



DEVELOPMENT OF ENVIRONMENTAL MARKETING IN ENTERPRISES UNDER GREEN ECONOMY CONDITIONS

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Annotation. The transition toward a green economy requires enterprises to reconsider production systems, resource management and marketing practices. Environmental marketing integrates ecological responsibility into product development, pricing, distribution, communication and corporate management. This study investigates theoretical foundations, economic mechanisms and prospects for environmental marketing in enterprises. A qualitative research design combines literature synthesis, comparative analysis, systems analysis and conceptual modeling. The paper proposes an integrated organizational framework and a composite indicator for assessing environmental marketing effectiveness. The analysis suggests that environmental marketing may contribute to resource efficiency, competitive differentiation, consumer trust and organizational resilience, provided environmental claims are verifiable and improvements are operationally substantive. The proposed framework is conceptual and requires empirical validation. Particular attention is paid to opportunities and constraints for enterprises in Uzbekistan.

Keywords: green economy; environmental marketing; green marketing strategy; sustainable development; ecological innovation; enterprise competitiveness; environmental management; circular economy; resource efficiency.

Introduction

Environmental sustainability has become central to contemporary economic development. Climate change, biodiversity loss, resource depletion and industrial pollution have encouraged governments and businesses to reconsider conventional models of production and consumption. The green economy seeks to improve human well-being while reducing environmental risks and ecological scarcity. For enterprises, this transition involves changes not only in production technologies but also in how products are designed, priced, distributed and communicated to consumers.

Traditional marketing prioritizes demand creation, market share and financial returns. Environmental marketing extends these objectives by recognizing environmental impacts throughout product life cycles. It therefore encompasses material selection, energy use, packaging, transportation, disposal and the credibility of sustainability claims. A company cannot establish a credible environmental marketing strategy through promotional language alone: the environmental characteristics it communicates should correspond to measurable changes in operations and products.

Environmental marketing is particularly relevant for enterprises in emerging economies, where energy intensity, outdated technologies, financing constraints and limited environmental information may create obstacles. At the same time, resource-saving

investments, environmental product innovation and improved supply-chain practices may create opportunities to access new markets and reduce operational risks.

Uzbekistan's transition toward a green economy provides a policy context for examining such opportunities. Enterprises in manufacturing, agriculture, textiles, food processing and logistics may benefit from energy efficiency, water conservation and environmental product differentiation. However, the commercial impact of environmental marketing cannot be assumed; it depends on customer preferences, implementation costs, product quality and institutional conditions.

The objective of this study is to develop a conceptual and organizational framework for improving environmental marketing in enterprises under green economy conditions. The research examines theoretical foundations, identifies influencing factors, compares conventional and environmental marketing, proposes measurable performance indicators and formulates practical recommendations. Its contribution is the integration of environmental management, marketing instruments and stakeholder credibility within a single analytical framework.

Literature Review and Theoretical Background

Polonsky (1994) conceptualized green marketing as activities facilitating exchanges while minimizing negative effects on the natural environment. Peattie and Belz (2010) emphasized the relationship between sustainability, consumers and the social and natural environments. Ottman (2011) argued that environmental advantages must be combined with practical customer value, including quality, performance and convenience.

The evolution of environmental marketing can be interpreted as a shift from pollution-focused ecological marketing to environmentally oriented product management, strategic green marketing, sustainability marketing and circular approaches. These stages are not mutually exclusive. Contemporary enterprises may combine pollution prevention, sustainable procurement, life-cycle assessment and communication of verifiable environmental attributes.

The green economy provides the wider institutional and economic setting. Environmental marketing can support green economy objectives by connecting cleaner production to consumer demand. Yet marketing alone cannot substitute for investment in efficient technology or environmental governance. A conceptual representation is $GE=f(EM, EI, RE, CP, IR)$, where GE is green economy development, EM environmental marketing, EI environmental innovation, RE resource efficiency, CP responsible consumption practices and IR institutional regulation. This is a conceptual expression, not an estimated econometric relationship.

Porter and van der Linde (1995) argued that appropriately designed environmental regulation can stimulate innovation and resource productivity. In marketing terms, environmental innovation may improve differentiation, strengthen stakeholder relationships and reduce exposure to changing standards. However, higher certification expenses, investment requirements and price-sensitive demand may limit short-run financial benefits.

