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Fashion and Cultural Tourism: Sustainable and Ecological Design Challenges in the Formation of the Karabakh Brand

Abstract

The Karabakh region possesses immense potential for the formation of a national brand rooted in its rich cultural heritage and traditions of applied decorative arts. However, the sustainable development of this brand through fashion and cultural tourism is directly linked to eco-friendly and sustainable design approaches. This article analyzes the ecological challenges, material-energy cycles, ethical production standards, and the role of digital transformation emerging during the integration of Karabakh's cultural codes into modern design within the context of fashion tourism. The author proposes a conceptual model that integrates circular design, slow fashion, the mobilization of local resources, AR/VR-based cultural experiences, and green event standards.

Keywords: *sustainable design, ecological design, fashion tourism, Karabakh, cultural heritage, circular economy, digital presentation*

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Moda və mədəni turizm: Qarabağ Brendinin formalaşmasında davamlı və ekoloji dizayn çətinlikləri

Xülasə

Qarabağ regionunun zəngin mədəni irsi və tətbiqi dekorativ və bədii sənət ənənələri əsasında milli brendin formalaşması üçün böyük potensialı var. Lakin bu brendin moda və mədəni turizm vasitəsilə davamlı inkişafı birbaşa ekoloji cəhətdən təmiz və davamlı dizayn yanaşmaları ilə bağlıdır. Bu məqalə moda turizmi kontekstində Qarabağın mədəni kodlarının müasir dizayna inteqrasiya olunması prosesində yaranan ekoloji çağırışları, material və enerji dövrlərini, etik istehsal standartlarını və rəqəmsal transformasiyanın rolunu təhlil edir. Müəllif dairəvi dizaynı, yavaş modanı, yerli resursların səfərbərliyini, AR/VR əsaslı mədəni təcrübələri və ekoloji cəhətdən təmiz tədbirlər üçün standartları birləşdirən konseptual model təklif edir.

Açar sözlər: *davamlı dizayn, eko-dizayn, moda turizmi, Qarabağ, mədəni irs, dövri iqtisadiyyat, rəqəmsal təqdimat*

Introduction

The global fashion industry is one of the most resource-intensive sectors in terms of water consumption, chemical pollution, carbon emissions, and textile waste. For Azerbaijan, this transition creates significant opportunities alongside challenges, particularly within the context of the "Karabakh" brand. Our objective is to identify the design challenges arising from the integration of Karabakh's cultural elements into fashion and cultural tourism within sustainable systems and to propose practical solution models (UNESCO, 2013).

Research

Relevance of the Topic

Today, the global fashion industry is considered one of the primary sectors deepening the ecological crisis due to the excessive consumption of water resources, chemical pollution, increasing carbon emissions, and the accumulation of textile waste. This situation necessitates a transition toward sustainable and ecological design for both the industry and nations. For Azerbaijan, the relevance of this topic is further heightened against the backdrop of the restoration of the Karabakh region, where the preservation of cultural heritage, the development of creative industries, and the formation of a new tourism brand are strategic priorities. Karabakh's traditions in carpet weaving, embroidery, national costume, and ornamentation possess both cultural and economic value, and their sustainable integration into modern fashion and tourism aligns with the country's creative economy goals. Therefore, researching sustainable and ecological design issues within the context of the "Karabakh" brand holds particular scientific and practical significance today (Ellen MacArthur Foundation, 2017).

Objectives and Tasks of the Research

The primary objective of this research is to identify the sustainability and ecological design challenges that emerge during the integration of Karabakh's cultural heritage into modern fashion and cultural tourism sectors, while proposing a conceptual model and practical approaches for their resolution. Within the framework of the study, an analysis of the ecological and ethical issues faced by Karabakh's cultural heritage in the context of fashion tourism is conducted. Furthermore, the theoretical foundations of sustainable design are synthesized, and the possibilities for applying material selection, production technologies, resource efficiency, and circular design principles to the "Karabakh" brand are explored. Additionally, the impact of digital experiences based on AR/VR technologies on fashion tourism is evaluated, and a six-pillar sustainable design model is developed for the Karabakh brand (Europran Commission, 2020, p. 12). The research also provides recommendations regarding ecological certification, community participation, and management mechanisms. Ultimately, a phased, practical, and strategic roadmap for Karabakh is formulated based on sustainable fashion and tourism-oriented approaches.

