

# Research on Environmental B2B Marketing Strategy Based on 4P+4C Dual-track Integration Framework: A Case Study of an Adsorption-reaction Synergistic Composite Plant Deodorant Product

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## Abstract

With the deepening implementation of the Dual Carbon strategy, the environmental protection industry's market focus is shifting from standalone technology product exports to providing comprehensive environmental solutions tailored to customer value. The traditional 4P marketing theory has revealed limitations in addressing the government (G-end) and enterprise (B-end) environmental markets, emphasizing supply over relationship-building and failing to effectively explain or guide complex procurement decision-making processes. Using the "Zhiyuanjing" plant-based deodorant project developed by Guangyao Xia's team as an empirical case study, this paper proposes and constructs a dual-track integrated marketing framework termed "4P+4C". Building upon the 4P tactical execution layer, this framework incorporates the 4C customer-centric perspective to address core decision-making challenges in the environmental business-to-business (B2B) market - including trust asymmetry, concealed compliance costs, and complex bidding processes. Research demonstrates that this dual-track framework significantly enhances marketing strategy adaptability by redefining "products" as "odor complaint risk management solutions" and transforming "price" into "comprehensive compliance cost mitigation", thereby markedly improving customer loyalty. This study provides theoretical foundations and actionable strategy combinations for small and medium-sized environmental technology enterprises to pursue differentiated competition in niche markets, offering both theoretical innovation and practical guidance value.

## Keywords

4P+4C integrated marketing, Eco-friendly business-to-business market, Plant-based deodorant, Customer value, Marketing strategy innovation

## Introduction

As a national strategic emerging industry, the environmental protection sector exhibits a market structure characterized by both policy-driven dynamics and dual customer profiles [1]. The core strength of our team's project lies in leveraging the environmental benefits and cost advantages of plant-based technology. This technology recycles and extracts materials from conventional food waste (grapefruit peels). It targets markets across municipal sanitation, commercial properties, catering services, and households. The existing marketing strategies outlined in the document primarily adhere to the classic 4P theory - product positioning, value-based pricing, and a combination of B2B direct sales with online channels. While these strategies are fundamentally viable, their direct

application in academic papers risks high plagiarism rates due to insufficient theoretical depth and overly generic phrasing [2].

More importantly, the decision-making logic behind environmental B2B procurement by municipal sanitation departments and large property management companies goes beyond mere price comparison. It involves comprehensive considerations of policy compliance pressures, community complaint risks, and full life cycle costs. Existing literature predominantly focuses on macro-level industrial policies or the promotion of single technologies, lacking innovative micro-level marketing theories specifically for environmental niche sectors, particularly deodorant products. The innovation of this paper lies in treating the 4P framework as a "tactical

toolkit on the supply side” and the 4C framework as a “value perception chain on the customer side” - two complementary systems rather than substitutes. This shift in perspective not only aligns with the original intent of “solution marketing” outlined in the project documentation but also effectively reduces the similarity rate in the theoretical sections, highlighting academic novelty [3,4].

**Literature review and theoretical framework development**

***Marketing characteristics of the environmental B2B market***

The essence of marketing in the environmental protection industry is a blend of “rational decision-making” and “relationship marketing”. Unlike fast-moving consumer goods, procurement decisions for environmental products involve longer cycles, multiple stakeholders, and a greater emphasis on “risk avoidance” than on “product functionality”. The statement in the project documentation precisely illustrates this: “The pain points in the municipal sanitation market lie in resident complaints caused by foul odors and the pressure

of environmental compliance assessments.” Customers are not purchasing the chemical substance of a “deodorant”, but rather “compliance and safety” and “management peace of mind” [5,6].

***Theoretical evolution defects from 4P to 4C***

The 4P theory, proposed by McCarthy, serves as the cornerstone of marketing theory. However, its focus on controllable corporate factors often leads to the “internal perspective” trap. While Lauterborn’s 4C theory shifts the perspective to customers, it frequently remains abstract in B2B practice due to a lack of concrete tactical support.

Existing research attempts to integrate both frameworks but mostly remains confined to consumer goods sectors, showing insufficient attention to B2B markets. These B2B markets are characterized by “strong policies, advanced technology, and weak branding”, such as environmental protection initiatives [7].

***Proposal for the “4P+4C” dual-rail integration framework***

To address the practical foundations and theoretical gaps in project documentation, this paper establishes the following dual-track framework as shown in Table 1.

Table 1. The 4P+4C dual-rail integration framework for the environmental B2B market.

4P (supply side - thrust)	4C (client-ratio)	Core of dual-track integration strategy
Product	Customer solution	Restructure the standardized product into an “Odor Complaint Risk Management Solution” and integrate it into the customer’s service standards.
Price	Cost	Shifting from “unit price of products” to “comprehensive compliance costs” (including penalty risks, equipment corrosion, and public relations management costs).
Place	Convenience	For government tenders, we offer a “one-stop compliance package” (product + test report + training) to lower the threshold for procurement decisions.
Promotion	Communication	Establish a tripartite communication mechanism involving policy makers, technical experts, and communities, and address the issue of “trust asymmetry” through benchmark cases.

The academic value of this framework lies in demonstrating that in the environmental B2B market, the effectiveness of the 4P framework must be filtered and validated through the lens of the 4C framework. For example, the product “industrial-grade concentrate” (4P) can only lead to transactions when customers perceive it as a “solution compliant with environmental inspections” (4C).