Consumer behavior introduces additional uncertainty. Joshi and Rahman (2015) examined factors affecting green purchase behavior and emphasized the complexity of purchasing decisions. Positive environmental attitudes do not necessarily translate into purchases when price, availability, product performance or confidence in claims are inadequate. Delmas and Burbano (2011) identified drivers of greenwashing, demonstrating why credible evidence and transparent reporting are essential to environmental marketing.

Stage	Principal focus
Ecological marketing	Pollution and environmental damage
Environmental marketing	Cleaner production and product attributes
Green marketing	Strategic environmental differentiation
Sustainability marketing	Economic, social and ecological value
Circular marketing	Repair, reuse and material recovery

Research Methodology

This paper uses a qualitative conceptual design based on established academic literature and institutional frameworks. Comparative analysis identifies differences between conventional and environmental marketing. Systems analysis treats environmental marketing as a combination of operational, technological, financial and communication processes. Conceptual modeling is used to propose a staged implementation framework and performance indicators.

No original survey, experiment or enterprise-level dataset was collected for this study. Therefore, the results represent an analytical synthesis and proposed methodology rather than observed causal effects. The indicators and formulas are intended for subsequent empirical testing and adaptation to particular industries.

The proposed Environmental Marketing Effectiveness Index (EMEI) is $EMEI = \sum(w_i z_i)$, where z_i is a normalized indicator, w_i is its nonnegative weight and $\sum w_i = 1$. An illustrative decomposition is $EMEI = w_1E + w_2R + w_3C + w_4I + w_5T$, where E denotes environmental performance, R resource efficiency, C consumer response, I environmental innovation and T transparency.

For beneficial indicators, min–max normalization may be written as $z_i = (x_i - x_{\min}) / (x_{\max} - x_{\min})$. For indicators where lower values are preferred, the transformation is reversed. Reference ranges must be consistent, and denominators must be nonzero. Weights may be determined through expert elicitation, stakeholder consultation or appropriate statistical techniques. Because these choices affect rankings, sensitivity analysis is recommended.

Criterion	Conventional marketing	Environmental marketing
Objective	Sales and profitability	Economic value with environmental performance
Product	Quality and functionality	Quality and life-cycle impacts
Promotion	Customer benefits	Customer benefits and verifiable claims
Evaluation	Sales, margin, market share	Commercial and environmental indicators

Results: An Integrated Development Framework

The literature synthesis identifies five interconnected groups of factors. Economic factors include investment capacity, production costs and purchasing power. Technological factors include efficient machinery, clean production and monitoring systems. Institutional factors include standards, regulation, certification and incentives. Market factors include consumer awareness, competition and supply-chain expectations. Organizational factors include management commitment, staff skills and environmental data quality.

The proposed framework consists of five stages. Stage 1, environmental assessment, establishes a baseline for energy, water, material use, emissions and consumer needs. Stage 2, strategic planning, defines measurable objectives, responsibilities, investments and target segments. Stage 3, implementation, coordinates green product design, pricing, distribution and communications. Stage 4, performance measurement, evaluates environmental and commercial indicators. Stage 5, continuous improvement, uses monitoring and stakeholder feedback to revise the strategy.

Environmental product strategy should address life-cycle impacts rather than isolated product attributes. Potential measures include longer product life, repairability, reduced hazardous substances, recycled inputs and recyclable packaging. Life-cycle assessment can help identify trade-offs across raw material extraction, manufacturing, distribution, use and disposal. Claims about product superiority should identify the comparison basis and environmental category.

Environmental pricing balances investment, operational savings, willingness to pay and competitive conditions. An illustrative cost-based relationship is $P^g = C^p + C^e + M$, where P^g is selling price, C^p is production and distribution cost, C^e is incremental environmental improvement cost not already included in C^p , and M is target monetary margin. Actual pricing also requires demand analysis and attention to affordability.

Sustainable distribution can involve route optimization, improved vehicle utilization, packaging reduction and inventory management. A logistics emissions intensity indicator is $CI = GHG/Q$, where GHG is emissions in carbon dioxide equivalents and Q is a consistent unit of logistics output. Comparison across periods requires consistent organizational boundaries and accounting methods.

Digital marketing offers tools for communicating product information, environmental performance and certification. Websites, product labels and sustainability reports can increase transparency, but only when claims are specific, relevant and substantiated. Unverified broad claims may create greenwashing risk and undermine trust.

