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“MILLIY STATISTIKA TIZIMIDA YANGI BOSQICH: BARQAROR RIVOJLANISH MAQSADLARI, XALQARO STANDARTLAR VA ZAMONAVIY TENDENSIYALAR”

DIGITAL MARKETING TECHNOLOGY BASED ON ARTIFICIAL INTELLIGENCE, BIG DATA AS STATISTICAL TOOL IMPLEMENTED IN ENTERPRISES: IN CASE OF GARMENT, KNITTING, TEXTILE APPAREL ENTERPRISES

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Abstract. *The current article focuses on the key theoretical foundations and features of digital marketing technologies based on artificial intelligence (AI) and Big Data as well as other related elements implemented and used as statistical tools in enterprises development process and management of key operations in case of garment, textile, knitting and apparel enterprises. Meanwhile, it scrutinizes the elements of digital marketing technology such as artificial intelligence (AI) and Big Data from the perspective of statistical importance implemented by garment, textile knitting and apparel enterprises*

Key words: *digital marketing technology, artificial intelligence, garment, textile, online platforms*

Introduction

Digital marketing research serves as an essential statistical instrument to evaluate customer behavior, categorize markets, and forecast trends, utilizing data analysis for tactical decision-making. In today's digital landscape, the advancement of online marketing technologies is deemed essential for almost all varieties of businesses, including those in the clothing, textile, knitting, and apparel industries. As technology evolves, these platforms and digital marketing solutions integrate functionalities such as search engine optimization, social media channels, corporate websites, and customer relationship management systems. The current strategic focus seeks to capture a larger market share, boost brand awareness, and strengthen interactions with consumers, thus ensuring a critical competitive advantage in the rapidly transforming markets of today. By adopting digital marketing technologies, enterprises can maintain their competitive presence.

Marketing, whether traditional or online, essentially relies on customer behavior. As a marketer, enterprises might adhere to several basic practices that have proven effective for analogous businesses in the past, but certainty about success remains elusive until proven effective and that is particularly true for traditional marketing, where the absence of measurable metrics is quite apparent. Nonetheless, with the emergence of analytics, data has begun to significantly influence the effectiveness of digital marketing techniques. For instance, marketers

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have discovered that email marketing typically yields a return of thirty six USD for every dollar invested, enabling them to allocate considerably more resources to the current element. Statistics provide the essential assistance that marketing strategies require accurately reaching the target audience and addressing key points in the field. In particular, Generating leads and acquiring customers can be quite difficult without investing in paid advertising. While content marketing techniques deliver favorable results over time, the current techniques are not as effective for obtaining immediate returns compared to paid advertisements. Platforms such as social media, search engines, and mobile applications are primary venues for such promotional efforts. Moreover, there is a strong connection between statistics and paid advertising. Although it might appear that increasing enterprises’ ad spend yields greater returns, which can be often misleading. Even with well-optimized ads, achieving a satisfactory return on investment necessitates comprehensive data analysis Martin, 2022 [1]. Throughout the past decade, the apparel sector has encountered a variety of Big Data and artificial intelligence (AI) applications to address its diverse business challenges. As consumer demand for tailored products and services that heighten brand experience and satisfaction continues to grow, supply chain managers in clothing companies are constantly exploring strategies to enhance their market approaches, ensuring their businesses gain from agility and cost-effectiveness. (AI) methods can be employed at various stages of the apparel supply chain to optimize business functions, and (AI) strategies are utilized to create data-informed solutions using information supplied by apparel manufacturers and designers. Big data plays a crucial role in delivering customized offerings to clients through apparel e-commerce platforms Amani & Rasha, 2022 [2].

Methodology of research

The methodology used in the current paper can be characterized by the use of secondary data which is considered as being as statistical key tool, drawing from published materials in academic literature, along with an inductive strategy to showcase a variety of information discussed in the article. Namely, digital marketing research play a crucial role in enterprises development process by providing key insights in form of variety of statistics in digital forms as well as artificial intelligence implementation as key strategic tool in well-being of enterprises and in the field of clothing, textile production, and knitting enterprises, particularly within the swiftly changing fashion industry, where the garment sector holds a dominant position.

