided details, Circle AI tailors the visual setting to align with the intended audience, ensuring efficiency and accuracy. This feature eliminates the need for manual searching, location scouting, and physical photoshoots, significantly reducing both time and costs. Once the persona is established, users can select from various editing features to refine their product images further.
- **Smart Lighting & Shadow:** Users can enhance their product images' surroundings by adjusting lighting and shadow effects to improve realism and depth. Whether the image requires subtle enhancements or major adjustments, users can either input specific prompts or rely on AI suggestions to create a natural-looking balance of light and shadow, ensuring the product is presented in the best possible way.
- **Contextual Scene Generator:** This feature allows users to transform a product image with a plain background into a fully contextualized environment. By entering a brief prompt describing the desired setting or selecting from AI-suggested options, Circle AI generates a realistic surrounding that complements the product, ensuring that visuals remain engaging without altering the integrity of the fashion item itself.
- **Background Editor:** If a product image contains an unwanted or outdated background, users can seamlessly replace it with a more suitable one using Circle AI. This tool enables businesses to adapt and refresh their product background visuals without reshooting or modifying the product itself, offering flexibility and efficiency.

- **Pose & Position:** This feature enables users to adjust camera angles and reposition product images without the need for a reshoot. Whether a product is captured from an unideal perspective or requires contextual alignment, Circle AI allows for precise modifications to enhance visual composition, ensuring a polished and professional presentation.
- **Smart Image Resizer:** To meet e-commerce image specifications, this feature enables users to resize and optimize images according to platform requirements. Whether adjusting dimensions for specific marketplace uploads or enhancing image resolution for clarity, Circle AI automates the process, ensuring high-quality visuals that meet industry standards.
- **Trend Forecast:** Keeping up with evolving fashion trends is essential for business growth. Circle AI offers an AI-powered trend forecasting tool that analyzes emerging patterns, tracks previous sales trends and predicts upcoming fashion movements, enabling fashion entrepreneurs to align their collections with seasonal shifts and industry-wide developments. This feature empowers businesses to stay competitive by proactively adapting to consumer preferences and refining their product offerings accordingly.
- **Brand Toolkit:** Circle AI enables users to embed logos, watermarks, and brand-specific elements directly onto product visuals to reinforce brand identity. This functionality ensures that all images maintain a consistent and recognizable brand aesthetic, enhancing visibility and trustworthiness across different sectors of the e-commerce platform.
- **Website Sync:** Circle AI seamlessly integrates with e-commerce platforms, enabling users to directly upload enhanced images to their websites without the need for manual downloads or reuploads. This streamlined process improves workflow efficiency, allowing fashion businesses to maintain up-to-date product catalogs effortlessly while ensuring a uniform and professional visual presence across digital storefronts.
- **Dark Mode:** To enhance user experience, Circle AI features a dark mode interface, enabling users to customize the display based on their visual preferences. This option improves accessibility, reduces eye strain during prolonged usage, and creates a more

comfortable and adaptable working environment for users who engage with the platform for extended periods.

- **Pricing Plan:** Understanding the varying demands of businesses, Circle AI offers flexible subscription plans designed to accommodate different company sizes and levels of usage. These plans ensure that businesses of all scales can access AI-driven features while maintaining cost efficiency. Users can select a subscription that aligns with their operational needs, balancing affordability with premium functionality tailored to their specific requirements.

10.3 Limitations of the Project

Although Circle AI aligns with the core objectives of this thesis and is anticipated to make a substantial impact upon its introduction to the Egyptian fashion e-commerce market, it is essential to recognize certain limitations. These constraints may present initial challenges and necessitate continuous refinement and upgrades to maintain the platform's effectiveness and relevance over time.

A key limitation of Circle AI is its reliance on an API-based AI model. While enabling seamless integration with external platforms, it may impose constraints on design customization. Businesses may find it difficult to tailor AI-driven contextual visuals to match specific branding aesthetics due to the limited flexibility of the underlying AI models. Additionally, integrating with various e-commerce platforms may present compatibility issues, particularly with non-native systems that require additional configurations. This challenge may demand technical support for smooth deployment, potentially delaying adoption and creating barriers for businesses unfamiliar with this technology. Furthermore, the dependence on an API model introduces potential server stability concerns, where temporary downtime or system disruptions could affect accessibility, impact workflow efficiency, and create challenges for businesses that rely on real-time AI-driven contextual visuals.

Another significant concern pertains to intellectual property and content ownership. While Circle AI produces original, AI-driven contextual visuals, questions may arise regarding image rights, ownership, and commercial usage permissions. Businesses may be uncertain about whether they retain full ownership of the AI-generated designs or if they are subject to restrictions imposed by the platform. Also, some businesses may express concerns about how their uploaded images are stored, processed, and utilized by the AI system. However,

given that the fashion e-commerce industry operates in a predominantly digital space, such concerns may be less significant, as businesses are already accustomed to handling digital content and cloud-based storage.

Circle AI does not currently offer AI-generated human models for fashion e-commerce, which may be considered a limitation for businesses seeking fully automated product visualization, including model representation. Many fashion retailers in Egypt face difficulties in finding models that align with local cultural preferences and the absence of a virtual model feature could be seen as a drawback. However, this limitation is beyond the primary focus of this thesis, as Circle AI is specifically designed to enhance product presentation through AI-driven contextual visuals rather than human model simulation.

While many fashion e-commerce entrepreneurs show strong enthusiasm for AI-driven contextual product displays, businesses with well-established traditional practices may be hesitant to embrace AI technology. Research findings suggest that while younger entrepreneurs are more receptive to AI, persuading experienced professionals accustomed to conventional methods to shift from traditional photography to AI-driven contextual visuals may require targeted marketing strategies and gradual adoption plans. Overcoming skepticism and demonstrating the tangible benefits of AI-generated content will be key to fostering broader acceptance and integration of Circle AI within the industry.

Moreover, the fast-paced advancements in AI technology present an ongoing challenge for Circle AI. The field of AI-driven context visuals is evolving rapidly, with new platforms and tools emerging that may offer enhanced features, greater customization, and improved performance. To remain competitive and relevant, Circle AI must not only launch strategically but also implement continuous updates to align with shifting fashion industry trends and AI innovations. Without regular improvements and adaptation, there is a risk that the platform could become outdated, as more sophisticated solutions enter the market and offer more advanced functionalities.

Addressing these limitations proactively will be crucial to ensuring Circle AI's long-term success and adoption. Continuous technological improvements, seamless platform integration, and strategic marketing efforts will help mitigate these challenges and solidify Circle AI's position as a pioneering solution for AI-driven contextual product display in fashion e-commerce in Egypt.

11 WEBSITE DESIGN AND DEVELOPMENT

The development of Circle AI follows a native website approach, ensuring flexibility, seamless integration, and optimal performance. Unlike template-based platforms, it is custom-built from the ground up, allowing for full control over features, functionality, and user experience.

The design process is structured using Figma, a comprehensive design tool that facilitates the creation of a clear, user-friendly, and visually appealing interface. By leveraging this approach, the website is carefully planned and refined before development begins, ensuring an intuitive and seamless user experience tailored to fashion e-commerce businesses.

In addition to its technical architecture, the author provides a comprehensive overview of Circle AI's operational strategy, including its interface, promotional approach, operating system, budgeting, and team structure. This structured plan ensures the successful execution of Circle AI, positioning it as an innovative and efficient platform for fashion e-commerce industry.

11.1 Conceptual Framework

Since Circle AI is a native website, it offers higher performance, ensuring faster load times and a smooth user experience. Unlike template-based platforms, a custom-built website is optimized for speed, allowing AI processing and image rendering to happen efficiently without unnecessary delays. This ensures that users can interact with the platform without disruptions, enhancing their overall experience.

One of the major advantages of a native website is greater customization. With full control over features, design, and functionality, Circle AI can be adapted precisely to business needs. This flexibility enables future AI improvements, new features, and additional e-commerce integrations. This adaptability ensures that Circle AI remains relevant in an ever-changing digital landscape, providing businesses with long-term value.

Additionally, security is significantly enhanced in a native website. With built-in security protocols, encrypted transactions, and secure authentication measures, businesses can confidently upload and process images without concerns about data breaches or unauthorized access. The controlled development environment of a native website ensures stronger protection compared to template-based solutions, reinforcing trust and reliability for users.

At the core of Circle AI's functionality is API integration, which facilitates real-time communication between the website and the AI model. Users can effortlessly upload product images, which are then processed through AI to generate enhanced visuals. Upon submission, the API transfers the image to the AI engine for contextual adjustments. Once the AI-enhanced image is processed, it is sent back to the platform, where users can download it or integrate it directly into their e-commerce platforms. This streamlined process eliminates the need for complex manual edits, offering a time-efficient and automated solution for fashion businesses.

The seamless API integration reduces lag, optimizes workflow, and enables real-time AI-driven contextual product enhancements. The API model ensures efficient handling of image uploads, processing, and retrieval, making the user experience intuitive and hassle-free.

By developing Circle AI as a custom-built platform with integrated AI and API technology, the website will provide a scalable, secure, and future-ready solution for fashion e-commerce businesses, ensuring a cutting-edge experience tailored to industry needs.

11.2 Brand identity and User experience design

This section provides an in-depth introduction to Circle AI's interface, highlighting its design principles, strategic positioning, and user experience approach. It explores how the platform is structured to enhance engagement, simplify navigation, and ensure seamless integration for fashion e-commerce businesses.

11.2.1 Team involvement and responsibilities

The successful development of Circle AI is the result of collaboration between key professionals, particularly UX/UI Designer and Web Developer, who have played a key role in shaping the platform's visual identity and enhancing the user experience. This collaboration was essential in ensuring that Circle AI is intuitive, easy to navigate, and tailored to meet the demands of the Egyptian market while maintaining affordability and efficiency. Additionally, the author has been actively involved in every aspect of the website's creation, ensuring that the outcome aligns with the project's goals and objectives.

The roles and responsibilities of each member were determined according to the specific requirements of the website's development process.

The UX/UI Designer: was responsible for developing the web design following the author's instructions and specifications, ensuring that all required functionalities were effectively

visible in the platform. The focus was to create a visually engaging, user-friendly, and intuitive interface for smooth uploading, processing, and retrieving AI-enhanced images. Through extensive user research, the UX/UI designer gathered valuable insights and transformed them into well-structured wireframes and prototypes aimed at enhancing usability and optimizing functionality. Through Figma, the UX/UI Designer developed a well-structured, aesthetically cohesive, and professional website layout, reinforcing Circle AI's identity. Moreover, the UX/UI designer ensured brand consistency by carefully selecting colors, fonts, and UI elements that align with the brand strategy and identity. The UX/UI Designer's hands-on experience played a crucial role in enhancing the usability and overall effectiveness of the platform design, ensuring strong alignment with the thesis objective and the author's vision.

The Web Developer: played a crucial role in translating the UX/UI designs into a fully functional, interactive website. Multiple meetings were held between the author, UX/UI Designer, and Web Developer to simulate the functionality of Circle AI, ensuring it adhered to the technical requirements of real-world websites. This approach contributed not only to the visual and user experience aspects but also to the technical and programming considerations necessary for efficient functionality. The Web Developer was responsible for both front-end and back-end development, ensuring that the platform would operate smoothly across different devices and browsers when executed. By implementing the Figma-based designs, the Web Developer focused on ensuring responsiveness, high performance, and user-friendly interaction. One of the key responsibilities was API integration, which would allow seamless communication between the AI model and the platform for real-time image processing and retrieval upon execution.

The collaboration between the UX/UI Designer and Web Developer was crucial in ensuring that Circle AI provides a seamless, secure, and highly engaging experience, effectively catering to user needs upon deployment. Their combined expertise contributed to the platform's design and future success, reinforcing its position as a cutting-edge AI solution for the fashion e-commerce industry.

11.2.2 Brand identity

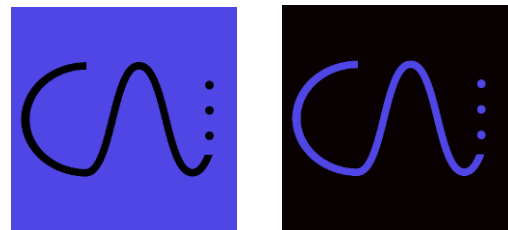
A well-defined brand identity is crucial in establishing Circle AI as an innovative and trustworthy solution in the fashion e-commerce industry. To effectively engage its audience and create a lasting impact in the market, the brand identity must be built on meaningful

elements that resonate with fashion businesses while conveying the platform's core message. A cohesive and strategically developed brand identity ensures consistency across all communication channels, reinforces market positioning, and fosters customer trust and recognition.

- **Name of the Project:** Circle AI
- **Reason behind the name:** The name was inspired by the consumer buying journey. Consumers often cycle through various stages of the purchasing process, reconsidering their choices before finalizing a decision. Recognizing this pattern, the author developed Circle AI as a solution to streamline this journey by offering guidance that assists consumers in selecting fashion items more efficiently. By minimizing uncertainty and enhancing decision-making, Circle AI empowers consumers to make confident fashion choices while simultaneously supporting e-commerce businesses in increasing conversions and maximizing sales.
- **Logo & its application:**



Logo (Source: Own design)



Logo Application (Source: Own design)

- **Reason behind the logo:** The Circle AI logo is designed to visually represent the brand's core concept and functionality. The logo incorporates the initial letters of Circle AI, reflecting the brand's identity in a simple yet distinctive manner. The dots integrated into the design symbolize the role of AI in connecting different stages of the consumer purchasing journey, guiding consumers through their decision-making process until they confidently complete a purchase. Additionally, the sharp edges of the logo represent efficiency, precision, and accuracy, signifying that the visual contexts generated by Circle AI are consistently aligned with consumer expectations.

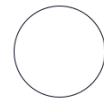
- **Tone of voice:** Friendly, trustworthy, semi-formal & Innovative with professionalism.
- **Colour System:**



RGB: 80, 70, 229
HEX: #5046E5
CMYK: 78, 74, 0, 0



RGB: 8, 16, 33
HEX: #081021
CMYK: 86, 77, 56, 74



RGB: 255, 255, 255
HEX: #FFFFFF
CMYK: 0, 0, 0, 0

- **Slogan:** With Circle AI...Perfect work with minimum effort!
- **Claim:** Smart Visuals. Better Presentation. Enhanced Sales.
- **Typography:** Poppins Fonts
- **Unique Selling Proposition:** Circle AI offers a transformative approach to fashion product visualization by generating contextual visuals tailored to audience preferences. This innovative solution helps fashion e-commerce businesses reduce reliance on costly and time-consuming traditional photography while eliminating the logistical challenges associated with finding suitable shooting locations. Additionally, Circle AI ensures that brands stay ahead in a rapidly evolving industry by providing the latest fashion trends, enabling businesses to adapt and remain competitive in the market.

11.2.3 User Experience

The design of Circle AI has been carefully developed in direct alignment with the thesis objective and the insights gathered through both qualitative and quantitative research. These findings revealed clear market needs within Egypt's fashion e-commerce landscape, guiding

the author in shaping a digital platform that is both functional and relevant to the target audience. The website design process extended over approximately one month, during which usability, accessibility, and brand consistency were prioritized.

To accommodate language preferences within the Egyptian market, the platform interface is available in both Arabic and English. This bilingual support reflects the diverse linguistic backgrounds of the target audience, particularly younger users, entrepreneurs, and fashion business owners who frequently work in English. Users are given the flexibility to submit prompts in either language, and Circle AI is programmed to generate AI-driven contextual visuals accordingly, ensuring inclusivity and ease of use.

Furthermore, the system is programmed to operate strictly within the parameters of the fashion industry. Circle AI has been developed to filter out prompts or uploaded images that fall outside this sector, ensuring that the platform remains focused on its intended application and delivers relevant, industry-specific outcomes. This safeguard not only protects the platform's integrity but also reinforces its role as a specialized tool in fashion e-commerce industry.

Figure 16 presents the **landing page** of Circle AI, designed to introduce users to the platform's core services and key features in a clear and accessible manner. The layout provides a concise overview of what Circle AI offers, including its value proposition and subscription model. The page is structured to guide the user smoothly toward engagement, with all call-to-action buttons leading directly to the registration interface. As shown in Figure 17, the **sign-up page** allows users to create an account using either an email address or a phone number, ensuring flexibility and ease of access for a diverse user base.

Circle AI Services Website sync Pricing About us Contact us Login [Get started](#)

Perfect work with minimum effort!

Smart Visuals. Better Presentation. Enhanced Sales

[Get Started](#)

2K+ Projects 4.8 Satisfaction

Clients +1K

Services
Enhance and customize your image

- Persona Creator**
Users can create custom visuals by entering a brief text description of their target audience.
[Create now](#)
- Contextual scene generator**
- Background editor**
- Trend Forecast**

[See more](#)

Website sync

Circle AI seamlessly integrates with e-commerce platforms, enabling users to directly upload enhanced images to their websites without the need for manual downloads or reuploads. This streamlined process improves workflow efficiency, allowing fashion businesses to maintain up-to-date product catalogs effortlessly while ensuring a uniform and professional visual presence across digital storefronts.

[Start integration](#)

Pricing
Simple, transparent pricing
Choose flexible subscription plans tailored to your business needs and budget.

