

CONSUMER-ORIENTED DESIGN STRATEGIES FOR MODERN LIGHT INDUSTRY PRODUCTS

Mamatkulova Kunduzkhon Umarovna*¹

Kokand State University

Senior lecturer

Department of technologies of engineering

mamatkulovacity@gmail.com

Abstract:

This article discusses the importance of consumer-oriented design strategies in the development of modern light industry products. The study analyzes the main factors influencing the creation of competitive products, including consumer needs, ergonomic indicators, aesthetic requirements, and functional characteristics. Special attention is paid to the use of digital technologies, innovative design methods, and sustainable development principles in the product development process. The research results show that a deep analysis of consumer requirements contributes to improving product quality, expanding market opportunities, and strengthening the competitiveness of light industry enterprises. A consumer-oriented approach enables the creation of modern, comfortable, and highly demanded products that meet the requirements of a rapidly developing market. The findings indicate that the implementation of consumer-oriented design strategies serves as a critical factor in improving product innovation, increasing market adaptability, and ensuring sustainable growth within the light industry sector. Consequently, the research provides valuable theoretical and practical insights for designers, manufacturers, and industry stakeholders seeking to develop products that effectively respond to evolving consumer demands.

Keywords: consumer-oriented design, light industry, ergonomics, fashion, innovation, product design, digital technologies.

Introduction

Today, as a result of globalization processes, technological progress and the development of market relations, the demand for light industry products is increasing. Increased competition requires manufacturers not only to create quality products, but also to develop innovative design solutions that meet the needs and desires of consumers. Therefore, consumer-oriented design strategies are considered one of the important development directions of modern light industry [1].

Consumer-oriented design is an approach that puts the needs and requirements of users at the center of product creation. This approach involves taking into account not only the aesthetic appearance of the product, but also its functionality, convenience, ergonomic features and practical significance. As a result, it becomes possible to create products that meet consumer requirements, are competitive in the

market and are intended for long-term use.

The importance of design in the design of light industry products is increasing year by year. Especially in the textile, garment, leather, footwear and accessories industries, consumer tastes, lifestyles and shopping habits are among the main factors shaping product design. Modern consumers expect not only quality and comfort from products, but also individuality, aesthetic appeal and environmental safety. This poses new challenges for designers and manufacturers [2].

In recent years, the development of digital technologies, artificial intelligence, 3D modeling and virtual design systems has made it possible to further improve the design process. These technologies serve to deeply analyze consumer needs, create virtual prototypes of products and reduce production costs. At the same time, the importance of design strategies aimed at using environmentally friendly materials and reducing waste based on the principles of sustainable development is also increasing [3].

Methodology

The main goal of this study is to deeply study the theoretical and practical foundations of consumer-oriented design strategies in the development of modern light industrial products, analyze their effectiveness, and develop innovative design approaches that meet consumer needs, desires, and behavior.

During the study, consumer-centered approaches, ergonomics, aesthetics, functionality, and environmental sustainability factors are comprehensively analyzed in the design process of light industrial products (clothing, textiles, accessories, etc.).

Also, the purpose of this work is:

- study methods for identifying and segmenting consumer needs;
- analyze modern design trends and innovative technologies;
- assess the impact of consumer-oriented design strategies on product quality and competitiveness;
- propose an effective design model for light industry enterprises by developing practical recommendations.

As a result, the research will focus on developing a scientifically based approach to creating light industrial products that are competitive and based on modern requirements, meeting consumer needs.

Results and Discussion

Research tasks

1. Study and analysis of theoretical sources related to modern light industrial products and their design process.
2. Identify the concept of user-centered design, its principles, and key stages.
3. Analysis of methods for studying consumer needs, desires, and behavior in light industrial products.
4. Systematic study of modern design strategies (ergonomic, aesthetic, functional, and ecological approaches).
5. Analysis of innovative technologies and digital solutions used in the design of light industrial products.
6. Assessing the impact of consumer-focused design strategies on product quality and competitiveness.
7. Identify the advantages and disadvantages of existing design approaches based on practical examples.
8. Based on the research results, develop an effective consumer-centered design model for light industrial products.
9. Provide scientific and practical recommendations on improving consumer-oriented design for light industry enterprises.