Research Methodology

The study was conducted using a multifaceted methodological framework, incorporating the following approaches: 1. Scientific and Theoretical Analysis: A comprehensive review of global literature regarding sustainable design, eco-design, circular economy, and fashion tourism. 2. Content Analysis: A structural investigation of Karabakh's artistic heritage, iconographic systems, traditional attire elements, and local artisanal practices. 3. Comparative Analysis: Benchmarking against international sustainable fashion brands and established cultural tourism models. 4. Design Thinking Approach: Mapping of critical problem areas, analysis of user experience (UX), and the systematic structuring of solution-oriented models. (Porter, 1990, pp. 71–73) 5. Systems Approach: Development of an integrative model encompassing material lifecycles, supply chain management, and experience design. 6. Visual-Schematic Modeling: Formulation of a "Six-Pillar Sustainable Design Model" and the creation of detailed life-cycle assessment (LCA) diagrams.

The integration of these methodologies ensures a comprehensive exploration of the subject from both theoretical frameworks and practical applications (Niinimäki, 2018).

Scientific Novelty of the Research

This research presents scientific novelty through the following key contributions:

1. Systematization of a Sustainable Design Model: For the first time, a sustainable design model specifically tailored for the "Karabakh" brand is presented in a systematized form. 2. Conceptual Integration Approach: A conceptual framework is formulated for the integration of Karabakh's cultural heritage into the modern fashion and tourism spheres within ecological and ethical boundaries. 3. Digital Innovation in the Design Process: The inclusion of AR/VR-based cultural experience design within the creative process is proposed as a practical innovation. 4. Integrative Production Mechanisms: Mechanisms such as material passports, traceability, and eco-labeling in the production of Karabakh cultural products are put forward as an integrative model. 5. New Theoretical Triad: The triad of "Slow Fashion + Circular Design + Digital Experience" is proposed as a novel theoretical approach within the context of fashion tourism. 6. Evidence-Based Strategic Roadmap: A scientifically grounded 12–18 month strategic roadmap for the Karabakh region, based on fashion tourism development, is formulated (Fletcher, 2010, pp. 261–163).

Research Limitations

Several limitations were taken into account during the conduct of this research. First, due to the ongoing reconstruction of the industrial and textile production infrastructure in Karabakh, large-scale practical examples and real-world production data are not yet fully available (UNESCO, 2021).

Furthermore, the implementation of AR/VR technologies into the local tourism system is still in its early stages; therefore, the lack of extensive empirical feedback and practical experience affects the depth of the investigation in this area. Since the necessary laboratory data and standardized reporting systems for the quantitative measurement of ecological impacts—particularly the water and carbon footprints—are also still in the developmental phase, it remains difficult to achieve absolute precision in these results. The absence of a systematized digital archive of cultural heritage samples from Karabakh limits the scientific analysis of specific motifs and ornaments. At the same time, the business model and the economic simulation component could be formulated with greater precision if comprehensive market data were available. Despite these limitations, this research covers the essential aspects of the subject and establishes a strong theoretical foundation for future studies (Bocken et al., 2014).

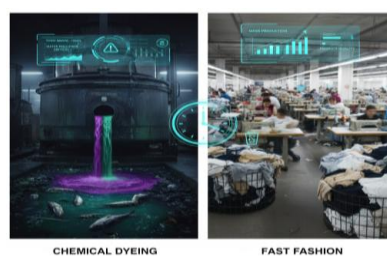
2. Main Part

1. Sustainable and Ecological Design: Concepts and Frameworks

Sustainable design aims to minimize environmental impact and maximize socio-economic value throughout a product's life cycle. The principles of the circular economy involve keeping materials within a closed loop, encouraging repair, and promoting reuse. Ecodesign parameters encompass material selection, production processes, extension of product lifespan, and post-consumer stages.