Free Tier Basic Plan	Mid - Tier Standard Plan	High - Tier Premium Plan	Enterprise Plan
0 USD monthly	25 USD monthly	75 USD monthly	Contact for Quote
What's included - Access for 1 user 5 background edits/month 5 smart lighting & shadow/month - Unlimited smart image resizer - Cloud storage up to 3 GB	What's included - Access for 1 user 10 contextual editor/month 10 background edits/month 10 smart lighting & shadow/month - Unlimited smart image resizer, pose & position and trend forecast - Cloud storage up to 10 GB	What's included - Access up to 5 user - Up to 5 persons/month - Unlimited scene generator, background editor, smart lighting, pose & position, image resizer, trend forecast, brand toolkit. - E-commerce integration - Cloud storage up to 100 GB	What's included - Unlimited multi-user access - Full access to all Circle AI features. - Cloud storage up to 500 GB 24/7 support
Get started Learn more	Get started Learn more	Get started Learn more	Contact us Learn more

Circle AI
Perfect work with minimum effort!

Important links

- > Services
- > Website sync
- > Pricing & Plans
- > About

Figure 16 Landing page

(Source: Own & Eliwa design)

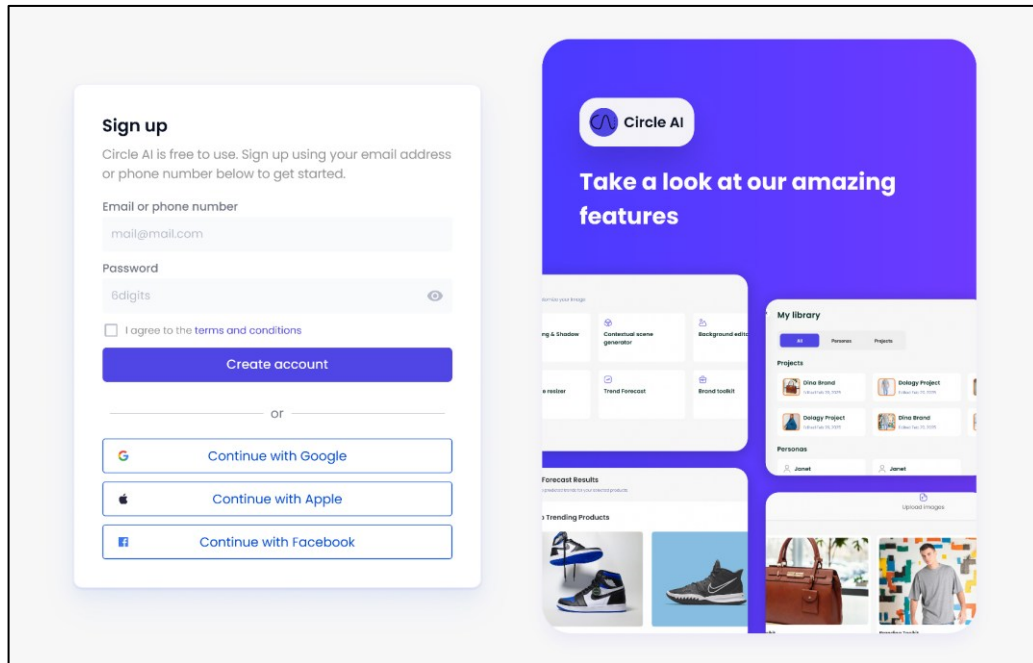


Figure 17 Sign-up Page

(Source: Own & Eliwa design)

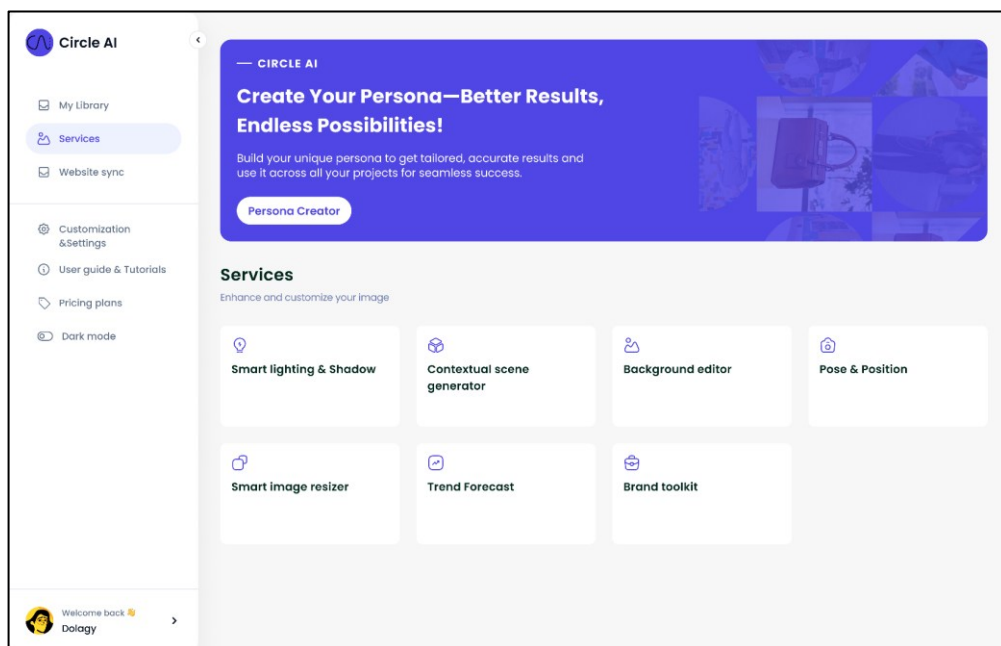


Figure 18 Website Interface

(Source: Own & Eliwa design)

Upon completing the sign-up process, users are directed to the main **interface** of Circle AI, as illustrated in Figure 18. This dashboard provides access to all platform features, allowing users to navigate and select the services most relevant to their needs. To accommodate user

preferences, the interface includes a **dark mode** option, offering a more comfortable viewing experience during extended use. Additionally, the platform supports **Website Sync**, a feature that enables users to directly upload enhanced visuals to their e-commerce websites without the need for manual downloading or re-uploading, streamlining workflow and saving time.

One of the core features of the platform is the **Persona Creator**, which is designed to generate context-specific visuals tailored to a defined customer profile. As demonstrated in Figure 19, users can input key information to build a persona, including name and descriptive attributes that help Circle AI understand the target audience more effectively. This enables the system to produce highly customized visual outputs that reflect the preferences and characteristics of the intended consumer segment. Once the persona is successfully created, a confirmation message appears on the screen, as shown in Figure 20, indicating that the user can now proceed to select additional services based on the personalized context.

Circle AI

My Library

Services

Website sync

Customization & Settings

User guide & Tutorials

Pricing plans

Dark mode

Persona creator

Generate personalized visuals for your target audience with ease, saving time and costs.

Create Persona

Name
Janet Do

Gender
Female

Age Range
18 - 24

Location
Cairo

Seasonal Focus
Winter

Fashion Items
Bags Shirts

Product Materials
Leather Wool

Extra Description
Janet Do is a stylish, young woman in Cairo who loves high-quality leather and wool items. She looks for versatile, elegant winter bags and shirts that suit her active lifestyle.

Create

Welcome back 🌟
Dolagy

Figure 19 Persona Creator Interface

(Source: Own & Eliwa design)

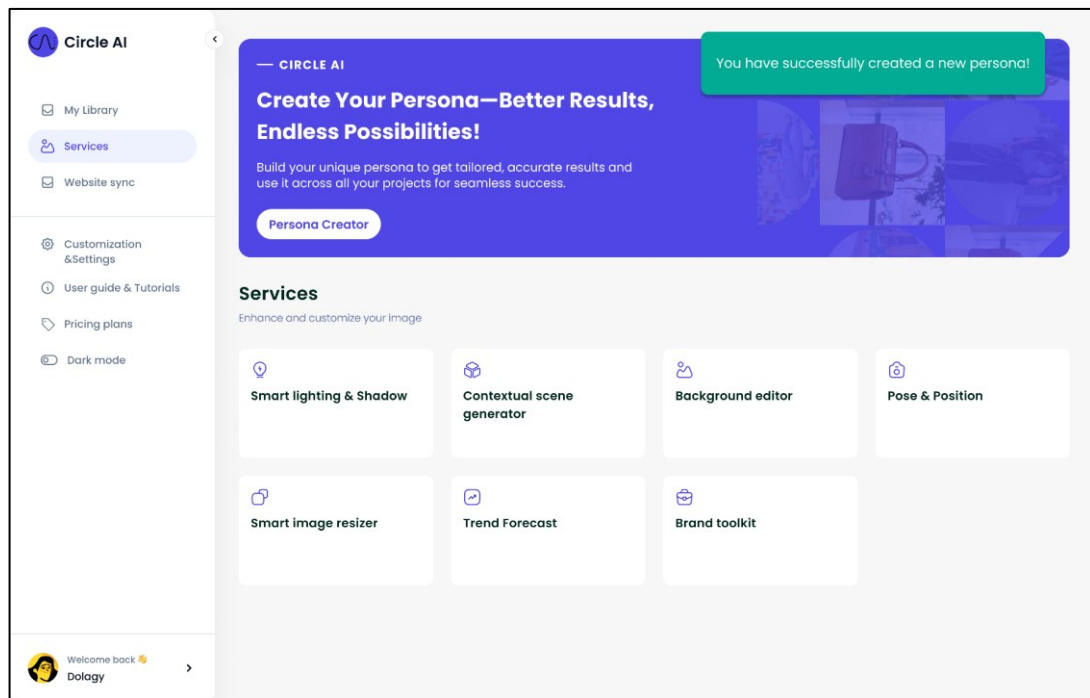


Figure 20 Persona Creator - Creation

(Source: Own & Eliwa design)

While Circle AI encourages users to create a detailed persona for tailored outputs, the platform also offers the flexibility to bypass the persona creation step and proceed directly to a selection of specialized services that meet specific user needs. These services include: Smart Lighting & Shadow, Contextual Scene Generator, Background Editor, Pose & Position, Smart Image Resizer, Trend Forecast, and Brand Toolkit.

The **Brand Toolkit** is designed to support and strengthen brand identity by enabling users to integrate branded elements into their product images. As demonstrated in Figure 21, users can upload either a single image or a batch of multiple product images. Within this tool, they are given the option to apply logos, watermarks, or other brand-specific visuals to their image, as shown in Figure 22. This feature allows businesses to maintain visual consistency across platforms, reinforce brand recognition, and enhance the professional appearance of their product displays.

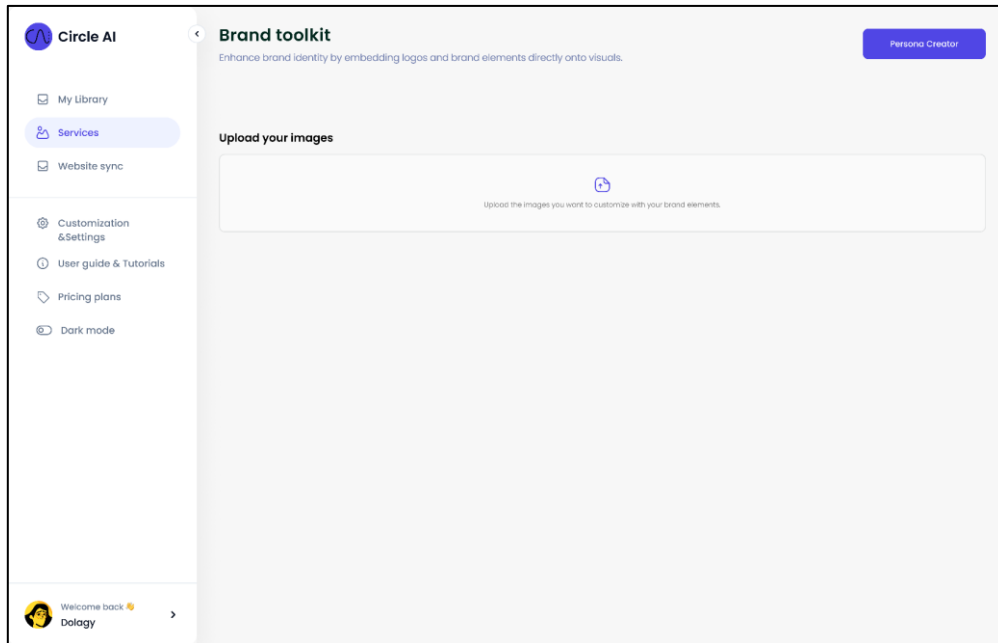


Figure 21 Brand Toolkit – Interface

(Source: Own & Eliwa design)

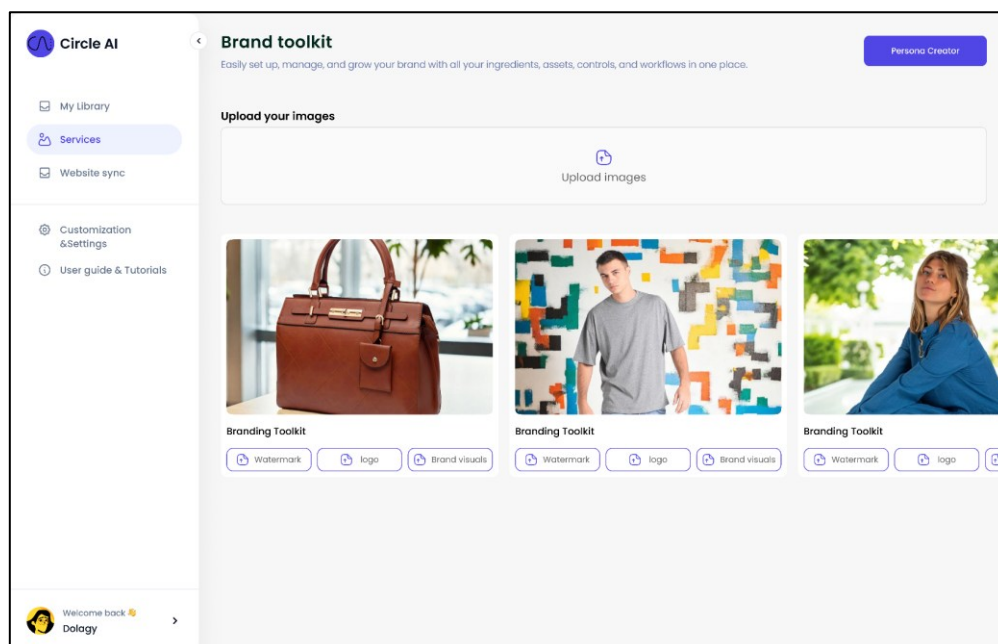


Figure 22 Brand Toolkit – Upload Brand Visuals

(Source: Own & Eliwa design)

The **Contextual Scene Generator** is one of Circle AI features, developed to support fashion entrepreneurs in enhancing product presentation through AI-driven contextual environments. This tool allows users to upload either a single product image or a bulk set of

visuals that require specific setting enhancements. By entering a prompt that describes the desired setting, Circle AI will generate realistic and tailored contexts around the fashion items. Alternatively, for those seeking guidance or inspiration, Circle AI offers AI prompt suggestions, simplifying the creative process, as shown in Figure 23.

Once the input is submitted, Circle AI produces a contextual product display that visually aligns with the prompt provided. To support brand consistency, users also have the option to integrate the Brand Toolkit into the final output, embedding logos, watermarks, or brand visuals directly into the generated contextual visuals. In addition, users can choose to save the resulting contexts to the library for future edit, use or reference.

In cases where the generated result requires refinement, Circle AI offers an AI-enhanced text suggestion, allowing users to rephrase or adjust their prompts to achieve more accurate outcomes, as demonstrated in Figure 24. Furthermore, when a single image is uploaded, Circle AI automatically activates a comparison mode, presenting multiple contextual variations of the same product image, helping users evaluate and select the most visually effective option, as illustrated in Figure 25.

Other tools within the platform, such as Smart Lighting & Shadow, Background Editor, Pose & Position, and Smart Image Resizer, follow a similar interface structure, where users input prompt descriptions and upload product images to generate tailored enhancements. This consistent workflow ensures a seamless and intuitive user experience across all of Circle AI services.