Thereby, clothing, textile production, knitting, and apparel companies have started to fully integrate digital technologies into their product delivery and consumer engagement methods, utilizing digital marketing tools such as artificial intelligence, the use of big data analytics. AI-enabled digital marketing within the

textile and garment sector is primarily concentrated on personalization, predictive analytics for forecasting trends, and AI-driven content creation to enhance consumer engagement and return on investment (ROI).

Analysis and discussion of results

The worldwide Textile AI Market is projected as provided in Figure 1 to reach approximately USD 21.4 Billion by 2033, up from USD 2.4 Billion in 2023, experiencing a CAGR of 24.6% throughout the forecast period from 2024 to 2033. Artificial Intelligence (AI) technology has seamlessly integrated into the garment, knitting enterprises activities and textile sector, transforming numerous facets of the market. Artificial intelligence is utilized in textile production, design, quality assurance, supply chain optimization, and enhancement of customer experiences. The AI presence in the garment, knitting industries filed and textile marketplace is set for substantial expansion, spurred by technological advancements in artificial intelligence and a rising demand for effectiveness and innovation within the industry. The integration of AI into the garment, knitting enterprises activities and textile sector is fueled by various growth drivers. A primary driver is the requirement for automation and optimization within textile production processes. AI-driven systems can scrutinize through extensive datasets from sensors, machinery, and production lines to streamline production workflows, mitigate errors, and reduce downtime and results in raised productivity and operational efficiency.

In the garment, knitting and textile sector, the integration of artificial intelligence (AI) is expected to significantly alter profit frameworks and job configurations. By the year 2035, AI is anticipated to enhance the profit margins of the textile industry by an impressive thirty nine percent and current considerable growth in profitability is linked to AI-enhanced efficiencies in manufacturing protocols, minimized waste, and improved supply chain logistics, all of which help in reducing operational expenses while elevating output quality.

At the same time, the influence of AI on employment within the industry is likely to be substantial. By 2025, it is predicted that 22 percent of positions in the textiles sector mainly as well as in garment, knitting might be mechanized through AI applications and that transition reflects the growing incorporation of AI in routine based and repetitive tasks, resulting in the replacement of conventional roles. Nonetheless, this also indicates a movement towards more specialized labor since the industry will require new skills in overseeing and advancing AI technologies.

Another driver of expansion is the necessity for personalized and customized garment, knitting products as well as textile goods. AI algorithms can evaluate consumer likes, preferences, trends, and past data to create insights for crafting and manufacturing personalized textile products. This degree of customization allows

textile firms to meet the specific needs and wishes of individual customers, boosting customer satisfaction and brand loyalty.