Research Object

The object of this study is the design and development process of modern light industry products, that is, the design stages of clothing, textile products and other light industry products, as well as the system of consumer-oriented approaches used in their formation [4].

Within the scope of the research object, the processes of identifying consumer needs, developing product design, taking into account ergonomic and aesthetic requirements, and creating products based on modern technologies are comprehensively analyzed [5].

Research Subject

The process of designing and developing modern light industrial products involves the formation of consumer-oriented design strategies, methods for their implementation, analysis of user needs and behavior, processes for improving the ergonomic, aesthetic, and functional characteristics of the product based on consumer requirements, and the study of the impact of these strategies on product quality and competitiveness [6].

Consumer-centered design is an approach that focuses on the needs of the user when creating a product. This concept covers not only the aesthetic aspects of the product, but also the requirements for comfort, safety and functionality. Modern companies are developing new products by analyzing consumer behavior. Ergonomics serves to optimize the interaction between a person and a product. The use of anthropometric data in the design process increases the comfort of the product.

Digital technologies, 3D modeling, artificial intelligence and virtual prototyping have become important tools of modern design. Designers use data analysis to predict consumer requirements. The use of environmentally friendly materials based on the principles of sustainable development is also an important strategy. Creating individual product features increases consumer satisfaction.

The results of the study showed that consumers pay great attention to quality, comfort, aesthetic appearance and price factors when choosing a product. There is also a growing demand for products made from environmentally friendly materials. Businesses are advised to regularly study consumer opinions, widely implement digital technologies, and use ergonomic design principles [7].

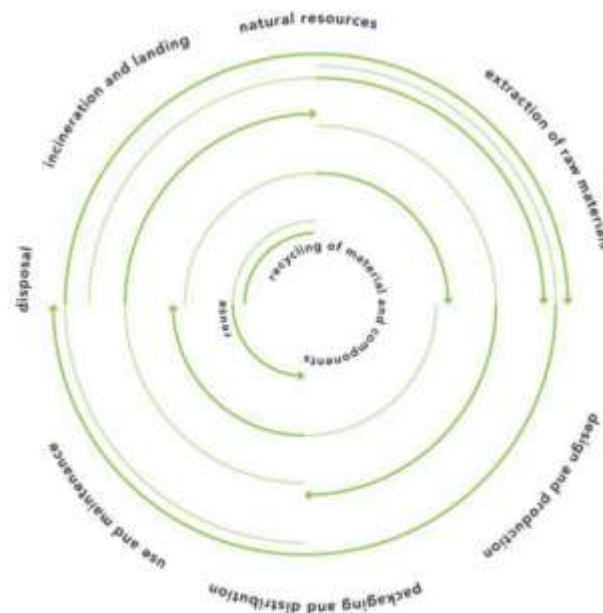


Figure 1. Product design life cycle.

The scientific novelty of this study is the analysis and improvement of consumer-oriented design strategies in the process of designing modern light industrial products based on an integrated approach.

The study brings together modern methods for identifying consumer needs and integrating them into product design (user experience, ergonomic analysis, digital design tools).

One of the important tasks in the process of designing modern light industrial products is to improve product quality. In a market economy, changing consumer demands and tastes require manufacturers to create not only high-quality, but also convenient, aesthetically attractive and functional products. Therefore, in ensuring product quality, it is important to combine ergonomic and aesthetic factors with consumer needs [8].

Based on the available search results, an analysis of the consumption level of light industrial products in Uzbekistan over the last three years (2023-2025) must be inferred primarily from production data and government policy, as direct consumption figures are not provided.

The light industry sector in Uzbekistan has demonstrated significant growth, which strongly suggests a corresponding increase in domestic consumption. From 2017 to 2023, the volume of industrial production increased by 1.49 times, with growth achieved across all major sectors. This long-term trend provides a solid foundation for the period in question [9].