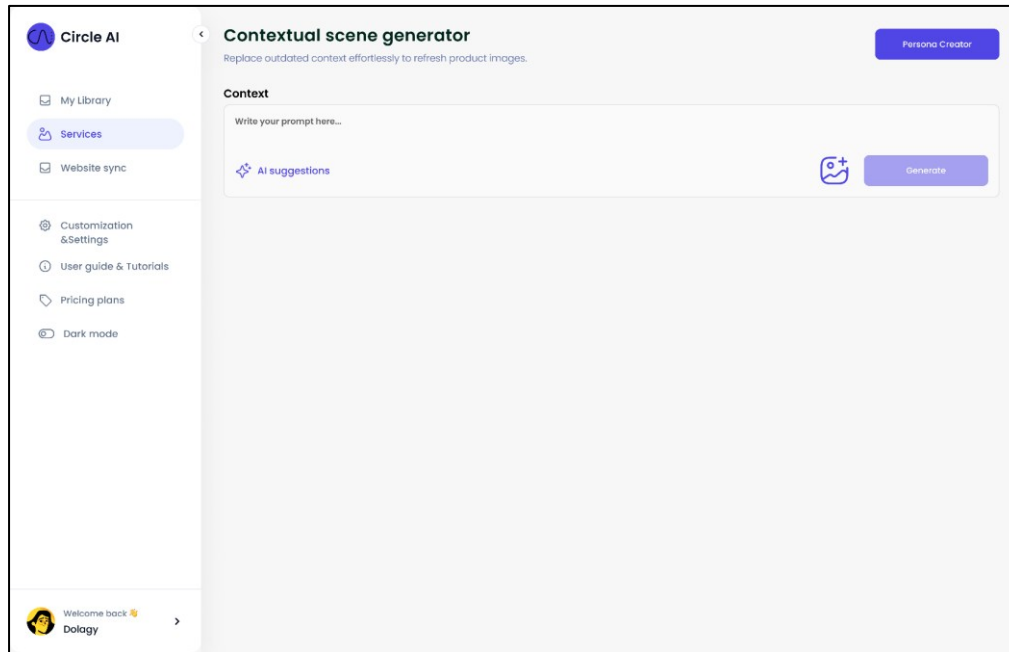


Figure 23 Contextual Scene Generator – Interface

(Source: Own & Eliwa design)

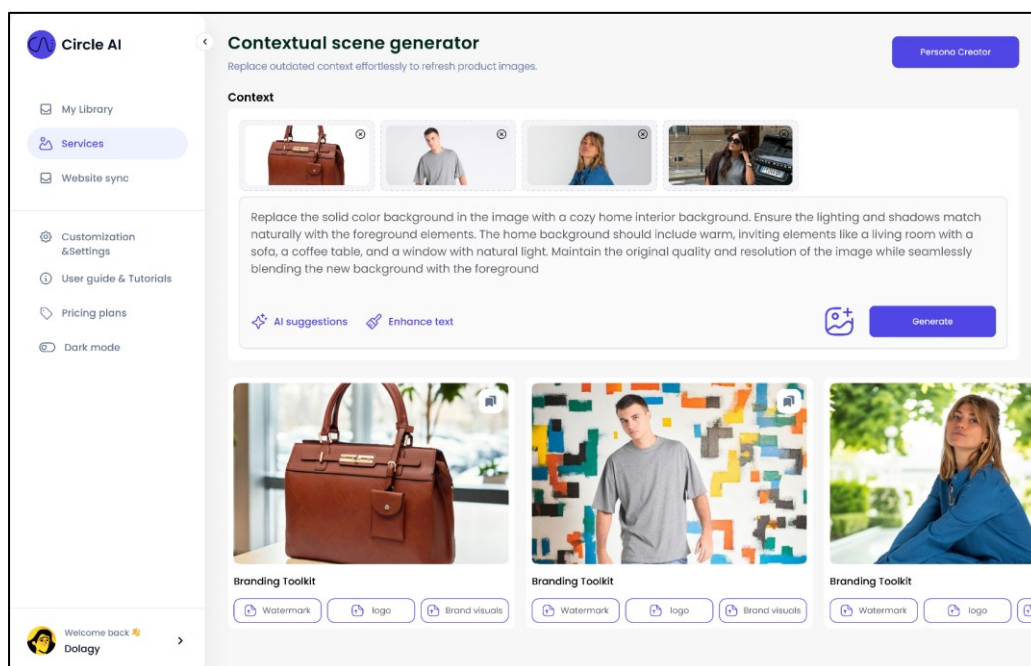


Figure 24 Contextual Scene Generator – AI-driven Context Generation

(Source: Own & Eliwa design)

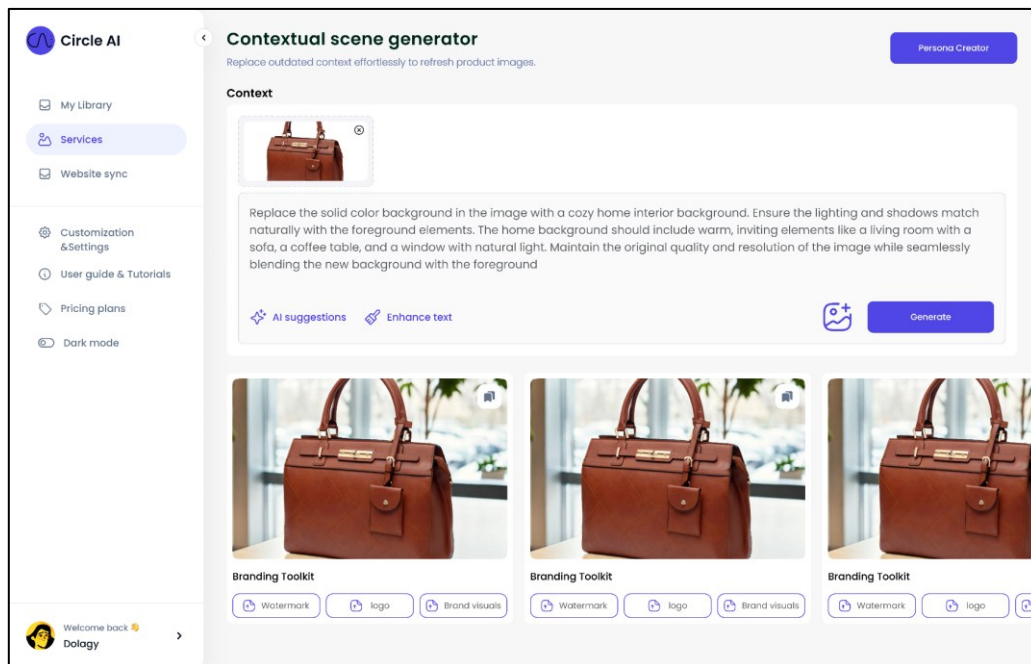


Figure 25 Contextual Scene Generator – Comparison Mode (Dummy)

(Source: Own & Eliwa design)

Among the services offered by Circle AI is the **Trend Forecast** feature, which provides users with predictive insights into upcoming fashion trends. This tool allows users to explore forward-looking market data by entering specific inputs such as product category, seasonal period, target audience, competitor brands, gender, and geographic location. As shown in Figure 26, the platform also includes optional fields for users to add further descriptions or upload historical performance data, which contributes to a more accurate and relevant analysis.

Using these inputs, Circle AI applies AI-powered analysis to predict fashion trends within the selected category. It identifies the latest product directions, outlines market behavior over the past six months, and generates recommendations regarding trend evolution and color palettes. This enables fashion businesses to anticipate consumer demands and align their upcoming collections with market expectations, as illustrated in Figure 27. Also, to support ongoing planning and development, users can export the generated trend reports for future reference. This feature empowers businesses with the foresight needed to remain competitive and relevant in the fast-changing fashion landscape.

Circle AI

Trend Forecast
Stay ahead with AI-powered trend predictions for fashion and consumer preferences.

Trend Forecast Inputs
Provide details to predict future trends for your products.

Product category: Shoes

Target audience: 18 - 24

Gender: Male

Season: Winter

E-Competitors (optional): Addidas, Nike, New Balance

Location: Cairo

Extra Description (optional): Janet Do is a stylish, young woman in Cairo who loves high-quality

Upload historical data, CSV or excel for example (optional)

Generate Trends

Welcome back 🌟
Dology

Figure 26 Trend Forecast – Interface

(Source: Own & Eliwa design)

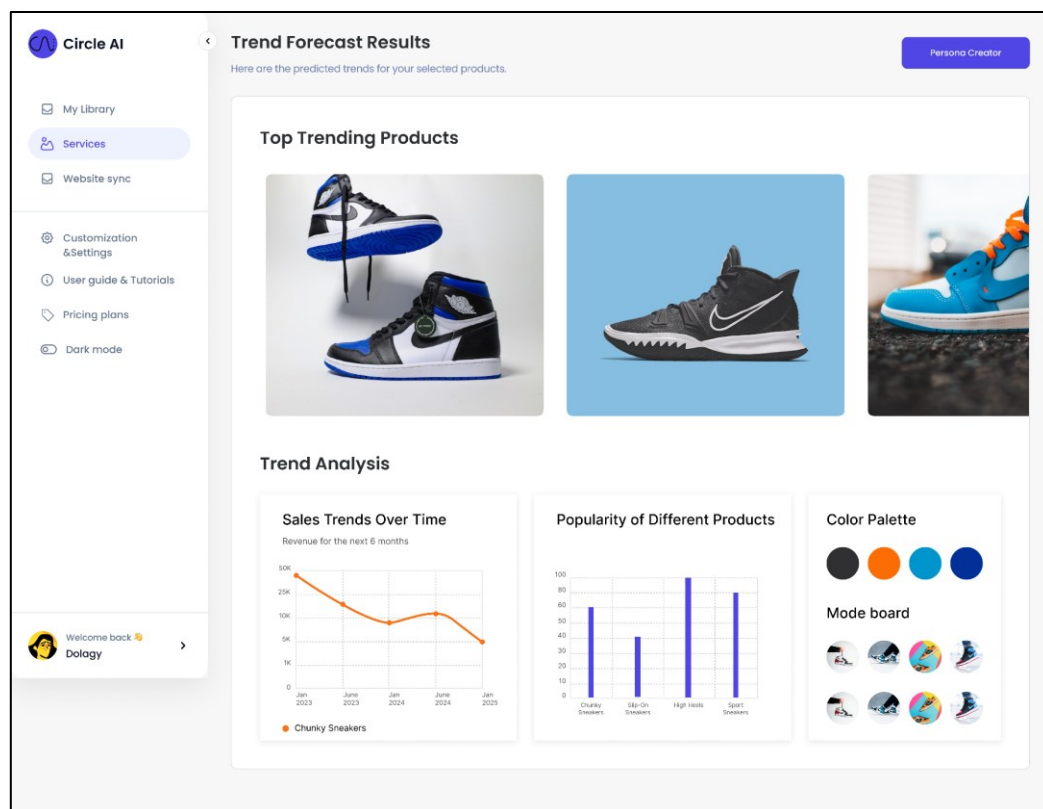


Figure 27 Trend Forecast – Trend Analysis (Dummy text & image)

(Source: Own & Eliwa design)

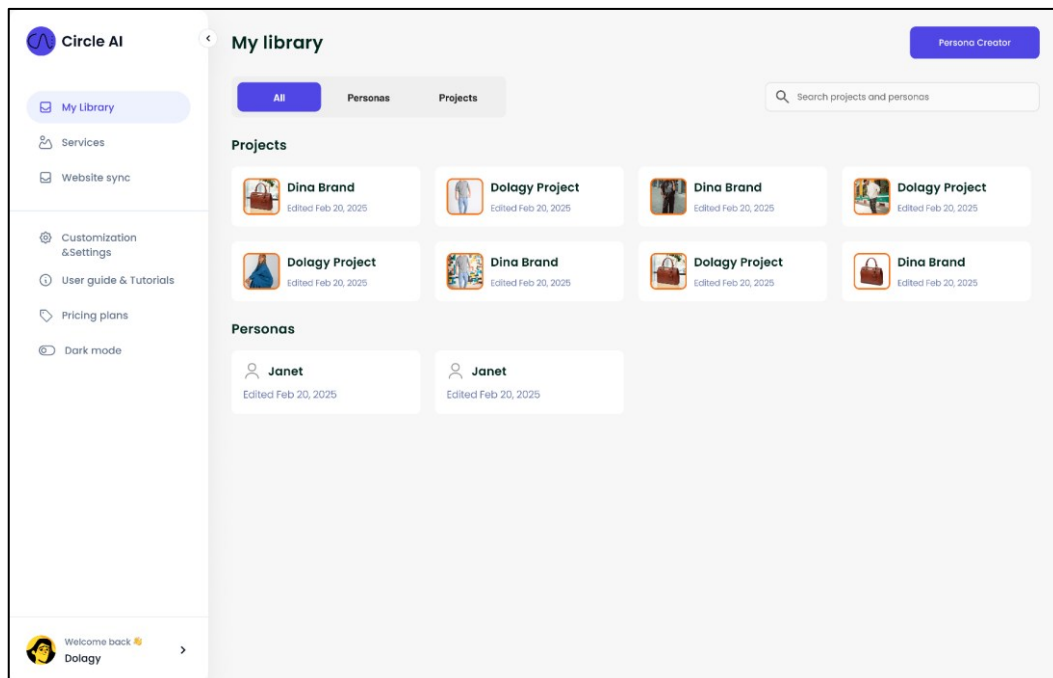


Figure 28 Library – Interface

(Source: Own & Eliwa design)

Once a service within Circle AI is utilized, whether it involves persona creation or AI-generated product visuals, the output is automatically saved in the user's **library**. Each file can be named according to the user's preference, allowing for convenient organization and quick retrieval. This functionality enables users to revisit, edit, or further refine previously generated content without having to repeat the initial process. As illustrated in Figure 28, the library also includes a search function, making it easy to locate specific personas or visual assets based on keywords or titles.

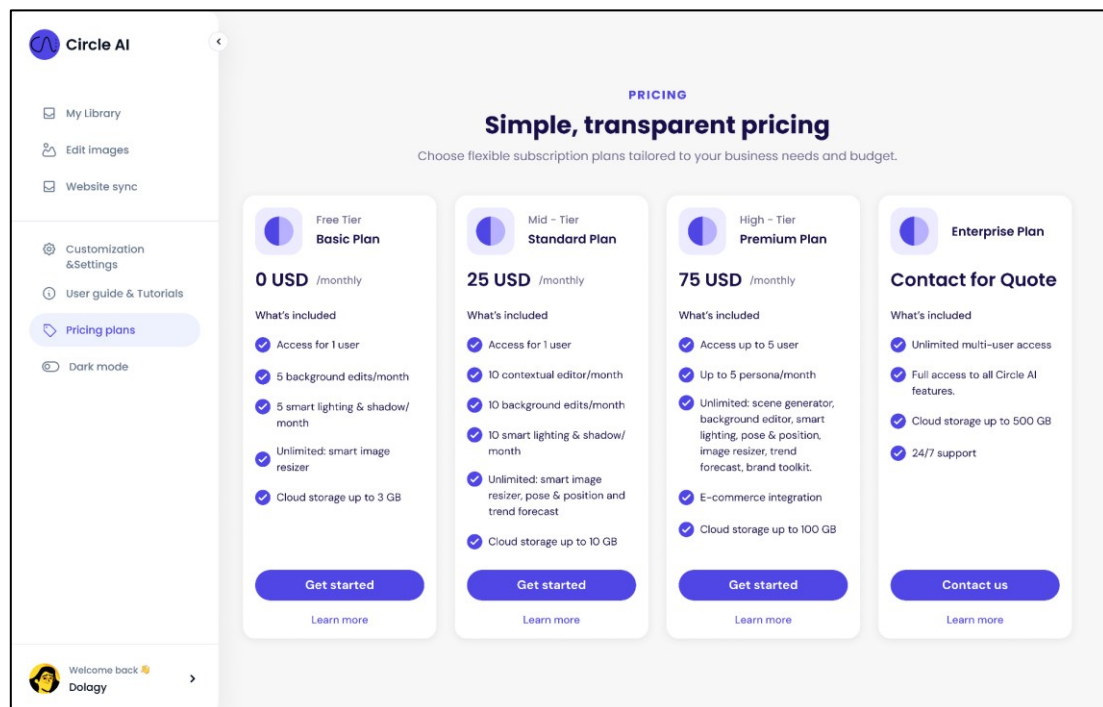


Figure 29 Pricing – Interface

(Source: Own & Eliwa design)

Circle AI provides a dedicated section for viewing subscription options, accessible through the **Pricing Plans** tab. As illustrated in Figure 29, this section allows users to explore the details of each plan, compare features, and select the subscription tier that best aligns with their business requirements and operational needs. The platform is designed to offer flexibility, ensuring that users can make informed decisions based on the scale and demands of their fashion e-commerce activities.

11.3 Project Execution Plan

11.3.1 Project Timeframe

A well-structured project timeframe is crucial for the efficient execution of Circle AI, ensuring that technical preparation, development, testing, and market entry are carried out in a systematic and timely manner.

The timeline is carefully organized into seven key phases, providing a clear roadmap from technical preparation to official launch. Each phase is strategically planned to ensure a smooth transition from one stage to the next, allowing for structured progress, effective resource allocation, and timely completion of all essential tasks.

Given the rapid advancements in AI and technology, it is imperative that Circle AI becomes fully operational within a year to remain competitive. The urgency to launch aligns with the need to keep pace with evolving AI innovations and avoid potential market saturation from competing platforms introducing similar features. By adhering to a well-defined timeframe, Circle AI ensures a strong market entry, technological relevance, and long-term sustainability in the fashion e-commerce industry.



11.3.2 Marketing Strategy

A defined marketing strategy is essential for Circle AI to successfully enter the Egyptian fashion e-commerce market and establish a strong brand presence. The strategy is designed to create awareness, attract users, and encourage the adoption of AI-driven contextual product display technology among fashion businesses. Circle AI will initially focus on major cities such as Cairo, Giza and Alexandria, where fashion e-commerce is rapidly expanding. The first phase will concentrate on building brand awareness, followed by targeted campaigns to convert users into subscribers.

Communication Channels;

- **Social media marketing:** Establishing a strong presence on LinkedIn, Instagram and Facebook is crucial, as these platforms are widely used by fashion e-commerce businesses. The marketing strategy will focus on utilizing high-quality visuals, before-and-after AI-driven contextual product display, and interactive content to effectively showcase Circle AI's capabilities.
- **Content Marketing & SEO:** Publishing blog posts, case studies, and educational content will establish Circle AI as thought leadership in fashion e-commerce innovation, demonstrating how AI-driven contextual visual tools enhance product presentation. Additionally, optimizing website content for search engines will improve search rankings, increase organic traffic, and expand the platform's visibility among potential users.
- **Paid Advertising & Promotions:** A strategic approach to paid digital advertising will be utilized to effectively engage potential target audiences and encourage conversions. Implementing targeted social media advertisements will enhance visibility, drive sign-ups, and foster user engagement. Additionally, a limited-time discount campaign will be introduced for businesses subscribing within the initial three months, providing an incentive for early adoption. Furthermore, Google Ads and retargeting techniques will be leveraged to re-engage visitors, keeping Circle AI at the forefront of their purchasing decisions and increasing the likelihood of subscription conversions.
- **Out-of-Home Advertising:** To strengthen brand recognition, billboards will be strategically positioned in high-traffic commercial areas and prominent fashion districts, ensuring maximum exposure to potential business owners.