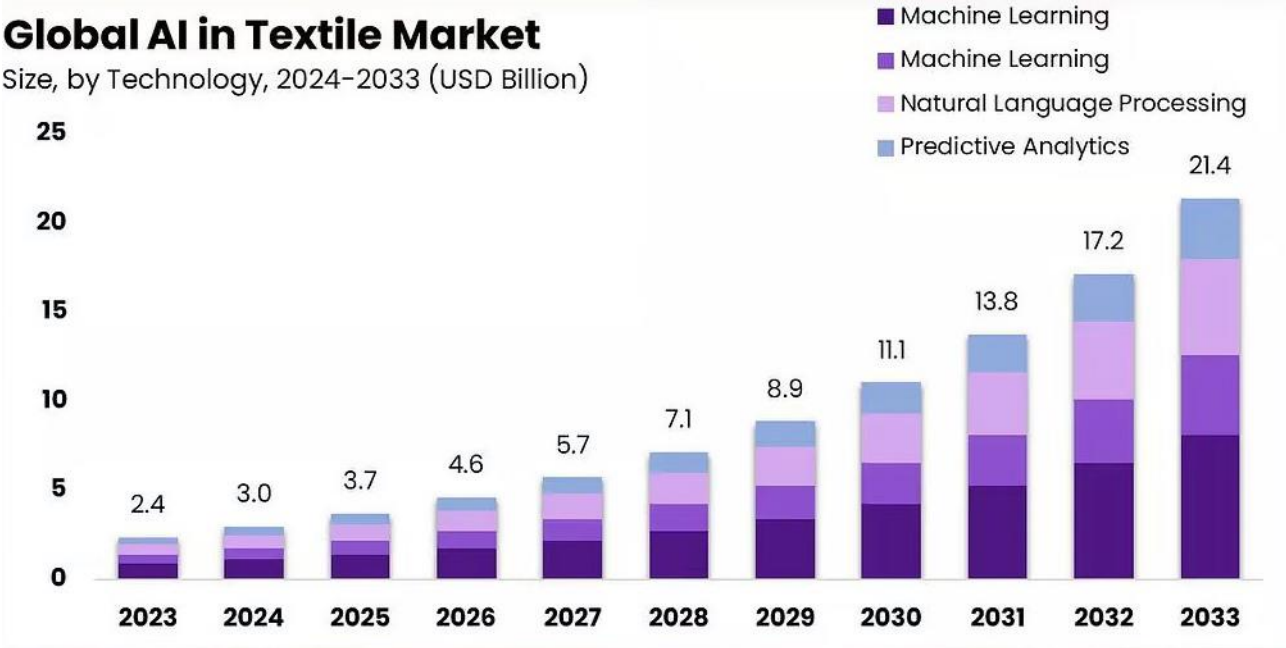


Figure 1 Source: *Global AI in Textile Market By Application (Predictive Maintenance, Quality Control, Supply Chain Management, Product Design and Customization, Sales and Marketing Optimization), By Technology (Machine Learning, Computer Vision, Natural Language Processing (NLP), Predictive Analytics), Region and Companies - Industry Segment Outlook, Market Assessment, Competition Scenario, Trends and Forecast 2024-2033* (Market.Us, 2026)

The combination of artificial intelligence with smart fabrics and wearable devices is a significant development. AI-enhanced smart fabrics can track health indicators, modify their characteristics based on environmental factors, and even communicate with other gadgets and that advancement is creating new possibilities in the healthcare, athletics, and fashion sectors MarketUs, 2026 [3].

Discussion

Customers require enterprises to evolve into more analytics-driven entities, utilizing AI and other sophisticated analytical methods to deliver customer-focused solutions. Namely, machine learning (ML) involves a systematic approach where machines are trained to perform designated tasks autonomously and to understand patterns from the data themselves. It constructs mathematical frameworks to uncover and forecast concealed strategies for future decision-making based on past data. Machine learning is classified into two categories: supervised and unsupervised learning. Supervised learning functions as a parametric model, and by incorporating inputs (independent variables) alongside target variables (dependent

variables), the efficacy of a supervised model can be improved through the iterative refinement of its parameters. Big data, as the term refers to an immense as provided in Figure 2 volume of information. However, more generally, it encompasses a comprehensive assembly of both structured and unstructured data that has been digitally gathered and systematically arranged to enable quick extraction of valuable insights by humans. Consequently, big data could serve as a potential solution for addressing previously unresolvable inquiries related to customer purchasing behaviors, including how and when they make purchases and their payment methods. Therefore, by analyzing big data in real-time or over specific durations, businesses can enhance their decision-making regarding pricing and product variety, ultimately reducing inventory expenses. Amani & Rasha, 2022 [4]. Designers utilize AI not just for quality assurance but also in the production of garments. A variety of technologies, including laser cutters, blades, water jets, plasma tools, and ultrasonic devices, can be employed to manufacture large volumes of fabric. In the past, only the leading e-commerce companies harnessed AI to gather analytical insights regarding their sales and market trends; however, both small and large brands are now leveraging machine learning to enhance their understanding of the market by uncovering analytics and revelations derived from data related to everything from fashion trends and consumer purchasing habits to inventory management and forecasting.