The available data points to robust activity in key light industrial sub-sectors, indicating high consumption levels. Textile and Apparel: The textile and apparel industry is a major component of light industry. In 2023, this sector saw a production increase of 107.4%. This growth is supported by ongoing government initiatives, such as the 2019 decree "On Further Development of Light Industry," which aimed to expand the raw material base, optimize imports, and increase export potential for textiles, garments, leather, footwear, and fur products. The strong production figures suggest a healthy domestic market for these goods [6].

Consumer Goods: In the first half of 2022, the production of consumer goods in the Khorezm region reached 8,340.2 billion soums, which was 126.2% of the figure for the same period in 2021, and accounted for 63.5% of the region's total industrial output. This high share of consumer goods in total production points to a strong domestic demand for light industrial products [10].

The government has actively pursued policies to support the light industry, which in turn fuels consumption. A key objective has been to reduce imports of light industrial products that are already produced domestically. This import substitution strategy is designed to increase the market share of local products, implying a focus on satisfying domestic consumption needs. Furthermore, the industrial sector as a whole accounted for 24% of total final energy consumption in Uzbekistan in 2023, highlighting its significant role in the economy [11].

Over the last three years, the consumption level of light industrial products in Uzbekistan has been on a clear upward trajectory. This is evidenced by sustained production growth in key sectors like textiles and consumer goods, which reached 107.4% and 126.2% of previous year levels, respectively. Government policies focused on import substitution and expanding local production capacity have further supported this trend, indicating a robust and growing domestic market for light industrial goods [12].

If we discuss the impact of ergonomic features on product quality in this process, ergonomics is a science that studies the interaction between humans and objects, ensuring that the product is compatible with the anatomical, physiological, and psychological characteristics of humans.

Compliance with ergonomic requirements when designing light industrial products provides the following advantages:

- anthropometric compatibility

The product must be suitable for the size and shape of the human body. Taking into account the anthropometric indicators of the population when developing a clothing sizing system increases comfort.

- freedom of movement

Clothing design should not interfere with a person's natural movements. Incorrect design solutions create discomfort and reduce the consumer value of the product.

- hygienic convenience

The breathability, moisture absorption, and heat retention properties of fabrics are important for human health. In particular, the use of natural fiber fabrics improves ergonomic quality indicators.

- psychological comfort

The colors, shape, and overall design of a product should evoke a positive feeling in the user. Psychological comfort increases satisfaction with using the product.

- the role of aesthetic properties in product quality

Aesthetic indicators describe the appearance and artistic expressiveness of a product. The modern consumer pays great attention to its aesthetic aspects when choosing a product.

- shape and silhouette

The shape of the product should be in line with current fashion trends and consumer tastes. The proportionality of the silhouette increases the attractiveness of the product.

- color solution

Color directly affects human psychology. The harmony of colors used in a product enhances aesthetic appeal and increases the buyer's interest in the product.

- A combination of national and modern elements

Combining local fabrics, national patterns, and decorations with modern design increases the aesthetic value of the product and ensures its uniqueness in the market.

- Studying and taking into account consumer needs

One of the key factors in a product's success is accurately identifying consumer needs.

- Functional needs

The consumer pays attention to the practicality of the product. The product should be comfortable for daily use, durable and long-lasting.

- Aesthetic needs

The modern consumer chooses products that suit their personal taste and style. Therefore, design solutions must be tailored to the preferences of the target consumer group.

- Economic needs

The balance between product quality and price is an important criterion for consumers. Products with high quality but reasonable prices are in great demand in the market.

- The importance of modern design strategies

Using consumer-centered design strategies in the design of light industrial products can significantly improve quality indicators. Such an approach:

- in-depth analysis of consumer requirements;
- carrying out ergonomic studies;
- use of modern materials;
- introduction of innovative technologies;
- allows to combine aesthetic and functional solutions.