Corporate Social Responsibility (CSR);

- **Reducing Environmental Impact:** By offering AI-driven contextual product display features, Circle AI reduces reliance on traditional photoshoots, thereby minimizing carbon emissions, textile waste, and electricity consumption. Additionally, the trend forecast feature will help businesses align their collections with real-time demand, reducing overproduction and excess inventory.
- **Supporting Start-ups:** Circle AI is dedicated to empowering emerging businesses by offering discount subscription tiers and free trials. By providing AI-driven tools,

the platform eliminates the need for expensive professional photography and design services, making high-quality product presentations accessible to all.

- **Educational Resources & AI Training:** Circle AI will actively contribute to digital education by hosting webinars designed to educate fashion entrepreneurs on how to integrate AI into their business operations. Additionally, free AI awareness sessions will be conducted to help both businesses and consumers understand the impact of AI on the future of fashion and its broader influence on everyday life.
- **Ensuring AI Transparency & Ethical Practices:** To maintain ethical AI usage, Circle AI will implement strict policies on AI-generated visuals to prevent misleading image manipulation. Furthermore, ensuring robust data privacy and cybersecurity measures will safeguard user-generated content and sensitive business information from unauthorized access.

11.3.3 Pricing Model and Subscription Tiers

To ensure Circle AI is accessible to a diverse range of fashion e-commerce businesses, a flexible subscription model has been designed to accommodate varying needs and business sizes. The pricing structure consists of four tailored plans, allowing users to select the package that best aligns with their requirements. The user has the option to choose from a monthly or yearly subscription, providing flexibility based on their business preferences and budget.

This subscription model provides businesses with a cost-effective alternative to traditional product photography and graphic design expenses, significantly reducing operational costs while enhancing product presentation. Each paid plan features a 3-day free trial, enabling users to explore the platform’s capabilities before committing to a subscription. For convenience, payments can be made in Egyptian Pounds, adjusted to the equivalent USD pricing.

The details of the available plans are outlined in Table 1:

Table 1 Subscription Plan

(Source: Own Work)

Plan	Description
------	-------------

Basic Plan (Free Tier) Cost: Free	• Access for one user. • Limited access to background editor (up to 5 upload images/ month). • Limited access to smart lighting & shadow (up to 5 upload images/ month). • Unlimited access to smart image resizer. • Cloud storage up to 3 GB
Standard Plan (Mid-Tier) Cost: \$25 /Month	• Access for one user. • Limited access to contextual editor (up to 10 upload images/ month). • Limited access to background editor (up to 10 upload images/ month). • Limited access to smart lighting & shadow (up to 10 upload images/ month). • Unlimited access to (pose & position, smart image resizer, and trend forecast) • Cloud storage up to 10 GB
Premium Plan (High-Tier) Cost: \$75 /Month	• Access for up to 5 users • Limited access to Persona Creator (up to 5 personas/ month) • Unlimited access to (contextual scene generator, background editor, smart light & shadow, pose & position, smart image resizer, trend forecast and brand toolkit) • Ability to integrate with e-commerce websites • Cloud storage up to 100 GB
Enterprise Plan	• Unlimited access for multiple users • Full access to all Circle AI features

Custom Pricing (Contact for Quote)	• Cloud storage up to 500 GB • 24/7 online support
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11.3.4 Key Performance Indicators

To assess the success and effectiveness of Circle AI, a set of measurable KPIs has been established. These KPIs provide valuable insights into user adoption, engagement, AI performance, financial sustainability, and marketing effectiveness, ensuring the platform aligns with its business objectives and remains competitive in the fashion e-commerce industry.

User Adoption & Engagement KPIs;

- **Number of Registered Users:** Tracks the number of users who sign up within the first six months to determine if the platform has successfully reached its primary target audience.
- **User Retention Rate:** Measures the percentage of users who continue using Circle AI after their initial subscription, indicating customer satisfaction and long-term engagement.
- **Churn Rate:** Identifies the percentage of users who discontinue their subscriptions, helping to identify potential shortcomings that may require improvements.
- **Average Session Duration:** Evaluates how much time users spend on the platform and which features they engage with the most. This data will be instrumental in identifying highly used features, as well as areas that may need improvement to enhance the overall user experience.
- **Error Rate & System Failures:** Help evaluate the frequency of technical issues and AI bugs reported by the users.
- **Issue Resolution Efficiency:** Measures how quickly reported technical issues are identified and resolved, ensuring a smooth user experience. This will enhance the reliability of the platform and prevent future technical disruptions.

Financial & Revenue KPIs;

- **Monthly Recurring Revenue:** Tracks the revenue generated from subscription-based plans, providing insights into the platform's financial stability.
- **Customer Acquisition Cost:** Evaluates how much is spent on marketing and advertising to acquire a new user, ensuring that resources are allocated efficiently
- **Customer Lifetime Value:** Estimates the total revenue expected per user throughout their entire engagement with Circle AI, helping to determine long-term profitability.

Marketing & Brand Awareness KPIs;

- **Social Media Engagement:** Analyzing followers' growth, shares, likes, and interactions across Circle AI digital platforms, providing insight into brand awareness and audience reach.
- **Website Traffic & Click-Through Rate:** Tracks how well marketing campaigns drive traffic to Circle AI platform and convert visitors into users.

By continuously tracking these KPIs, Circle AI will be able to make data-driven decisions, optimize platform performance, enhance AI capabilities, and refine marketing strategies. This structured evaluation approach will ensure sustained growth, improved user satisfaction, and long-term success in the competitive fashion e-commerce industry.

11.4 Project budget and financial consideration

This section outlines the estimated costs associated with platform development, technological infrastructure, and team resources, ensuring a clear financial roadmap for execution. By strategically allocating resources and planning expenditures, Circle AI aims to maintain financial efficiency while delivering high-quality services and ensuring future scalability.

11.4.1 Resources allocation and team structure

To successfully execute the strategic vision and establish a strong presence in the fashion e-commerce sector, Circle AI requires a well-structured and skilled team. The platform's development and growth depend on specialized knowledge in technology, design, marketing, and customer support, ensuring seamless operations, ongoing innovation, and long-term sustainability.

In its initial phase, a core team has been assembled, with each member playing a pivotal role in optimizing functionality, enhancing user experience, and driving market adoption. As the

platform continues to expand, additional professionals will be integrated to strengthen scalability and accommodate the platform’s evolving needs.

Table 2 outlines the key roles and responsibilities essential for the efficient operation of Circle AI:

Table 2 Team Members and their responsibilities
(Source: Own Work)

Team Member	Responsibility
UX/UI Designer	• Develop and enhance Circle AI’s design and user experience. • Ensuring that the UX/UI design aligns with web development requirements and AI integration. • Conduct usability testing and analyzing user feedback to optimize the platform’s interface.
Web Developer	• Oversee front-end and back-end development, ensuring seamless API model integration. • Manage website hosting, domain and cloud services for optimal uptime and performance. • Optimize website speed, functionality, and security to enhance the user experience. • Collaborate with the UX/UI Designer to refine website responsiveness and user interface.
Media Buyer	• Develop and execute advertising campaigns on Google Ads and social media to drive user acquisition. • Optimize the paid campaigns for higher conversion rates. • Monitor ad performance metrics and adjust strategies based on analytics.

Social Media Specialist	• Create and manage engaging content across Circle AI's social media channels. • Implement and refine SEO strategies to enhance organic search visibility. • Track and analyze social media performance metrics to measure engagement. • Foster an interactive community by responding to user queries and enhancing brand engagement.
Customer Support Specialist	• Provide technical support for users experiencing platform-related issues. • Offer priority assistance for Enterprise Plan subscribers. • Collect and analyze user feedback to contribute to ongoing platform improvements.

11.4.2 Project investment and cost breakdown

This subsection outlines the financial resources required to develop, launch, and maintain the platform, ensuring its functionality, scalability, and long-term growth. The cost breakdown provides a detailed estimate of expenses across key areas such as design, development, marketing, operations, and customer support, offering transparency in financial planning and resource allocation.

In the initial phase, self-funding will be used to cover foundational expenses as shown in Table 3, while in the growth phase, investor funding will be sought to support platform expansion, marketing expansion campaigns, and scaling operations.

By understanding these costs, the project can effectively manage investments and optimize spending to maximize value and efficiency.

Table 3 Project Expenses

(Source: Own Work)

No.	Category	Cost Estimation

1.	UX/UI Design	\$2,000
2.	Website Development	\$5,000
3.	Third-party AI API Provider	Cost depends on the AI service model integration
4.	Doman, Hosting & Cloud Storage	Costs vary based on the hosting provider
5.	Marketing & Branding	\$1,000
6.	Online Promotion Campaigns	\$2,000/ Month
7.	Marketing Team Salaries	Social Media Specialist: \$800/ Month
		Media Buyer: \$500/ Month
8.	Marketing Agency	Out-of-home advertising: \$3,000/Month
9.	Miscellaneous & Legal Fees	Costs vary based on legal documents and other requirements
10.	Customer Support & Maintenance	\$600/Month

12 PROJECT SUMMARY

Circle AI is a generative AI platform developed in direct response to the findings derived from extensive research, which included both qualitative and quantitative data collection involving Egyptian fashion e-commerce entrepreneurs and consumers. The development of this platform was shaped by real market needs identified through the study, particularly the challenges surrounding product presentation, rising operational costs, and consumer hesitation during the online purchase journey.

With the collaborative efforts of a UX/UI designer and a web developer, the visual and technical structure of Circle AI was designed to reflect the core objectives of this research. The result is a native, bilingual digital platform that integrates AI-driven features into a user-friendly interface tailored to the Egyptian fashion e-commerce market.

The platform's primary purpose is to offer a scalable, intelligent solution that enhances product presentation through personalized contextual visuals. These AI-driven contextual displays adapt to the preferences and expectations of fashion consumers, helping to reduce purchase hesitation and support faster decision-making. This was clearly observed in the quantitative research, where participants responded positively to AI-driven contextual product displays, indicating a significant impact on their purchasing behavior.

Circle AI supports fashion businesses in shifting away from costly and time-consuming traditional photography methods by offering an automated, efficient alternative. It enables fashion brands, both emerging and established, to create realistic, customized product visuals that align with their target audience, all without compromising the integrity of the fashion item itself.

The platform includes a comprehensive suite of features designed to serve the specific demands of the local fashion brands. These include: Persona Creator, Smart Lighting & Shadow, Contextual Scene Generator, Background Editor, Pose & Position, Smart Image Resizer, Trend Forecast, and Brand Toolkit. Each feature was developed to streamline the visual creation process, reduce operational costs, and help businesses maintain a consistent, high-quality visual identity.

In summary, Circle AI embodies the practical application of this thesis, merging research findings with innovative technology to provide a viable, market-ready solution. It stands as a forward-looking tool positioned to influence both consumer experience and the operational dynamics of fashion e-commerce businesses in Egypt.

CONCLUSION

This research has explored the significant impact of AI-driven contextual product displays on consumer purchasing behaviors within Egypt's fashion e-commerce industry. Integrating AI into product presentation strategies allows businesses to effectively engage their customers, facilitate informed purchase decisions, and build greater trust in their brands. The study demonstrated how customized and interactive contextual product displays can directly influence consumer selection, boosting customer satisfaction and fostering brand loyalty.

Using both quantitative methods, such as surveys, and qualitative techniques like in-depth individual interviews, the study gathered valuable insights from both consumers and e-commerce business owners. It identified major challenges faced by fashion e-commerce companies, particularly in capturing consumer attention, ensuring attractive product presentations and minimizing operational cost. Addressing these challenges, the concept of Circle AI emerged, a generative AI platform designed to enhance contextual product displays tailored specifically to consumer preferences.

Although primarily intended for fashion e-commerce platforms, Circle AI also has practical applications for businesses predominantly utilizing social media platforms; however, this remains a secondary application rather than its primary objective.

Despite the clear benefits, the adoption of AI technologies in Egypt's fashion e-commerce industry still faces notable hurdles. Some businesses may experience difficulties due to limited technical expertise, privacy concerns, financial limitations, or infrastructural barriers. Therefore, fashion businesses must actively foster awareness among both their consumers and employees, clearly communicating the potential advantages and addressing any concerns related to AI integration. Through increased transparency and education, businesses can significantly improve technology adoption rates and ensure a positive consumer shopping experience.

Ultimately, the research questions stated in the methodological part were successfully answered and the goal of the thesis was met.

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LIST OF ABBREVIATIONS

E-commerce	- Electronic Commerce
AI	- Artificial Intelligence
WOM	- Word of Mouth
MSMEs	- Micro, small, and medium enterprises
API	- Application Programming Interface
UX/UI	- User Experience/ User Interface
KPIs	- Key Performance Indicators
USD	- United States Dollar
SEO	- Search Engine Optimisation
PEOU	- Perceived ease of use
GPT	- Generative Pretrained Transformer
LLMs	- Large Language Models
DOI	- Diffusion of Innovation
B2B	- Business-to-Business

APPENDICES

Appendix P I: Survey Questionnaires in English

Appendix P II: Survey Questionnaires in Arabic (Original)

Appendix P III: Survey Results

Appendix P IV: Individual Interview Questions in English

Appendix P V: Individual Interview Questions in Arabic (Original)

Appendix P VI: Individual Interview Results

Appendix P VII: Experiment Images

Appendix P VIII: Website Designs

APPENDIX P I: SURVEY QUESTIONNAIRES IN ENGLISH

Welcome and thank you for participating in this survey! I am a Master's student conducting research for my thesis titled 'The Impact of AI-Driven Contextual Product Display on Fashion E-Commerce Purchases in Egypt.' This study aims to explore how AI can enhance product presentation, improve customer satisfaction and influence buying decisions.

Your feedback is extremely valuable and will contribute significantly to understanding the effectiveness of AI technologies in the fashion e-commerce sector in Egypt. This survey will take approximately 5 minutes to complete. Please be assured that your responses will remain confidential and are solely for academic research purposes.

Thank you for your time and insights!

Note:

- **Contextual Product Display:** It includes elements surrounding the product to enhance its presentation, such as the product background, display setting, image quality, size, camera angle, along with visual enhancements, etc.
- **AI:** Artificial intelligence
- **Fashion:** clothes, bags, shoes, accessories, etc.
- **E-commerce:** website (e-shop)
- **Brand:** The company sells products

Filtration Question:

1. How often do you shop for fashion items online?

- Weekly
- Monthly
- Every few months
- Rarely
- Never

Questionnaires:

2. On a scale of 1 to 5, how would you evaluate your shopping experience in fashion e-commerce?

- 1 (Very Poor)
- 2 (Poor)
- 3 (Neutral)
- 4 (Good)
- 5 (Excellent)

3. How familiar are you with AI features?

- familiar
- Neutral
- Not familiar

4. Are you aware of online websites that use AI to enhance product presentation?

- Yes
- I am not sure
- No

5. To what extent would you agree that AI-driven contextual product display can make your shopping experience more convenient?

- Agree
- Neutral
- Disagree

6. How would you compare the visual appeal of AI-driven contextual product displays to traditional ones?

- More appealing
- About the same
- Less appealing
- I Don't know

7. Do you think AI-driven contextual product display would increase your likelihood of making an online purchase?

- Yes
- Maybe
- No

8. To what extent do you agree that AI-driven contextual product display might mislead your impression of the actual product quality?

- Strongly agree
- Agree
- Neutral
- Disagree
- Strongly disagree

9. Which image is more likely to influence your decision to purchase the product?

- Option A



- Option B



10. Which image feels more trustworthy in representing the actual product?

- Option A



- Option B



11. Which image better helps you imagine the product in real life?

- Option A



- Option B



12. To what extent do you think AI-driven contextual product display would improve your trust in a certain fashion e-commerce brand?

- Strongly agree
- Agree
- Neutral
- Disagree
- Strongly disagree

13. Would the use of AI-driven contextual product display in e-commerce make you more likely to recommend it to others?

- Yes
- Maybe
- No

14. How would an AI-driven contextual product display personalize your experience compared to traditional shopping methods?

- personalized
- Neutral
- Less personalized

15. How concerned are you about the privacy of your data when interacting with AI-driven features?

- Extremely concerned
- Very concerned
- Moderately concerned
- Slightly concerned
- Not concerned at all

16. How important is educating customers about AI-driven technologies for overcoming resistance to their adoption?

- Important
- Neutral

- Less important

17. Do you think the current technological infrastructure in Egypt is sufficient to support AI implementation in fashion e-commerce?

- Yes
- Maybe
- No

18. To what extent is the lack of technical expertise a barrier in implementing AI-driven contextual product display in e-commerce businesses in Egypt?

- Very significant
- Moderately significant
- Not significant

19. How difficult do you think it is for small businesses in Egypt to invest in AI-driven contextual product display for their e-commerce websites?

- Difficult
- Moderate
- Less difficult

20. What is your age?

- Under 18
- 18–25
- 26–35
- 36–45
- 46 or older

21. What is your gender?

- Male
- Female

22. Which city in Egypt do you live?

- Cairo
- Giza
- Alexandria
- Mansoura
- Port Saeed
- Others:-----

23. What is your primary device for online shopping?

- Smartphone
- Tablet
- Laptop/Desktop

APPENDIX P II: SURVEY QUESTIONNAIRES IN ARABIC (ORIGINAL)

مرحبًا وشكرًا لمشاركتك في هذا الاستطلاع!

أنا طالبة ماجستير أجري حاليًا بحثًا لرسالتي بعنوان ' تأثير استخدام الذكاء الاصطناعي في العرض السياقي للمنتجات على مشتريات التجارة الإلكترونية للأزياء في مصر'. تهدف هذه الدراسة إلى استكشاف كيف يمكن للذكاء الاصطناعي تحسين عرض المنتجات، زيادة رضا العملاء والتأثير على قرارات الشراء .