Indicator	Measurement
Energy intensity	Energy consumed per unit of output
Water intensity	Water consumed per unit of output
Carbon intensity	GHG emissions per unit of output
Waste recovery rate	Recovered waste / total waste × 100%
Sustainable product share	Qualifying product revenue / total revenue × 100%
Claim verification rate	Verified claims / assessed claims × 100%
Customer trust	Consistent survey-based measure

Discussion

The framework identifies three principal pathways through which environmental marketing may support competitiveness: operational efficiency, market differentiation and institutional adaptation. Resource efficiency can reduce material and energy expenses where savings exceed implementation costs. Credible environmental characteristics can appeal to specific consumer segments. Compliance readiness may improve access to procurement systems and supply chains with sustainability requirements.

These pathways are conditional. Enterprises with limited capital may struggle to finance cleaner equipment. Price-sensitive customers may prioritize affordability. Firms may also face uncertainty in environmental data collection and verification. Accordingly, environmental marketing strategies should be phased and linked to measurable business cases rather than relying on assumptions of automatic profitability.

Environmental innovation makes communication credible by linking promises to changes in production. Investments may include water reuse, renewable energy, waste recovery, process redesign and packaging improvement. A simple investment return measure is $ROI_e = (B_e - C_e)/C_e \times 100\%$, where B_e represents monetized attributable benefits and C_e relevant costs over a defined period. Multi-year analysis should account for discounting and avoid double-counting savings.

Consumer trust is another critical factor. Environmental communication should specify the exact attribute, measurement period and evidence source. For instance, reporting a verified reduction in electricity use per product is more informative than labeling a product as entirely harmless to the environment. This distinction is especially important where consumers are skeptical of marketing claims.

In Uzbekistan, potential applications include water-efficient agricultural processing, reduced energy intensity in textiles and manufacturing, sustainable packaging in food industries, and emissions-aware logistics. These examples identify promising areas for investigation, not verified effects in particular firms. The design of effective support policies requires sector-specific evidence and collaboration among companies, research institutions, financiers and regulators.

Practical Recommendations

Enterprises should integrate environmental targets into corporate strategy and assign responsibility across marketing, production, procurement and finance. A baseline environmental assessment should precede public communication, ensuring that priorities reflect material impacts rather than superficial product attributes.

Environmental investments should be evaluated through life-cycle cost analysis and measurable operational indicators. Product development teams should consider durability, repairability, efficient use and end-of-life management. Marketing departments should communicate verifiable benefits alongside quality and customer convenience.

Digital information systems should support consistent measurement of energy, water, emissions and waste. Staff training can improve data quality and reduce the risk of inaccurate environmental claims. Independent verification may be appropriate for material claims and certification-sensitive markets.

Performance should be reviewed periodically using both environmental and commercial indicators. Enterprises should adjust strategies when improvements fail to deliver expected results. Government institutions and universities can contribute through technical support, applied research, training and evidence-based policy evaluation.

Limitations and Future Research

The principal limitation is the absence of primary enterprise data. The proposed effectiveness index has not been calibrated or validated, and the framework cannot establish causal effects. Sectoral differences, regulatory environments and consumer income levels may affect implementation outcomes.

Future studies should use surveys, firm-level panel data, case studies and quasi-experimental designs to test whether environmental marketing improves measurable financial and environmental outcomes. Particular attention should be given to indicator weighting, sensitivity analysis, greenwashing risk and differences between small and large enterprises. Sector-specific studies in Uzbekistan would be especially valuable.

Conclusion

Environmental marketing is an integrated management approach connecting ecological responsibility with product development, pricing, distribution, communication and performance evaluation. The study identifies economic, technological, institutional, market and organizational factors as key influences on its development.

A five-stage implementation framework and a conceptual effectiveness index have been proposed. Together, they offer a structured basis for setting priorities, tracking performance and improving environmental marketing activities. Environmental marketing may contribute to efficiency, differentiation and stakeholder confidence, but benefits depend on credible data, appropriate investment, customer value and institutional conditions.

For enterprises in Uzbekistan, environmental marketing offers a practical direction for supporting green economic transformation. Empirical validation is needed before the proposed framework can be used to make quantitative claims about competitiveness or financial returns.

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