In addition, consumer-centered design strategies contribute to increasing product competitiveness in the market by ensuring higher customer satisfaction and loyalty. The integration of sustainability principles, digital design tools, and data-driven decision-making processes enables manufacturers to respond effectively to changing consumer preferences. As a result, modern design strategies not only improve the functional and aesthetic value of products but also support efficient resource utilization, environmental responsibility, and long-term business growth in the light industry sector [13].

Table 1. Analysis of the consumption level of light industrial products in Uzbekistan.

Indicator	2023	2024	2025 (Projected/Partial)
Total Industrial Production	655.8 trillion soums (6% increase YoY)	885.8 trillion soums (6.8% increase YoY)	Industrial production index rose 7.8% YoY in Apr 2026
Textile Manufacturing Output	89.5 trillion soums (11.1% increase YoY)	89.5 trillion soums (11.1% increase YoY)	N/A
Consumer Goods Production (Bukhara region, Q1)	N/A	N/A	1,899.5 billion soums (101.5% of 2021 level)
Light Industry Policy Support	Continued implementation of 2019 decree on light industry development	Continued implementation of 2019 decree on light industry development	New financial support mechanism for light industry enterprises established (Nov 2025)
Key Economic Context	GDP: \$102.6 billion; Inflation: 8.8%	GDP: \$115 billion; Inflation: 9.8%	N/A

Production Growth: The overall industrial sector, which includes light industry, has shown consistent growth, with total output increasing by 6% in 2023 and 6.8% in 2024. This upward trend suggests a corresponding increase in the production and, by extension, the consumption of light industrial goods.

Textile Sector Performance: The textile manufacturing sector, a major component of light industry, demonstrated strong performance with an 11.1% increase in production volume in 2024, reaching 89.5 trillion soums. This indicates robust demand for textile products.

Government Support: The government has actively supported the light industry through policy measures. A 2019 decree aimed at developing the sector continued to be implemented. Furthermore, a new government resolution in November 2025 established a financial support mechanism for light industry enterprises, signaling ongoing commitment to the sector's growth.

Consumer Goods Production: Data from the Bukhara region for the first quarter of 2022 shows that consumer goods production reached 101.5% of the level from the same period in 2021, with non-food products (a category that includes many light industrial goods) accounting for the largest share at 1,303.8 billion soums. This regional data provides a snapshot of the consumption pattern for light industrial products [14].

Over the last three years, the consumption level of light industrial products in Uzbekistan has been on a clear upward trajectory. This is evidenced by sustained growth in total industrial output and strong performance in key sub-sectors like textiles. Government policies focused on developing the light industry and providing financial support have further bolstered this trend, indicating a robust and growing domestic market for these goods [15].

Also, the following are indicated as scientific innovations:

- development of a new approach model based on in-depth study of consumer behavior in the design of light industrial products;
- an improved method for combining aesthetic, functional and ergonomic requirements in the design process;
- development of a mechanism for integrating consumer opinion into each stage of product development;

- substantiation of the effectiveness of consumer-oriented design strategies that serve to increase product competitiveness.

Conclusion

This study analyzed the importance of consumer-oriented design strategies in the design of modern light industry products and the possibilities of their practical application. According to the results of the study, a thorough analysis of consumer needs and behavior is an important factor in improving the quality of the product, improving its ergonomic and aesthetic characteristics, and strengthening its competitiveness in the market.

Improving the quality of light industry products requires a comprehensive consideration of factors related to ergonomic, aesthetic, and consumer needs. Ergonomically convenient, aesthetically attractive, and consumer-friendly products are highly competitive in the market. Therefore, during the design process, it is necessary to thoroughly analyze anthropometric indicators, color and composition solutions, physical and mechanical properties of materials, and the social and cultural needs of consumers. This will help to increase the efficiency of light industry enterprises, improve product quality, and fully satisfy consumer needs.

Also, the gradual integration of user feedback into the design process will help to create a product that is more convenient, modern, and in demand. The approaches developed during the research will help to increase the effectiveness of consumer-centered design in the design of light industrial products. In general, consumer-centered design strategies play an important role in the development of modern light industrial products and serve as the basis for creating innovative products in the future.