رأيك يُعتبر ذو قيمة عالية وسيسهم بشكل كبير في فهم فاعلية تقنيات الذكاء الاصطناعي في قطاع التجارة الإلكترونية للأزياء في مصر.

هذا الاستطلاع سيستغرق حوالي 6 دقائق لإتمامه. تأكد من أن ردودك ستظل سرية وتستخدم فقط لأغراض البحث الأكاديمي.

شكرًا على وقتك وأرائك!

ملحوظة:

- **العرض السياقي للمنتج:** يشمل العناصر التي تحيط بالمنتج لتحسين عرضه، مثل خلفية المنتج، مكان عرضه، جودة الصورة، حجمها، وزوايا التصوير، وتناسق الألوان مع تحسينات بصرية والخ
- **الذكاء الاصطناعي : AI**
- **الأزياء:** تشمل الملابس، الحقائب، الأحذية، الإكسسوارات، وغيرها
- **التجارة الإلكترونية:** موقع إلكتروني/ متجر إلكتروني/website
- **العلامة التجارية:** الشركة التي تباع المنتجات (الماركة)

سؤال التصفية:

1. كم مرة تقوم بشراء منتجات الأزياء عبر الإنترنت؟

- أسبوعيًا
- شهريًا
- كل عدة أشهر
- نادرًا
- أبدًا

الأسئلة:

2. على مقياس من ١ إلى ٥ ، كيف تقيم تجربتك في التسوق الإلكتروني للأزياء؟

- ١ - ضعيف جدًا
- ٢ - ضعيف
- ٣ - متوسط
- ٤ - جيد
- ٥ - ممتاز

3. ما مدى معرفتك بالذكاء الاصطناعي؟

- مطلع
- محايد
- غير مطلع

4. هل تعرف مواقع إلكترونية تستخدم الذكاء الاصطناعي لتحسين عرض المنتجات؟

- نعم
- غير متأكد
- لا

5. إلى أي مدى توافق على أن العرض السياقي للمنتجات بواسطة الذكاء الاصطناعي يمكن أن يسهل تجربة التسوق الخاصة بك؟

- أوافق
- محايد
- لا أوافق

6. كيف تقارن الجاذبية البصرية للعرض السياقي للمنتجات المدعوم بالذكاء الاصطناعي مقابل العرض التقليدي؟

- أكثر جاذبية
- متماثلة
- أقل جاذبية
- لا أعرف

7. هل تعتقد أن العرض السياقي للمنتجات المدعومة بالذكاء الاصطناعي يمكن أن يزيد من احتمالية شرائك عبر الإنترنت؟

- نعم
- ربما
- لا

8. إلى أي مدى توافق على أن العرض السياقي للمنتجات المدعومة بالذكاء الاصطناعي قد يضلل انطباعك عن جودة المنتج الفعلية؟

- أوافق بشدة
- أوافق
- محايد
- لا أوافق
- لا أوافق بشدة

9. أي من الصورتين قد تؤثر أكثر على قرارك بشراء المنتج؟

- الخيار أ



- الخيار ب



10. أي من الصورتين تبدو أكثر مصداقية في تمثيل المنتج الفعلي؟

- الخيار أ



• الخيار ب



11. أي من الصورتين تساعدك أكثر على تخيل المنتج في الحياة الواقعية؟

• الخيار أ



• الخيار ب



12. إلى أي مدى تعتقد أن العرض السياقي للمنتج المدعوم بالذكاء الاصطناعي قد يحسن ثقتك في علامة تجارية معينة للأزياء؟

• أوافق بشدة

• أوافق

• محايد

• لا أوافق

• لا أوافق بشدة

13. هل استخدام العرض السياقي للمنتجات المدعومة بالذكاء الاصطناعي في التجارة الإلكترونية يزيد من احتمالية أن تنصح الآخرين باستخدام هذا الموقع؟

• نعم

• ربما

• لا

14. كيف سيؤدي العرض السياقي للمنتجات المدعومة بالذكاء الاصطناعي في تفصيل تجربتك الشخصية مقارنةً بالتسوق التقليدي؟

• مفصلاً

• محايد

• غير مفصلاً

15. ما مدى قلقك بشأن خصوصية بياناتك عند التفاعل مع الذكاء الاصطناعي؟

• قلق للغاية

• قلق جداً

• محايد

• قلق قليلاً

• غير قلق على الإطلاق

16. ما مدى أهمية توعية العملاء حول تقنيات الذكاء الاصطناعي لتشجيعهم على استخدامها؟

• مهمة

• محايد

• غير مهمة

17. هل تعتقد أن البنية التحتية التكنولوجية الحالية في مصر كافية لدعم تنفيذ الذكاء الاصطناعي في التجارة الإلكترونية للأزياء؟

- نعم
- ربما
- لا

18. إلى أي درجة يشكل نقص الخبرة التقنية عائقًا أمام تنفيذ العرض السياقي للمنتجات المدعومة بالذكاء الاصطناعي في مجال التجارة الإلكترونية في مصر؟

- عائق شديد
- عائق متوسط
- لا يشكل عائقًا

19. ما مدى صعوبة استثمار الشركات الصغيرة في مصر في العرض السياقي للمنتجات المدعومة بالذكاء الاصطناعي لمواقع التجارة الإلكترونية الخاصة بها؟

- صعب
- متوسط
- غير صعب

20. كم عمرك؟

- أقل من 18
- 18-25
- 26-35
- 36-45
- 46 أو أكثر

21. ما هو جنسك؟

- ذكر
- أنثى

22. في أي مدينة تعيش بمصر؟

- القاهرة

- الجزيرة
- الإسكندرية
- المنصورة
- بورسعيد
- أخرى:-----

23. ما هو الجهاز الرئيسي الذي تستخدمه للتسوق عبر الإنترنت؟

- هاتف محمول
- جهاز لوحي (tablet)
- لابتوب/ كمبيوتر

APPENDIX P III: SURVEY RESULTS

1. How often do you shop for fashion items online?

	Number	Percentage
Weekly	12	6%
Monthly	40	20%
Every few months	74	37%
Rarely	47	23%
Never	28	14%

2. On a scale of 1 to 5, how would you evaluate your shopping experience in fashion e-commerce?

	Number	Percentage
1 (Very Poor)	7	4%
2 (Poor)	16	9%
3 (Neutral)	78	45%
4 (Good)	59	34%
5 (Excellent)	13	8%

3. How familiar are you with AI features?

	Number	Percentage
Familiar	94	54%
Neutral	66	38%
Not familiar	13	8%

4. Are you aware of online websites that use AI to enhance product presentation?

	Number	Percentage
--	--------	------------

Yes	47	27%
I am not sure	75	43%
No	51	30%

5. To what extent would you agree that AI-driven contextual product display can make your shopping experience more convenient?

	Number	Percentage
Agree	118	68%
Neutral	48	28%
Disagree	7	4%

6. How would you compare the visual appeal of AI-driven contextual product displays to traditional ones?

	Number	Percentage
More appealing	109	63%
About the same	30	17%
Less appealing	15	9%
I Don't know	19	11%

7. Do you think AI-driven contextual product display would increase your likelihood of making an online purchase?

	Number	Percentage
Yes	87	50%
Maybe	75	43%
No	11	7%

8. To what extent do you agree that AI-driven contextual product display might mislead your impression of the actual product quality?

	Number	Percentage
Strongly agree	37	22%
Agree	68	39%
Neutral	56	32%
Disagree	11	6%
Strongly disagree	1	1%

9. Which image is more likely to influence your decision to purchase the product?

	Number	Percentage
Option A 	151	87%
Option B 	22	13%

10. Which image feels more trustworthy in representing the actual product?

	Number	Percentage
--	--------	------------

Option A	91	53%
		
Option B	82	47%
		

11. Which image better helps you imagine the product in real life?

	Number	Percentage
Option A	62	36%
		
Option B	111	64%
		

12. To what extent do you think AI-driven contextual product display would improve your trust in a certain fashion e-commerce brand?

	Number	Percentage
Strongly agree	32	19%
Agree	68	39%
Neutral	59	34%
Disagree	13	7%
Strongly disagree	1	1%

13. Would the use of AI-driven contextual product display in e-commerce make you more likely to recommend it to others?

	Number	Percentage
Yes	80	46%
Maybe	78	45%
No	15	9%

14. How would an AI-driven contextual product display personalize your experience compared to traditional shopping methods?

	Number	Percentage
Personalized	66	38%
Neutral	95	55%
Less personalized	12	7%

15. How concerned are you about the privacy of your data when interacting with AI-driven features?

	Number	Percentage
--	--------	------------

Extremely concerned	33	19%
Very concerned	35	20%
Moderately concerned	71	41%
Slightly concerned	27	16%
Not concerned at all	7	4%

16. How important is educating customers about AI-driven technologies for overcoming resistance to their adoption?

	Number	Percentage
Important	127	73%
Neutral	38	22%
Less important	8	5%

17. Do you think the current technological infrastructure in Egypt is sufficient to support AI implementation in fashion e-commerce?

	Number	Percentage
Yes	42	24%
Maybe	83	48%
No	48	28%

18. To what extent is the lack of technical expertise a barrier in implementing AI-driven contextual product display in e-commerce businesses in Egypt?

	Number	Percentage
Very significant	62	36%
Moderately significant	99	57%
Not significant	12	7%

19. How difficult do you think it is for small businesses in Egypt to invest in AI-driven contextual product display for their e-commerce websites?

	Number	Percentage
Difficult	31	18%
Moderate	118	68%
Less difficult	24	14%

20. What is your age?

	Number	Percentage
Under 18	2	1%
18–25	27	16%
26–35	102	59%
36–45	32	18%
46 or older	10	6%

21. What is your gender?

	Number	Percentage
Male	72	42%
Female	101	58%

22. Which city in Egypt do you live?

	Number	Percentage
Cairo	126	73%
Giza	25	14%
Alexandria	17	10%
Al-Sharqia	4	2%

Red Sea	1	1%
---------	---	----

23. What is your primary device for online shopping?

	Number	Percentage
Smartphone	150	87%
Tablet	4	2%
Laptop/Desktop	19	11%

APPENDIX P IV: INDIVIDUAL INTERVIEW QUESTIONS IN ENGLISH

Hello, my name is Dolagy, and I'm a Master's student currently conducting research for my thesis on 'The Impact of AI-Driven Contextual Product Display on Fashion E-Commerce Purchases in Egypt.' The goal of my study is to understand how AI technology can enhance product presentation, improve customer satisfaction and influence consumer behavior. I would love to gain insights from your experience in this industry.

This conversation will be recorded for research purposes. I assure you that your responses will be kept confidential and used solely for academic purposes.

Expressions:

- **Contextual Product Display:** It includes elements surrounding the product to enhance its presentation, such as the product background, display setting, image quality, size, and angle, along with visual enhancements to make the shopping experience more appealing.
- **AI:** Artificial intelligence.
- **Fashion:** clothing, bags, shoes, etc.

Questions:

1. **Could you please introduce yourself, and share some details about your business?**
 - **How long have you been operating your e-commerce business?**
2. **What are the main features of your platform, and how do you currently showcase your products?**
3. **What are the key challenges you are currently facing in running your e-commerce business?**
4. **Have you explored the use of AI features in your fashion e-commerce platform? If yes, can you share your experience? If not, what factors have prevented you from doing so?**

- 5. Would you consider using an AI-driven tool to enhance your product presentation? What factors would influence your decision?**

Experiment

Showing a traditional contextual product display and another featuring AI-driven contextual product display.

- 1. After reviewing these examples, Which of the two images do you think would engage customers more, and why?*
- 2. How do you think AI-driven contextual product displays compare to traditional ones? What advantages or disadvantages do you see?*
- 6. What challenges do you foresee in adopting AI-driven contextual product display in your e-commerce?**
 - Are there specific financial, technical or infrastructural barriers that you think might prevent adoption?**
- 7. In your opinion, how does cultural perception influence the willingness to adopt AI technologies for online shopping?**
- 8. Do you think AI-driven contextual product display could encourage repeat purchases or build customer loyalty to your fashion e-commerce? Why or why not?**
- 9. Is there anything else you would like to share about your perspective on AI-driven contextual product display in e-commerce?**
- 10. What would you recommend as key considerations for other businesses considering AI integration?**

APPENDIX P V: INDIVIDUAL INTERVIEW QUESTIONS IN ARABIC (ORIGINAL)

أهلاً بـبك، اسمي دولا جي، وأنا طالبة ماجستير رسالتي عن 'تأثير استخدام الذكاء الاصطناعي في العرض السياقي للمنتجات على مشتريات التجارة الإلكترونية للأزياء في مصر.'

الهدف من دراستي هو فهم إزاي تكنولوجيا الذكاء الاصطناعي ممكن تحسن من عرض المنتجات، تزود رضا العملاء وتأثر على سلوك المستهلكين.

نفسى أفهم أكثر من خبرتك في الصناعة دي. بعد ازنك المحادثة دي هتسجل لأغراض البحث بس. أكذلك إن ردودك هتفضل سرية وهتستخدم للدراسة بس.

مصطلحات:

- **العرض السياقي للمنتج:** يشمل العناصر التي تحيط بالمنتج لتحسين عرضه، مثل خلفية المنتج، مكان عرضه، جودة الصورة، حجمها، وزاوية التصوير، وتناسق الألوان مع تحسينات بصرية لجعل تجربة التسوق أكثر جذباً
- **الذكاء الاصطناعي: AI**
- **الأزياء:** اللبس، الشنط، أحذية، الخ

الأسئلة:

1. ممكن تعرفنا على نفسك وتدينا شوية تفاصيل عن شغلك؟
- بقالك قد إيه شغال في مجال التجارة الإلكترونية؟ (الويبسايت)
2. إيه الحاجات الأساسية اللي بتميز منصتك، وبتعرض منتجاتك إزاي دلوقتي؟
3. إيه أهم التحديات اللي بتقابلها حالياً في تشغيل نشاطك أو في موقعك؟
4. جربت تستخدم خصائص الذكاء الاصطناعي في منصتك للأزياء على النت؟ لو إيوة، ممكن تحكيلنا عن تجربتك؟ لو لا، إيه الحاجات اللي منعتك؟
5. هل بتفكر في استخدام أداة بتشتغل بالذكاء الاصطناعي لتحسن من عرض منتجاتك؟ إيه العوامل اللي ممكن تأثر على قرارك؟

التجربة:

عرض منتج تقليدي وعرض ثاني بيبستخدم الذكاء الاصطناعي.

1. بعد ما شوفت الأمثلة دي، أي صورة تفتكر هتجذب العملاء أكثر، وليه؟

2. تفتكر عرض المنتج اللي بيستخدم الذكاء الاصطناعي ممكن يقارن إزاي بالطرق التقليدية؟ إيه المميزات أو العيوب اللي شايفها؟

6. إيه التحديات اللي ممكن تواجهها لما تستخدم العرض السياقي للمنتج اللي بتشتغل بالذكاء الاصطناعي في موقعك؟

- فيه عوائق مالية أو تقنية أو بنيائية معينة تفتكر إنها ممكن تمنع التبني؟

7. من وجهة نظرك، إيه تأثير الثقافة على استعداد الناس لتقبل تكنولوجيا الذكاء الاصطناعي في التسوق على النت؟

8. تفتكر إن استخدام الذكاء الاصطناعي في العرض السياقي للمنتجات ممكن يحفز العملاء يشتروا تاني أو تكسب ولائهم لموقعك؟ ليه أو ليه لا؟

9. في حاجة تانية حابب تضيفها عن رأيك في استخدام الذكاء الاصطناعي في العرض السياقي للمنتجات على المواقع الإلكترونية (الويبسايت)؟

10. إيه النصائح الأساسية اللي ممكن تديها للشركات التانية اللي بتفكر تدمج الذكاء الاصطناعي في شغلها؟

APPENDIX P VI: INDIVIDUAL INTERVIEW RESULTS

1. What are the main features of your platform, and how do you currently showcase your products?

A.B. (Male, Founder of Clothes store): Our main advantage lies in fast order fulfillment, as we operate an on-demand printing system that eliminates the need for large inventory storage. The simplicity of our product presentation is another strength—we use clean, white backgrounds to highlight the product and avoid any distracting elements in the images. Even when selecting models, we ensure that the focus remains entirely on the clothing itself.

M.A. (Female, Founder of Bag & Shoe Store): My website is distinguished by its organized structure, making browsing and purchasing easier for customers. The images are clear and of high quality, showcasing detailed product features accurately. I also focus on presenting natural-looking product images, ensuring they appear as close to reality as possible—something that attracts customers more.

Additionally, customer feedback is a fundamental part of the platform experience. We encourage every buyer to leave a review about their experience, which helps build trust among new customers and reinforces the brand's credibility. This also allows me to understand customer needs and make improvements based on their feedback.

M.E. (Female, Founder of two clothes stores): Is the structured and detailed presentation of products. Instead of using professional models, I carefully select individuals who resemble the target audience so that customers can easily envision themselves wearing the products. Additionally, all product details, including size and color specifications, are clearly outlined on the website, helping customers make confident purchasing decisions.

O.M. (Male, Founder of clothes store): We display our products in multiple ways to give customers a comprehensive view of each item. Our focus is on providing high-quality images and short videos that highlight the product's details, especially since some customers struggle to visualize how an item will look on them. Additionally, we have recently started using virtual try-on technology, allowing customers to see how the products would fit them digitally.

2. What are the key challenges you are currently facing in running your e-commerce business?

A.B. (Male, Founder of clothes store): One of the biggest challenges is the intense competition, as anyone can start an e-commerce business with a relatively small budget, leading to a crowded market. Some competitors lower their prices significantly, which can be difficult to compete with. Additionally, developing a website with a customization feature requires substantial investment, along with a dedicated technical team for continuous maintenance and optimization. Early on, we also faced challenges in balancing product quality with fast delivery, but we overcome it since refined our process to achieve high customer satisfaction.