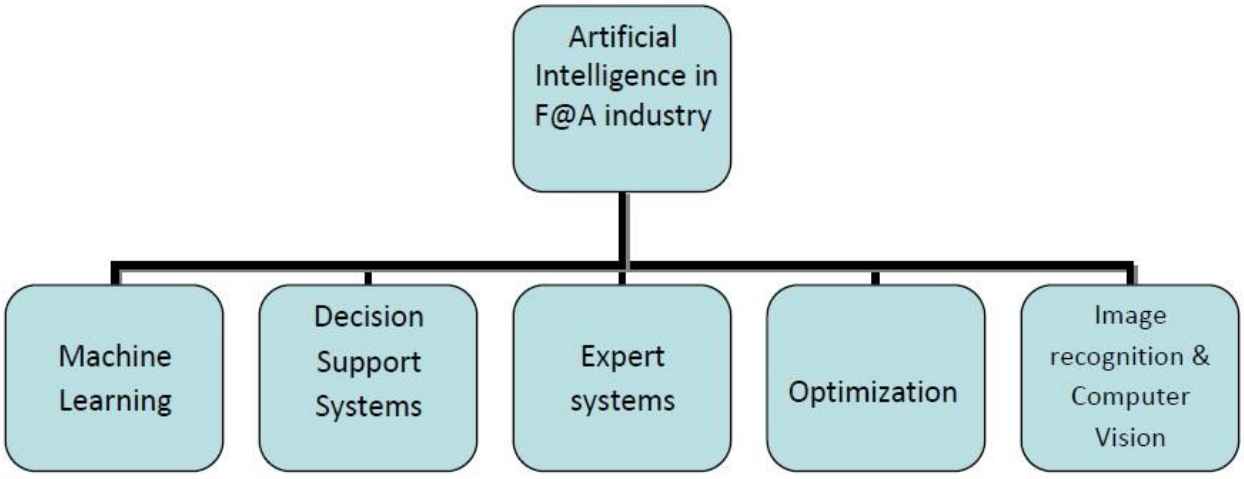


Figure 2 Source: Artificial intelligence techniques characterization (Amani and Rasha, 2024)

Effective strategic decisions hinge on the availability of timely, pertinent, and actionable data. Insights derived from analytics foster evidence-based choices by uncovering new customer requirements, assessing the success of campaigns, and enhancing resource distribution across digital platforms (Davenport et al., 2020, as

cited in Korubo-Fi, & Essien, S. (2026).). Consequently, organizations equipped with robust digital marketing analytics proficiency are in a superior position to make well-informed strategic selections compared to those who depend on gut feelings or outdated market analysis Korubo-Fi, and Essien, 2026 [5].

Conclusion

Majority of modern garment, apparel, knitting manufacturing firms, and textile enterprises comprehensively rely on digital marketing technology based on artificial intelligence and Big Data and digital marketing approaches to boost brand recognition, connect with consumers, and increase sales through numerous social media channels and e-commerce. Companies within the garment, apparel, knitting, and textile sectors that adopt these advancements often experience greater engagement and enhanced profits. The incorporation of such digital marketing methods facilitates personalized experiences, quicker responsiveness to trends, and direct communication with clients, rendering them crucial for sustained competitiveness in garment and knitting manufacturing. Digital marketing technology for enterprises based on artificial intelligence and Big Data in the garment, knitting, textile, and apparel domains can be considered as statistically significant as these elements may provide key valuable data in gaining more market share, building awareness among customers regarding products being available while being released in the markets and to know about customers preferences, buying behaviours which can have positive impact to enterprises activities.

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