Furthermore, the findings of this study demonstrate that the successful implementation of consumer-oriented design strategies requires the effective integration of digital technologies, sustainable development principles, and innovative design approaches. The application of modern tools such as computer-aided design (CAD), data analytics, and digital consumer feedback systems enables designers and manufacturers to better understand market demands and respond more efficiently to changing consumer preferences. Consequently, consumer-centered design not only enhances product quality and user satisfaction but also contributes to the sustainable growth, innovation capacity, and long-term competitiveness of light industry enterprises in the global market environment. Future research may focus on the application of artificial intelligence and smart technologies in consumer-oriented product design to further improve the efficiency and adaptability of product development processes.

References

- [1] Y. C. Lin and C. C. Wei, "A hybrid consumer-oriented model for product affective design: An aspect of visual ergonomics," **Human Factors and Ergonomics in Manufacturing & Service Industries**, vol. 27, no. 1, pp. 17–29, 2017.
- [2] A. V. Mammedova and S. D. Mammedov, "Digitalization and brand development in Azerbaijan's light industry sector," **Science & Reality**, no. 1(25), pp. 92–97, 2026.
- [3] A. Mammadova and S. Mammadov, "The economic role of marketing strategy in light industry innovation," **AGORA International Journal of Economical Sciences**, vol. 19, no. 2, pp. 261–269, 2025.
- [4] M. Sarişın Coşkun and H. M. Demirci Berberoğlu, "Understanding visual product language in industrial design education: A four-phase pedagogical approach," **International Journal of Technology and Design Education**, pp. 1–33, 2026.
- [5] N. Nurlanova and A. Omarov, "The regional features of the placement of light industry enterprises in Kazakhstan," **Eurasian Journal of Economic and Business Studies**, vol. 66, no. 4, pp. 115–130, 2022.
- [6] P. Rodgers and A. Milton, **Research Methods for Product Design**. London, UK: Hachette UK, 2026.
- [7] A. H. Wong, "Ethnicity in contemporary fashion design," in **Ethnicity in the Fashion Business: Design,*

Communication and Beyond*, 2026, p. 435.

- [8] A. M. Zahran, “The impact of marketing strategies on the success of the fast fashion industry: A systematic review,” *JUMDER: Jurnal Bisnis Digital dan Ekonomi Kreatif*, vol. 1, no. 3, pp. 1–15, 2025.
- [9] H. Wu, J. Liu, and B. Liang, “AI-driven supply chain transformation in Industry 5.0: Enhancing resilience and sustainability,” *Journal of the Knowledge Economy*, vol. 16, no. 1, pp. 3826–3868, 2025.
- [10] V. Dvorzhak, M. Rubanka, M. Zaliubovskiy, O. Volianyk, and S. Koshel, “Application of industrial robot manipulators at light industry enterprises,” *Fashion Industry*, no. 2, pp. 33–40, 2026.
- [11] A. Zacheo, M. Caratù, and G. Mainolfi, “The paths of heritage luxury brands in the digital age: Italian case studies from the fashion industry,” *Micro & Macro Marketing*, vol. 34, no. 1, pp. 39–64, 2025.
- [12] K. Mahmudov, “Issues of Enhancing Leadership Qualities of Managers in Organizational Management Systems,” in *Local Product Exports Based on International Marketing Strategies*, 2021.
- [13] K. Mahmudov, “Forms of Operational Production Management under Market Economy Conditions,” in *Local Product Exports Based on International Marketing Strategies*, 2021.
- [14] M. Q. Saydullayevich, “Features and Problems of Forming Quality Management Systems in Small and Medium-Sized Businesses,” *International Journal of Development and Public Policy*, vol. 1, no. 3, pp. 11–13.
- [15] Q. S. Makhmudov, “Forms of Quick Management of Manufacturing in the Conditions of Market Relations,” 2023.