M.A. (Female, Founder of Bag & Shoe Store): One of the major challenges is the continuous development of the website, as some updates require high costs. Additionally, enhancing the user experience with new features remains an ongoing challenge.

Professional product photography is quite expensive, whether in terms of renting shooting locations or hiring photographers. Moreover, paid advertisements on Facebook are costly, placing a burden on the budget.

In Egypt's e-commerce market in general, one of the biggest challenges is keeping up with market changes, such as price fluctuations, new fashion trends, and evolving customer preferences. Trends have a strong impact on the market, as some products suddenly become highly popular but then decline just as quickly. This unpredictability can lead to stock accumulation and financial losses.

Therefore, my current strategy focuses on creating more timeless products rather than following short-lived trends. I aim to design items that remain practical and relevant for years without losing their value. Additionally, I maintain competitive pricing—aligning with market rates while ensuring that my products stand out in terms of quality and design.

M.E. (Female, Founder of two clothes stores): One of the major challenges I encounter is website updates. Transitioning from platforms like Wix to Shopify sometimes leads to data loss, which can be problematic. Another challenge is ensuring the website remains well-organized, as it requires precise and frequent product updates. Even minor errors, such as incorrect pricing, can lead to significant issues.

Additionally, finding a professional photographer within a reasonable budget is a challenge, as high-quality photography is quite expensive. However, over time, I have realized that investing in high-quality photography is beneficial, as it enhances product clarity and adds credibility to the brand.

O.M. (Male, Founder of clothes store): One of the major challenges is delivering a superior product display experience that caters to different tastes and body types. Since product fit varies from person to person, it can sometimes be difficult to convince customers to make a purchase without seeing the item on a model that resembles them. Additionally, continuously upgrading the website and enhancing user experience remains an ongoing challenge.

Another major issue is high-quality product photography, which is very expensive—whether it's renting professional studios or hiring photographers. To manage costs, we are always looking for alternative solutions, such as digitally modifying backgrounds based on the season instead of conducting multiple physical photoshoots. This approach significantly reduces photography expenses.

**3. Have you explored the use of AI features in your fashion e-commerce platform?
If yes, can you share your experience? If not, what factors have prevented you from doing so?**

A.B. (Male, Founder of clothes store): AI plays a major role in our business, particularly in design creation. We utilize AI tools such as ChatGPT to generate design ideas within seconds, compared to the days it would take a graphic designer. We also use AI to enhance the quality of customer-uploaded designs, such as removing backgrounds and improving resolution, which saves significant time and effort.

M.A. (Female, Founder of Bag & Shoe Store): I use AI for writing ads and product descriptions on the website, as it helps improve content quality and saves time. It also assists in generating content that attracts customers more effectively.

I believe AI has a strong influence on e-commerce, particularly in enhancing image quality and digital marketing, which contributes to increasing sales. However, I haven't used it yet for improving product images. I was initially hesitant because I hadn't explored the right tools yet.

M.E. (Female, Founder of two clothes stores): AI has completely transformed the way I work. Previously, I relied on a content writer to draft product descriptions and social media captions, which required considerable time and effort. Now, with AI-powered tools, I can generate product descriptions within seconds. Additionally, many e-commerce platforms, such as Shopify, offer AI features that automatically create product descriptions based on images.

I have not yet used AI for product presentation directly, but I am about to experiment with a new technology that allows customers to virtually try on clothes using their personal images. I believe this feature will provide a more realistic shopping experience, especially since body shapes vary from one person to another.

There are also emerging applications that can generate AI-created product images instead of conducting physical photoshoots. These tools can modify backgrounds and showcase garments professionally without an actual photoshoot, reducing production costs and accelerating marketing processes.

O.M. (Male, Founder of clothes store): I haven't directly integrated AI into our operations yet, but I am currently exploring ways to incorporate it to enhance the customer experience. I believe it has the potential to significantly improve the shopping journey.

4. Would you consider using an AI-driven tool to enhance your product presentation? What factors would influence your decision?

A.B. (Male, Founder of clothes store): Yes, but there are some challenges to consider. For instance, when we try to use AI tools to generate images of models that match our local cultural aesthetics, the results are often inaccurate. These tools still require further development to produce more realistic and market-appropriate visuals.

M.A. (Female, Founder of Bag & Shoe Store): Yes, I am considering it, especially after seeing examples of AI-driven contextual display. The cost and final image quality will be key factors affecting my decision.

M.E. (Female, Founder of two clothes stores): Yes, I am definitely considering it, especially with the rise of new applications that can edit backgrounds and add refined visual elements. The key factors influencing my decision include time efficiency, cost reduction, and the quality of the final images.

O.M. (Male, Founder of clothes store): If AI technology can improve the customer experience without compromising the authenticity of the displayed products, then I would definitely consider adopting it. However, if it creates a misleading visual representation of the product that doesn't match reality, then it would be problematic.

Experiment

Showing a traditional contextual product display and another featuring AI-driven contextual product display.

1. After reviewing these examples, Which of the two images do you think would engage customers more, and why?

A.B. (Male, Founder of clothes store): It depends on the platform. On social media, dynamic backgrounds tend to be more engaging as they present the product in a more creative and eye-catching way. However, on an e-commerce website, simple, clean backgrounds (such as white) work best because they make the product stand out clearly and create a professional impression. Overall, customers tend to avoid images that appear overly edited, as they may question the product's authenticity.

M.A. (Female, Founder of Bag & Shoe Store): Images that look more natural are likely to attract customers more, as they prefer products that they can visualize in real life. When I shoot products in a natural environment, such as on the street, I notice that customers trust those images more, as they feel they reflect the real product.

Conversely, white-background images appear professional but sometimes prompt customers to request additional real-life images.

In some cases, small differences in background elements—like whether cars are present or not—can influence clarity and focus. A less cluttered background helps highlight the product better, making it more suitable for e-commerce platforms.

Some images appear overcrowded with colors or details, which can distract customers from focusing on the product itself. In such cases, adjusting the background to a more subtle tone can ensure the product remains the main focus. While solid-color backgrounds effectively emphasize product details, sometimes vibrant backgrounds create a more lively and engaging feel.

M.E. (Female, Founder of two clothes stores): If we are talking about social media, an image with a natural background would be more engaging, as it helps customers visualize the product in real-life contexts. On the other hand, for an e-commerce website, plain white backgrounds are preferable since they highlight product details more clearly.

I believe that images without distracting elements, such as cars or excessive background objects, are more likely to attract customers since they focus attention entirely on the product itself.

For a website, a white background gives a sense of clarity and professionalism, which is crucial when customers are making purchase decisions. However, on Instagram, people

prefer to see products in real-life settings, allowing them to imagine how they would look when worn in everyday life.

O.M. (Male, Founder of clothes store): The plain background image appears more appealing because it presents the product in a way that makes customers feel as though they are seeing it in real life, helping them make a purchasing decision. This type of image looks natural and highlights the product effectively. However, images with realistic backgrounds are better suited for platforms like Instagram, where lifestyle content performs well.

2. How do you think AI-driven contextual product displays compare to traditional ones? What advantages or disadvantages do you see?

A.B. (Male, Founder of clothes store): AI allows for quick image enhancements and the addition of appealing visual elements without the need for expensive photo shoots. However, AI-generated images can sometimes produce inaccuracies, such as distorted details or lighting mismatches between the product and background, which may impact customer trust.

M.A. (Female, Founder of Bag & Shoe Store): The advantages include:

- Enhancing backgrounds while keeping product details clear
- Reducing costs associated with professional photography and location rentals
- Increasing product appeal to customers

However, one major disadvantage is the risk of over-editing the background, which might result in a product that does not match reality. I believe that using AI in a balanced way can achieve optimal results without compromising product authenticity.

M.E. (Female, Founder of two clothes stores): AI can enhance images and showcase products professionally without requiring expensive photoshoots. However, AI-generated images may sometimes appear unnatural, leading to skepticism among customers regarding whether the product will truly match the displayed image.

O.M. (Male, Founder of clothes store): The main advantage of AI is that it reduces photography costs while automatically enhancing image quality. However, a key downside is that some AI modifications might appear unrealistic, which could cause customers to doubt the authenticity of the images.

5. What challenges do you foresee in adopting AI-driven contextual product display in your e-commerce?

A.B. (Male, Founder of clothes store): The technical limitations of AI are a key concern, as some AI-generated visuals lack precision in certain details. Additionally, some customers may hesitate to purchase a product if they feel that the images are overly edited and do not accurately represent the actual item. It is also essential to maintain visual consistency across all product images to ensure a seamless browsing experience for customers.

M.A. (Female, Founder of Bag & Shoe Store): The potential mismatch between AI-enhanced product images and the actual product. Some AI tools may not be flexible enough to cater to different types of products. High costs of AI tools, though they could still be more cost-effective in the long run compared to traditional photoshoots. Ensuring that final AI-generated images do not misrepresent the product in a way that could mislead customers.

M.E. (Female, Founder of two clothes stores): Some customers might be skeptical of AI-edited images, fearing that the product itself has been manipulated. If AI technology comes with high costs, it may not be sustainable in the long run.

That said, I believe AI is not a drawback at all—on the contrary, when used correctly, it adds great value by making images more visually appealing and professional, ultimately enhancing the shopping experience and attracting more customers.

O.M. (Male, Founder of clothes store): The biggest challenge is ensuring that the AI-generated images do not look artificial or overly edited. Additionally, some AI technologies may slow down the website, potentially affecting the overall user experience.

6. In your opinion, how does cultural perception influence the willingness to adopt AI technologies for online shopping?

A.B. (Male, Founder of clothes store): Culture plays a major role in how customers perceive AI-enhanced product images. Some customer segments may be initially skeptical, but as they become more familiar with AI-driven visuals and see practical benefits, they are likely to embrace the technology. Younger, tech-savvy generations tend to adapt more quickly to such innovations compared to older generations.

M.A. (Female, Founder of Bag & Shoe Store): Some customers still doubt AI-enhanced images, fearing that they may not reflect reality. However, over time, as customers see that

products arrive as advertised, they may become more accepting of AI-generated images. Building customer trust remains essential in adopting AI for product display.

As for transparently disclosing that images are AI-generated, it's a sensitive topic. Some customers might feel it reduces credibility, while others may accept it if they consistently receive accurate products.

I believe brand trust plays a key role here. If a brand is already reliable and consistently delivers quality products, disclosing AI usage may not be necessary. However, in the early stages of AI adoption, it might be best not to explicitly highlight AI-generated images until customers naturally accept them.

M.E. (Female, Founder of two clothes stores): Younger generations are generally more open to this technology, viewing it as a natural progression. Older generations, such as mothers, may be more hesitant about purchasing products with AI-enhanced images, as they may perceive them as misleading or overly altered.

O.M. (Male, Founder of clothes store): Some consumers are still hesitant to accept AI-generated modifications in product images, particularly in the fashion industry, where they expect to see products as they truly are. However, with proper education and gradual exposure, customers may become more accepting of AI-powered solutions over time.

7. Do you think AI-driven contextual product display could encourage repeat purchases or build customer loyalty to your fashion e-commerce? Why or why not?

A.B. (Male, Founder of clothes store): AI can enhance customer loyalty if it is used to improve the overall shopping experience. For example, allowing customers to customize their products quickly and effortlessly through AI-driven tools can make them feel more in control of their purchases, increasing the likelihood of them returning for future orders.

M.A. (Female, Founder of Bag & Shoe Store): AI can attract customers and boost sales, but it's not the sole factor in building customer loyalty. The entire shopping experience, including product quality and after-sales service, plays a bigger role in determining customer loyalty.

AI-driven contextual product display may help create a strong first impression, but it's not the primary factor ensuring customers return to buy again.

M.E. (Female, Founder of two clothes stores): Yes, if used correctly—particularly with virtual try-on features—it can significantly increase customer confidence in the product, thereby fostering brand loyalty.

O.M. (Male, Founder of clothes store): If the images presented are accurate and reflect the actual product, AI has the potential to build customer trust and encourage repeat purchases. However, if customers feel misled by overly edited or unrealistic images, they might lose confidence in the brand entirely.

That being said, AI isn't the only factor influencing customer loyalty. Product quality, service efficiency, and the overall shopping experience play a much bigger role in determining whether customers will return.

8. Is there anything else you would like to share about your perspective on AI-driven contextual product display in e-commerce?

A.B. (Male, Founder of clothes store): There is still a need for further development in areas such as AI-generated models and accurately reflecting user preferences. Current AI tools require improvements to deliver more realistic and customer-appropriate visuals.

M.A. (Female, Founder of Bag & Shoe Store): No, actually.

M.E. (Female, Founder of two clothes stores): AI should be used carefully to enhance product presentation without creating an unrealistic representation of the item. Transparency in AI usage is essential for maintaining customer trust.

O.M. (Male, Founder of clothes store): It is crucial to apply AI technology carefully to ensure that it enhances product presentation without compromising authenticity and customer trust.

9. What would you recommend as key considerations for other businesses considering AI integration?

A.B. (Male, Founder of clothes store): Leveraging AI-powered analytics can greatly improve marketing decisions and operational efficiency. Businesses should integrate AI into daily processes, whether in design creation, data analysis, or customer interaction. It is also crucial to educate both employees and customers on how to effectively use AI tools. Hosting workshops to increase AI awareness can maximize its benefits. Moreover, companies should stay updated on the latest AI advancements to remain competitive in the market.

M.A. (Female, Founder of Bag & Shoe Store): Ensure AI-enhanced images do not alter product details. Use AI not only for visuals but also for content creation and marketing. Also, don't rely solely on AI—use it as a supportive tool while maintaining a human touch. Train employees on using AI tools effectively to enhance marketing and customer experience, as this will positively impact sales performance.

M.E. (Female, Founder of two clothes stores): Ensure that AI-edited images do not alter the product's actual appearance. Utilize AI not only for product display but also for content creation and marketing strategies. Do not rely solely on AI—use it as a supporting tool to enhance content quality while maintaining a personal touch.

Also, it is crucial to train employees on how to effectively use AI tools so they can optimize their potential in improving marketing operations and customer experiences. This will also contribute to boosting sales.

O.M. (Male, Founder of clothes store): AI should be used cautiously to avoid misleading customers. It's best to disclose when images are AI-generated, maintaining transparency to preserve credibility. Training employees and educating customers on how to leverage AI-driven tools can help maximize its benefits.