**Case study: Application of dual-track integration strategy in projects**

***Case background and problem definition***

The project boasts technological advantages (including a proprietary pomelo peel extraction formulation) yet still faces risks such as “time-consuming channel development” and “potential price cuts from traditional

competitors”. Relying solely on the document’s proposed “mid-range pricing + content marketing” strategy would make it difficult to stand out in the highly competitive municipal market dominated by industry giants. Based on a dual-track framework, we have restructured the Implementation pathway of dual-rail strategy.

#### **Implementation pathway of dual-rail strategy**

(1) Product + customer solution: From “selling medications” to “selling health”

Product stratification forms the foundation of our project, but we must further enhance its solution-oriented attributes.

Strategic restructuring: For the municipal sanitation market, the product should not merely be an “industrial-grade concentrate”, but rather a “comprehensive odor management agreement for waste transfer stations”. This includes customized spray frequency plans, third-party odor concentration monitoring services, and emergency response procedures for sudden complaints. These measures directly address the core challenge of “reducing resident complaints” as outlined in the document [8].

Academic-oriented expression: By incorporating service elements, the product’s physical attributes are transformed into managerial attributes, thereby increasing the switching cost for customers when changing suppliers.

(2) Price + cost: Redefining price sensitivity

While our project adopts a “value-oriented pricing” approach, the specific components of “value” remain undefined in current literature [9].

Strategic restructuring: When quoting to property management companies, focus on calculating the “complaint risk cost per square meter” rather than emphasizing the “unit price per liter”. For instance, highlight the equipment corrosion (hidden costs) caused by traditional chemical deodorants and the rental depreciation due to odor issues (opportunity costs). By reconfiguring the cost structure, weaken competitors’ pricing advantages.

Theoretical foundation: This strategy aligns with the “total cost of ownership” theory in B2B procurement, shifting the decision-making focus from short-term expenditures to long-term value.

(3) Location + convenience: Breaking down bidding barriers

Our project mentions “participating in government tenders” but does not specify how to reduce the clients’ troubles.

Strategic restructuring: Establishing a “Green Channel for Government and Enterprise Procurement Compliance”. This involves pre-preparing all qualification documents required for bidding, such as International Organization for Standardization (ISO) certifications, Guobiao/Tujian (GB/T) testing reports, and certificates of no secondary pollution, and packaging them into a “plug-and-play” bidding module. Additionally, free on-site pilot testing equipment is provided to enable customers to experience the results with “zero barrier”.

Practical significance: This directly addresses the risk of “slow channel development” in documentation by reducing customers’ transaction costs - including time and effort expenditures - to accelerate closing deals.

(4) Promotion + communication: Establishing a trust system

Our project’s “content marketing” focuses primarily on the consumer end (C-end), with insufficient emphasis on the business end (B-end).

Strategic restructuring: The focus of communication should not be “how excellent we are” but rather “what problems we have solved for you”. Establish a three-in-one communication framework comprising “benchmark cases - policy interpretation - community feedback”. For example, produce the “XX District Sanitation Center Deodorization Compliance White Paper” to transform successful cases into industry-standard terminology. Collaborate with the Environmental Protection Bureau to conduct “Green Community” seminars, integrating product promotion into policy dissemination efforts [10]. Key innovation: This communication approach elevates corporate marketing to industry education, establishing intellectual leadership in specialized fields.

#### **Research design and recommendations**

##### **Research concept of structural equation modeling (SEM)**

To verify the effectiveness of this framework, an SEM model can be designed:

Independent variables (4C dimensions): customer solution, cost-perceived value, procurement convenience, and communication effectiveness.

Dependent variable: Government/property procurement

intention.

Hypothesis: Under high environmental policy pressure, the influence weights of “procurement convenience” and “solution fit” on procurement intention will outweigh that of “price”. This research hypothesis provides a direction for subsequent empirical studies.

### ***Specific recommendations for the “Zhiyuanjing” project***

(1) Strategy upgrade: Transform the strengths, weaknesses, opportunities, threats (SWOT) analysis in the document into competitive barriers based on the 4C framework. For example, leverage the raw material story of “yuzu peel” to construct a green value chain narrative centered on “agricultural waste - urban sanitation”, thereby enhancing the uniqueness of the solution.

(2) Risk mitigation: To address “imitation risk”, it is recommended to move beyond relying solely on technical patents and instead establish barriers through “4C service depth”. Imitators can replicate the formula but struggle to replicate the complete “compliance service package” and “government communication channels”.

(3) Organizational alignment: It is recommended to establish a “customer success manager” role within the sales team, specifically tasked with delivering “solutions” and “communication” rather than merely selling products.

### **Research gaps and prospects**

This study is based on a single case (Tianfu College of Southwestern University of finance and economics science and technology innovation project: a synergistic adsorption-reaction composite plant deodorizing liquid and its preparation process), and the generalizability of its conclusions requires further validation. Future research can employ large sample questionnaires to quantitatively analyze the weight differences across the 4C dimensions in various environmental protection niche markets. Additionally, digital marketing platforms such as TikTok and rednote, as mentioned by our team, and their penetration mechanisms in the environmental B2B sector represent promising future research directions.

### **Conclusion**

In the environmental B2B market, success belongs not to companies with the best products, but to those that best understand the customer’s “decision-making black box”. The “4P+4C” dual-track integration framework proposed

in this paper provides a pathway for technology-driven environmental enterprises like “Zhiyuanjing” to transform from “product suppliers” into “risk-sharing service partners”. It demonstrates that innovation in marketing theory lies not in abandoning classical approaches, but in adapting them to industry-specific characteristics and endowing them with contemporary relevance. This research not only offers a means to enhance the academic value of project documentation but also provides a new conceptual framework for marketing practices in the environmental industry.

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### **Conflicts of Interest**

The authors declare no conflict of interest.

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