2. Key Design Challenges in the Karabakh Context

During the integration of Karabakh's cultural heritage into the modern fashion and tourism sectors, several critical design and sustainability challenges emerge. Foremost among these is the issue of material provenance and traceability. When the origins of yarns, dyes, and other raw materials used for Karabakh-specific textile, embroidery, and carpet motifs are not fully documented, ecological transparency is lost and consumer trust is weakened. The lack of traceability systems makes it difficult to determine which materials were processed at which stage, contradicting the principles of sustainable production (Fletcher, 2014).



Figur 1. Karabakh Design Challenges: Chemicals & Speed.

Furthermore, the chemical load of coloring and dyeing processes is a significant problem for the Karabakh brand. The region's national motifs are traditionally characterized by a rich color palette, but the synthetic dyes used to achieve these colors can pose a threat to the ecosystem. Chemically intensive dyeing processes lead to water pollution, increased toxic waste, and the risk of damaging the local environment (fig.1).

Consequently, there is an urgent need to transition to natural and low-chemical dyes. Another important issue relates to rapid production pressures (the risk of fast fashion). The popularization of Karabakh motifs increases the likelihood of shifting toward mass and rapid production. This could lead to negative consequences such as a decline in product quality, an increase in waste, and the commercial over-exploitation of cultural motifs. Implementing a "Slow Fashion" approach is vital to mitigate this pressure and ensure that products are manufactured in a more durable and responsible manner (Clark, 2008, pp. 440–442).

Simultaneously, ethical issues in the commercialization of community knowledge require special attention. When the skills and knowledge of Karabakh artisans, passed down through generations, are brought to the commercial market, the moral rights to this knowledge must be protected and fair income distribution must be ensured. Otherwise, cultural heritage may be exploited commercially, leaving local communities excluded from the value created.

Therefore, community licenses and fair labor mechanisms are essential. Finally, the ecological footprint of fashion and tourism events must be considered. Fashion exhibitions, festivals, and tourism flows impact the environment through energy consumption, transport emissions, and waste generation. In a region undergoing restoration like Karabakh, minimizing such impacts is particularly important. Green event standards—including the use of renewable energy, reusable decor, waste separation, and low-carbon logistics—are key tools in addressing this challenge (Henninger et al., 2016).

3. Conceptual Model for the Karabakh Brand

The Six-Pillar Model:

Cultural-Ethical Pillar: Protecting intellectual property and moral rights. 2. Material-Cycle Pillar: Focusing on circularity and sustainable sourcing. 3. Product-System Pillar: Ensuring durability and functional design. 4. Digital Experience: Integrating AR/VR for innovative brand storytelling. 5. Community and Economy: Empowering local artisans and ensuring fair income distribution. 6. Traceability and Measurement: Monitoring ecological and social impact through data. Through these pillars, design, production, experience, and management are systematically integrated (Fletcher, 2010, pp. 261–163).

Conclusion and Recommendations

The Karabakh brand creates long-term and measurable value only when it is based on a systematic approach rooted in sustainable and ecological design principles, rather than relying solely on aesthetic capital. This approach not only ensures the preservation of cultural heritage but also makes a significant contribution to the socio-economic empowerment of local communities. The implementation of sustainable design promotes the efficient use of the region's natural resources and minimizes ecological pressure (International Organization for Standardization, 2012).



Figur 2. Karabakh brand: Sustainability model.

Conclusion

Simultaneously, the use of motifs on a traceable and ethical basis serves to protect the cultural codes of Karabakh and prevents their commercial deformation. (fig.2) The application of digital technologies—including AR/VR-based presentations—enables the Karabakh brand to be promoted internationally in a more innovative and competitive manner. The integration of fashion tourism with sustainable design opens new market opportunities in the creative economy and increases the flow of tourism to the region. This model also provides a modern, ecologically oriented, and high-reputation framework for Azerbaijan's cultural diplomacy strategy. Ultimately, a sustainability-based design approach becomes a fundamental pillar that differentiates the Karabakh brand globally and provides a long-term strategic advantage.

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