APPENDIX P VII: EXPERIMENT IMAGES

First product images



AI-driven contextual product display



Traditional Contextual product display

Second product images



AI-driven contextual product display



Traditional Contextual product display

Third product images

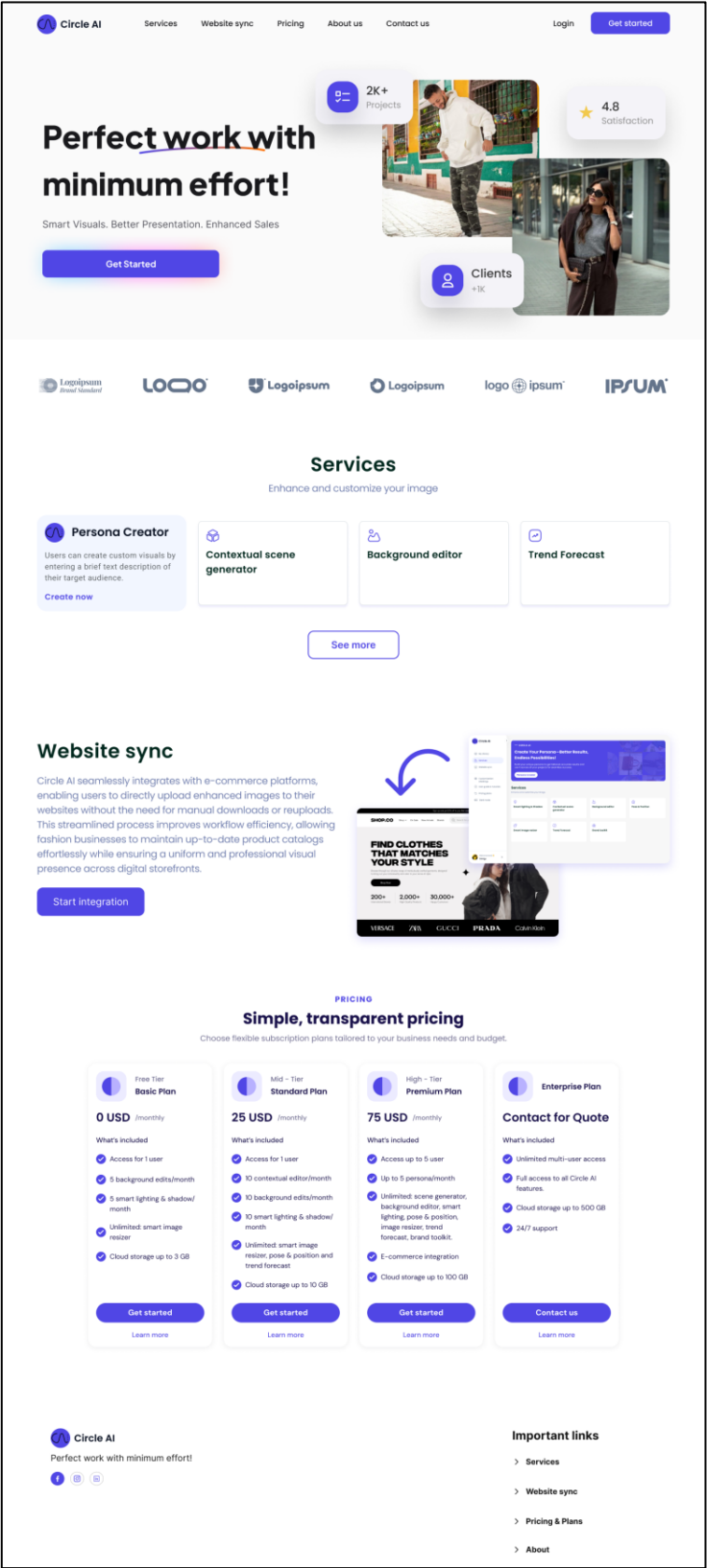


Traditional Contextual product display

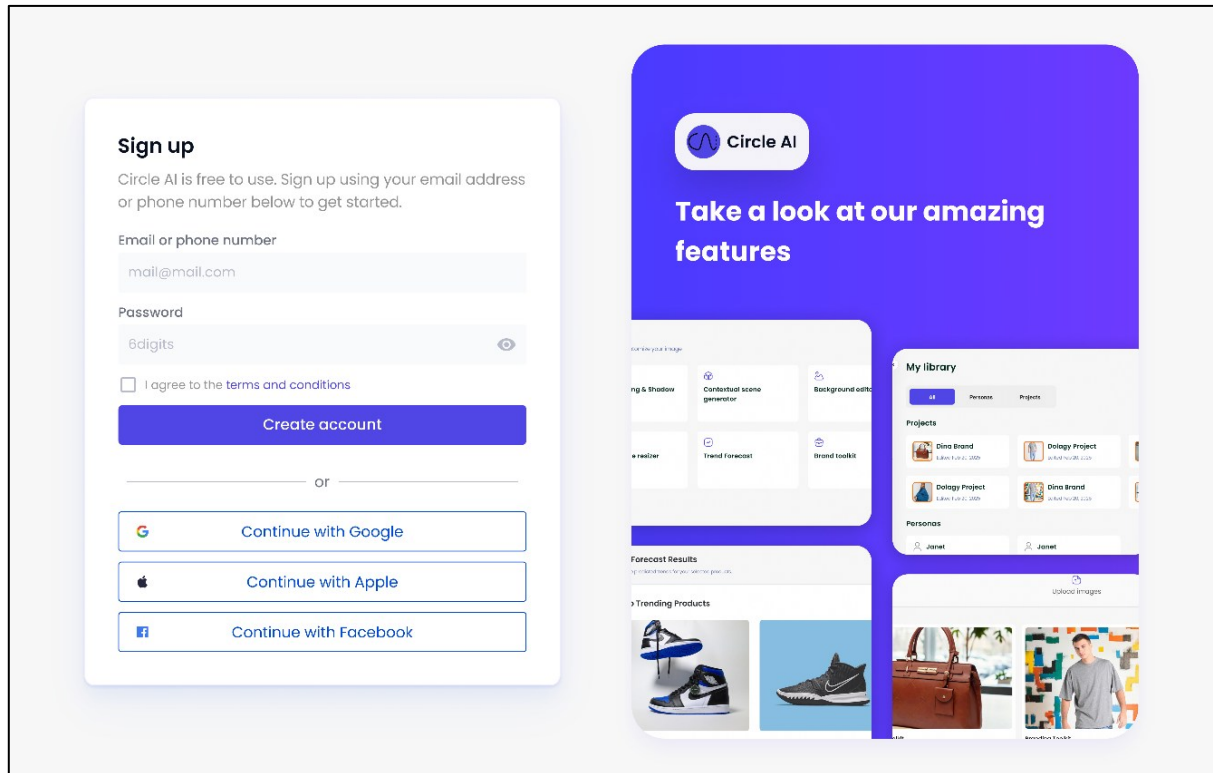


AI-driven contextual product display

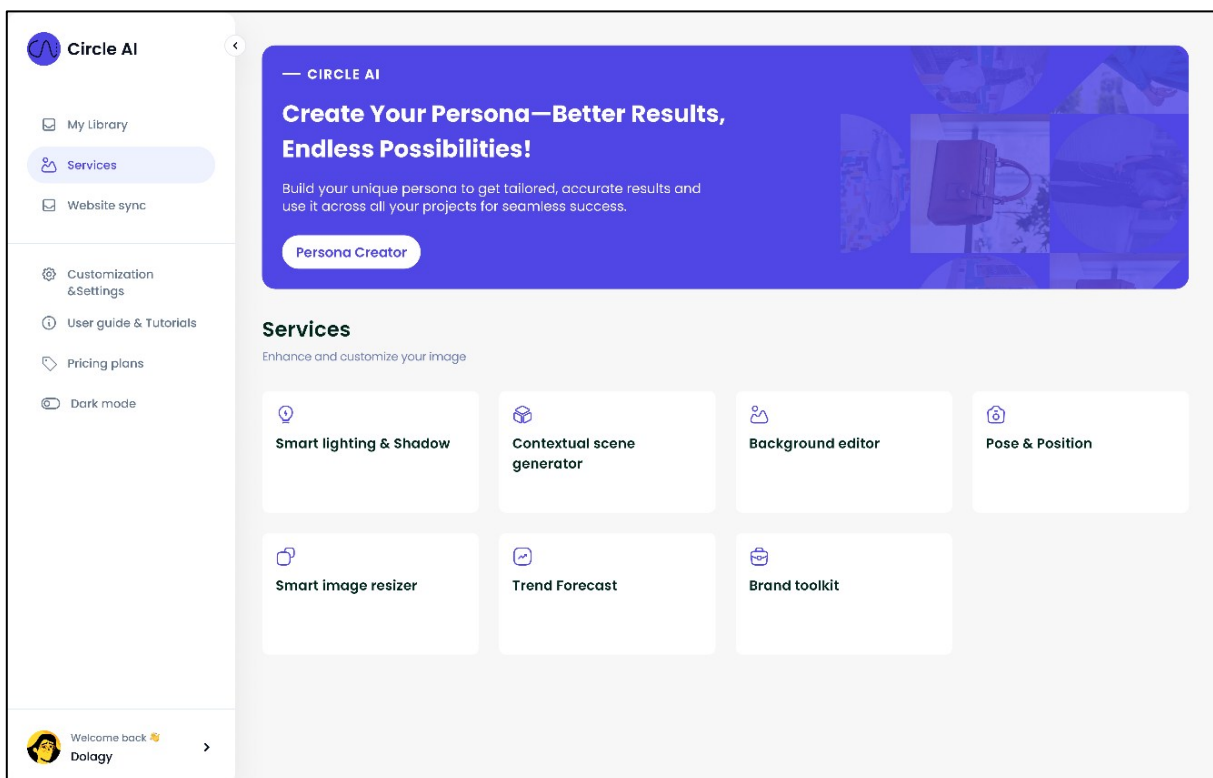
APPENDIX P VIII: WEBSITE DESIGNS



Landing Page



Sign-Up Page



Website Interface

Circle AI

My Library

Services

Website sync

Customization & Settings

User guide & Tutorials

Pricing plans

Dark mode

Welcome back  Dolagy

Persona creator

Generate personalized visuals for your target audience with ease, saving time and costs.

Create Persona

Name

Janet Do

Gender

Female

Age Range

18 - 24

Location

Cairo

Seasonal Focus

Winter

Fashion Items

Bags Shirts

Product Materials

Leather Wool

Extra Description

Janet Do is a stylish, young woman in Cairo who loves high-quality leather and wool items. She looks for versatile, elegant winter bags and shirts that suit her active lifestyle.

Create

Persona Creator Interface

Circle AI

My Library

Services

Website sync

Customization & Settings

User guide & Tutorials

Pricing plans

Dark mode

Welcome back  Dolagy

CIRCLE AI

You have successfully created a new persona!

Create Your Persona—Better Results, Endless Possibilities!

Build your unique persona to get tailored, accurate results and use it across all your projects for seamless success.

Persona Creator

Services

Enhance and customize your image

Smart lighting & Shadow

Contextual scene generator

Background editor

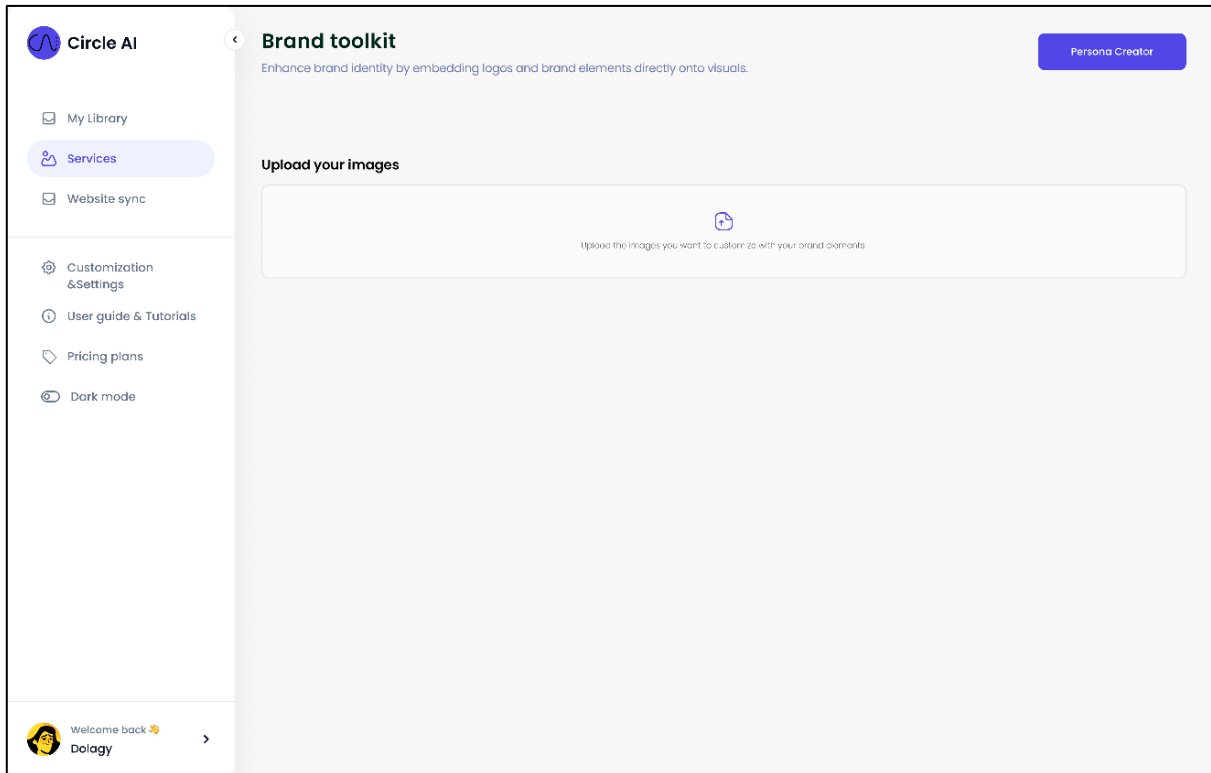
Pose & Position

Smart image resizer

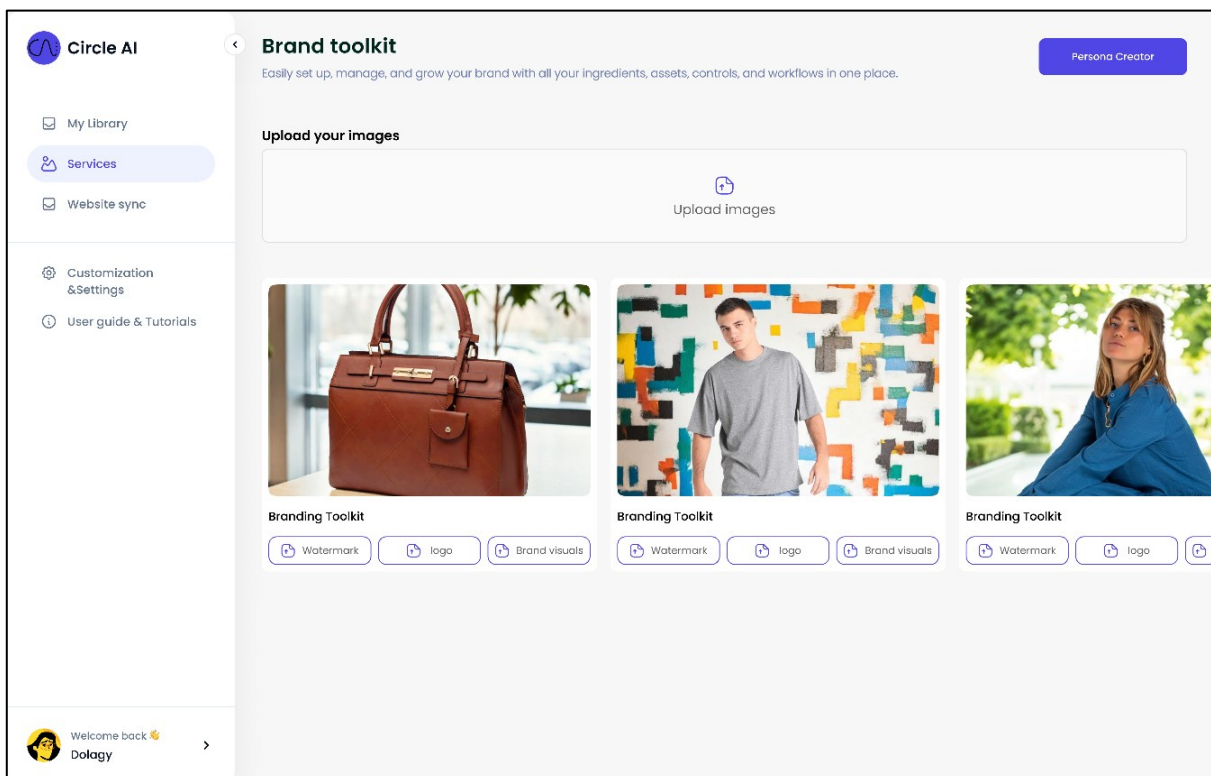
Trend Forecast

Brand toolkit

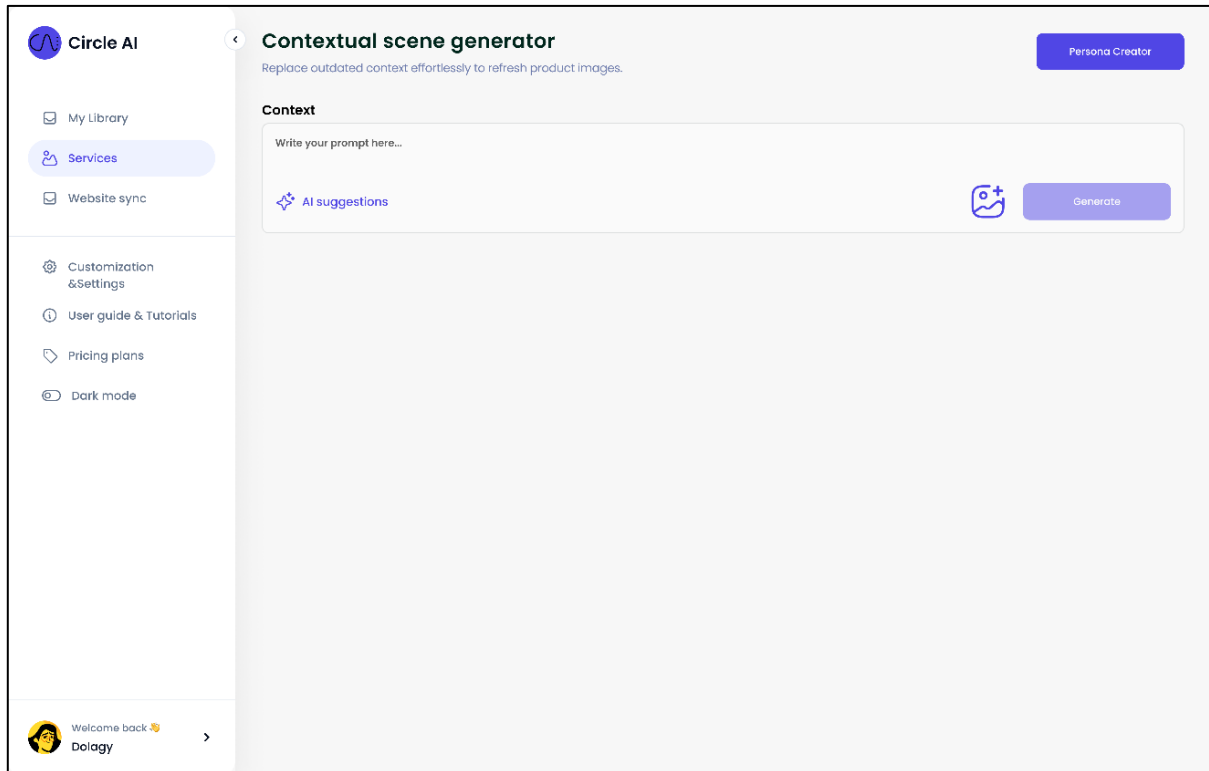
Persona Creator – Creation



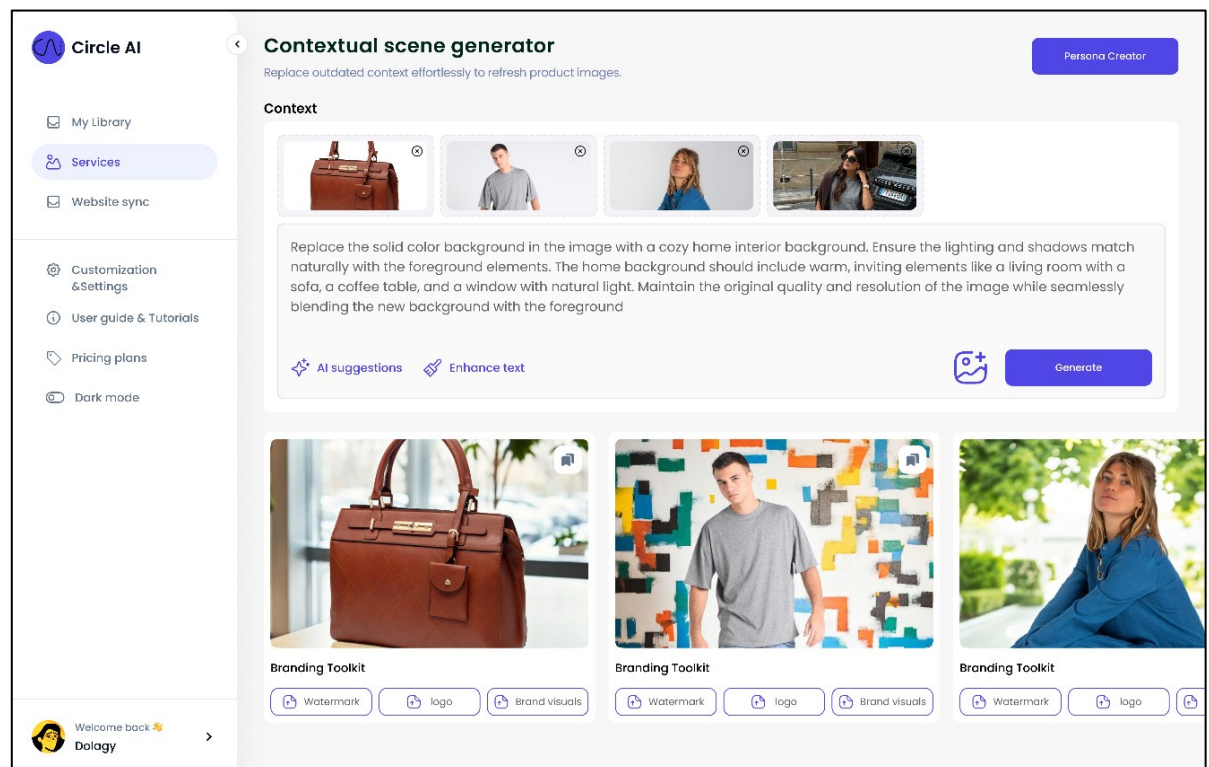
Brand Toolkit – Interface



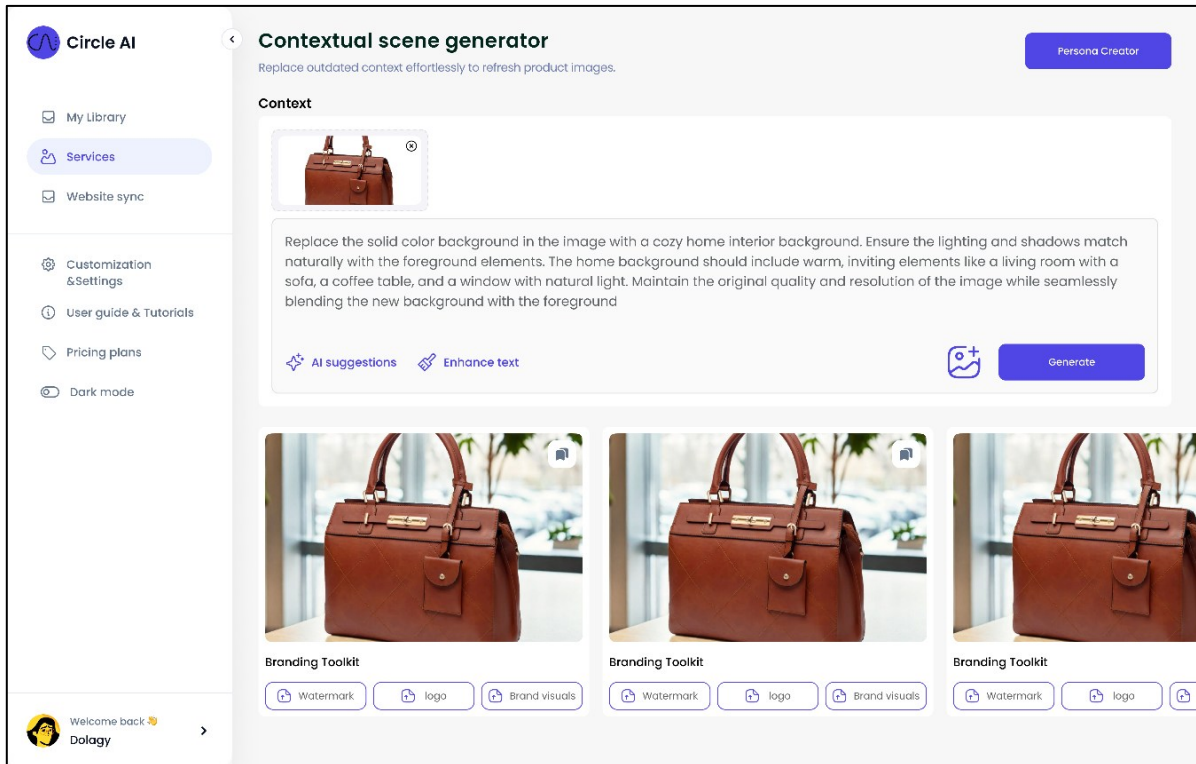
Brand Toolkit – Upload Brand Visuals



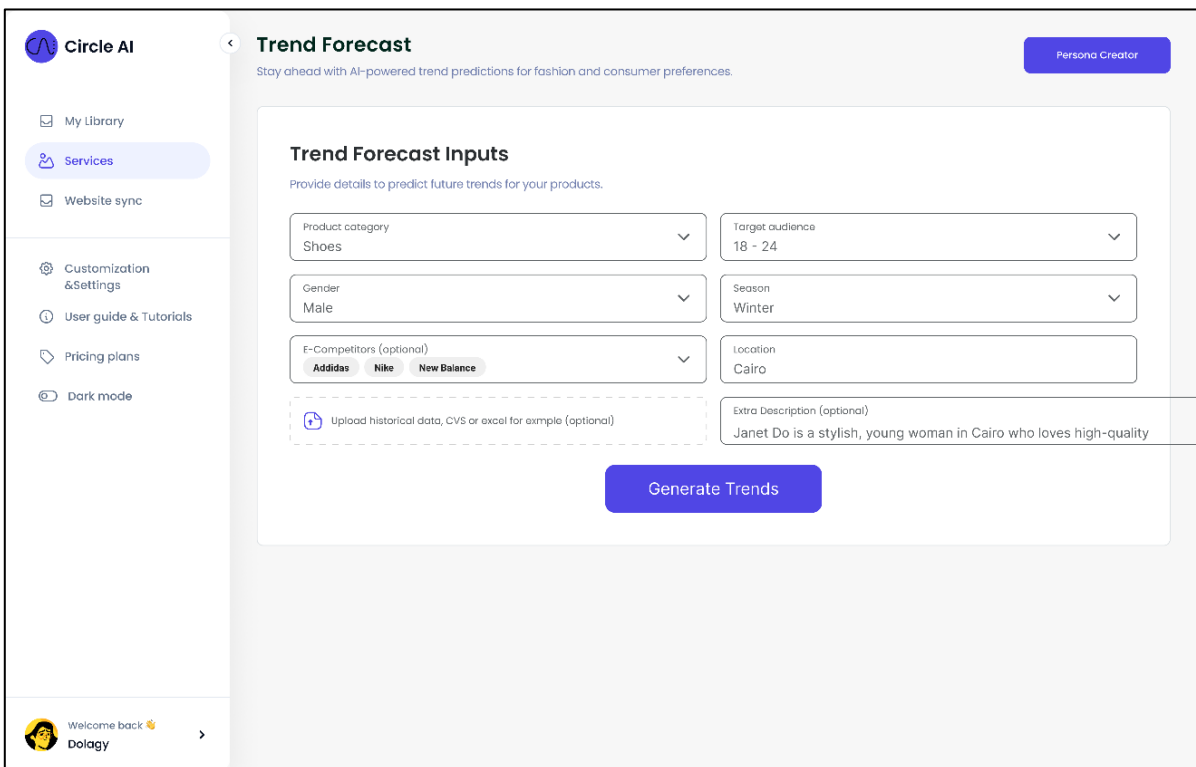
Contextual Scene Generator – Interface



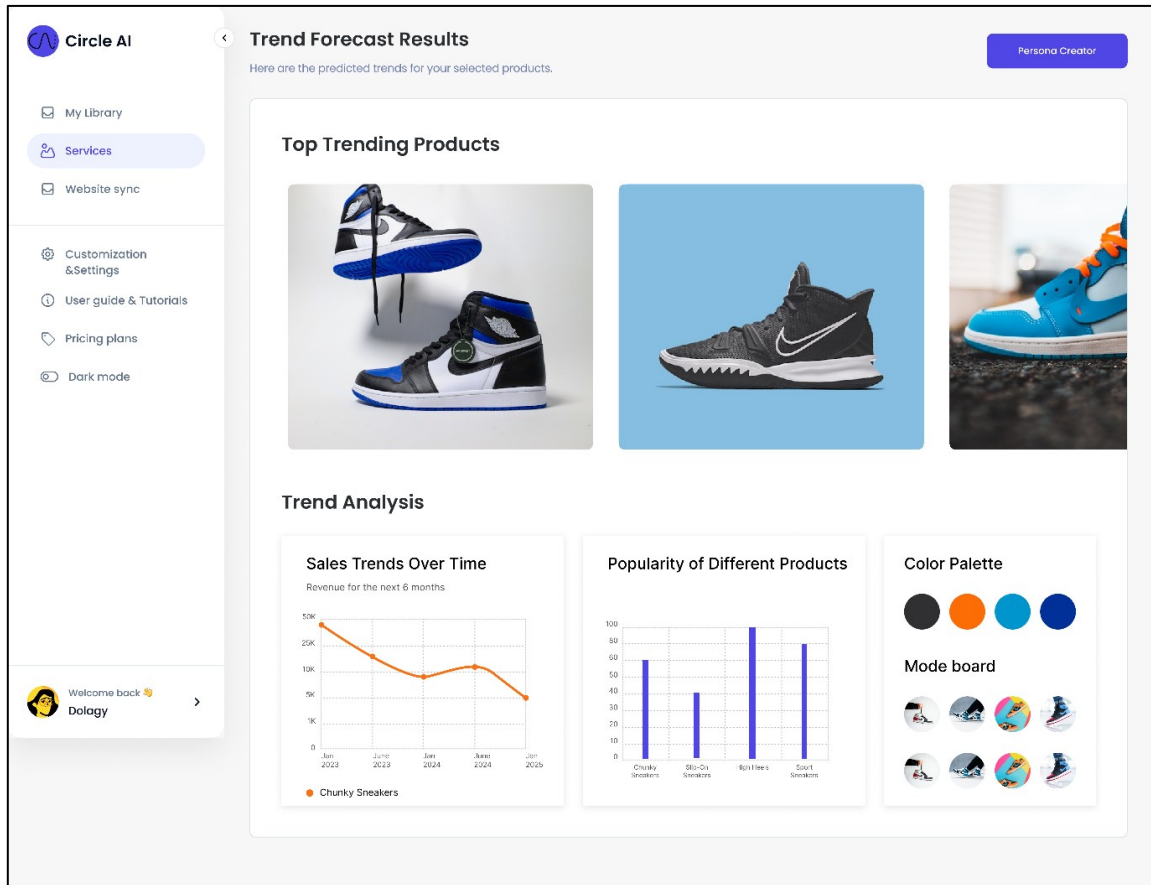
Contextual Scene Generator – AI-driven Context Generation



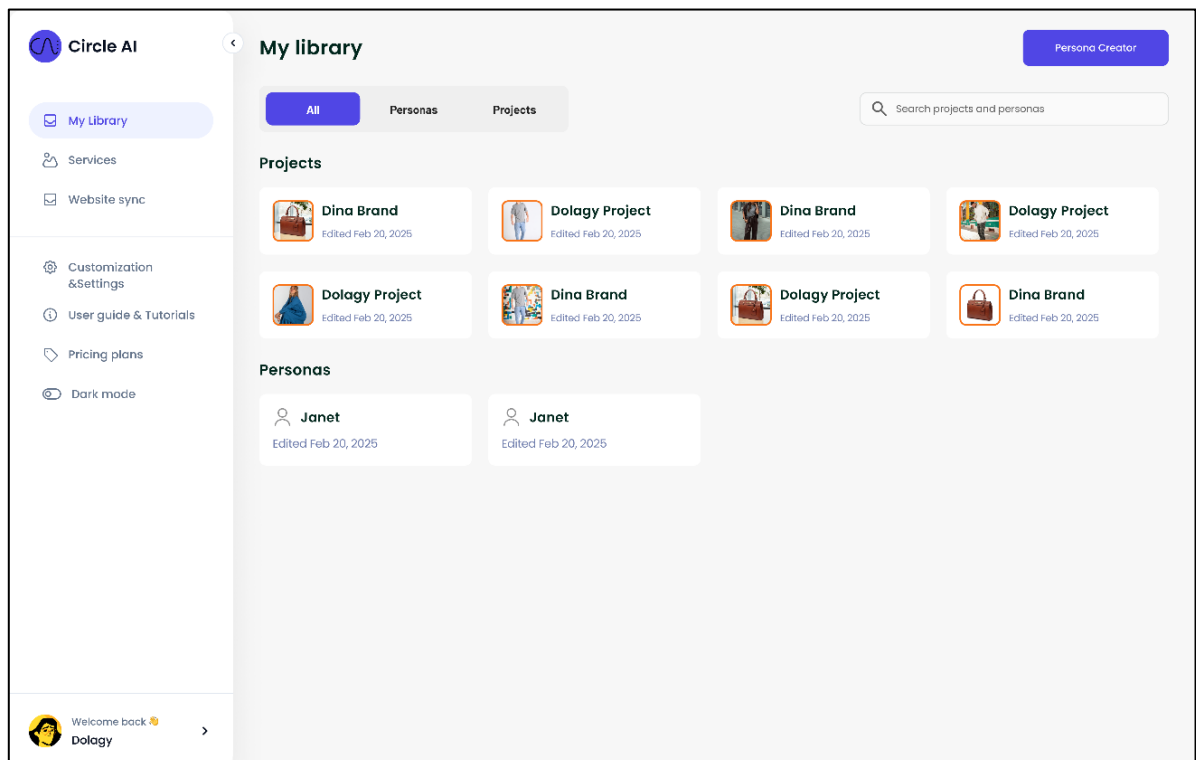
Contextual Scene Generator – Comparison Mode (Dummy)



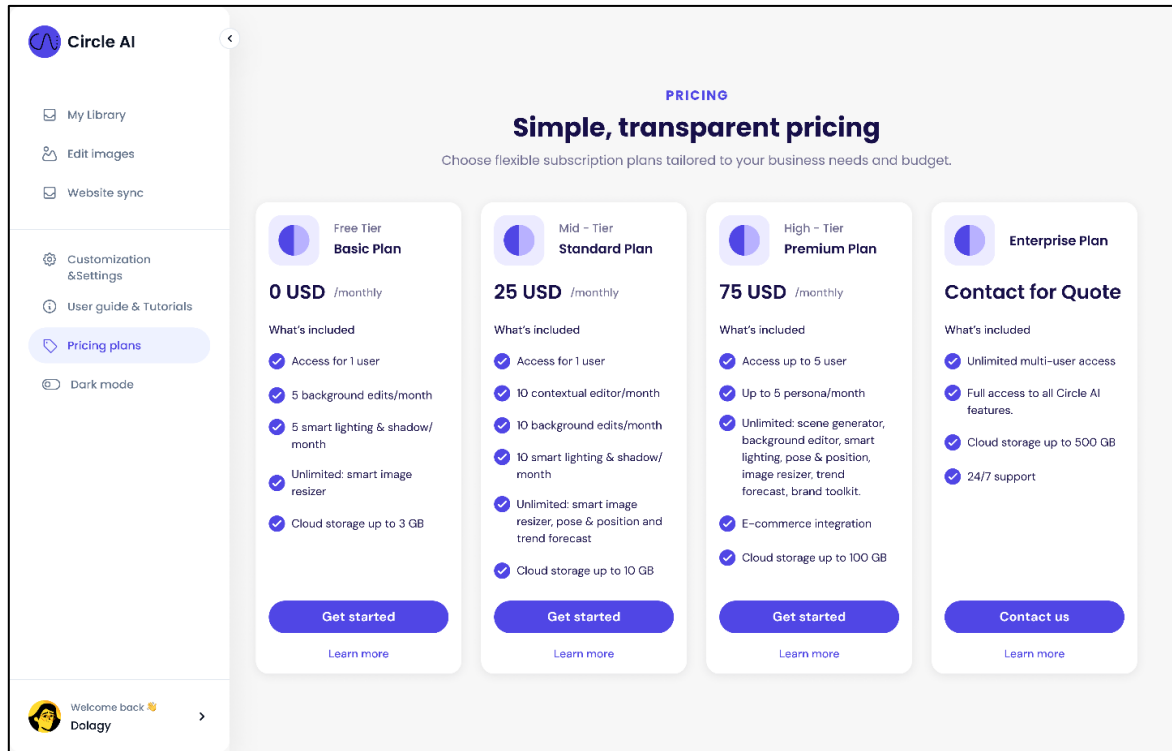
Trend Forecast – Interface



Trend Forecast – Trend Analysis (Dummy text & image)



Library – Interface



Pricing – Interface