

Empowering transformation of Liaoning Sea Cucumber marketing model from the perspective of solar terms marketing: A study of the influence of Chinese culture

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Abstract. This study focuses on the perspective of solar terms marketing to explore how Chinese culture empowers the transformation of the Liaoning Sea Cucumber marketing model. By exploring the cultural and social values of the twenty-four solar terms, the paper reveals the potential role of this traditional element in modern marketing. Furthermore, this paper examines traditional industries, especially the challenges and opportunities of the sea cucumber industry, which is primarily based on offline sales, in digital transformation. Taking Liaoning Sea Cucumber as an example, it discusses how to leverage online marketing strategies, such as targeting the high-end market, catering to the trend of youthful consumption, and innovating industry models, to assist the industry in achieving digital upgrades in intense market competition. This not only provides practical references and strategic insights for the sea cucumber industry but also for the transformation of other traditional industries in the modern consumer environment.

Keywords: solar terms marketing, Liaoning Sea Cucumber, digital transformation, Chinese culture, brand communication

1. Research background

With the deepening of globalization and the rapid development of technology, the marketing environment has undergone profound changes. Traditional marketing strategies are facing multiple challenges such as personalized consumer demands, information overload, and intensified competition. In this context, traditional industries such as Liaoning Sea Cucumber urgently need to find new marketing perspectives and strategies to enhance brand influence and market competitiveness. This paper is based on the unique perspective of solar terms marketing, delving into how solar terms marketing can empower the transformation of the Liaoning Sea Cucumber marketing model, thereby seeking new breakthroughs in the digital business environment.

The twenty-four solar terms, as treasures of Chinese traditional culture and imprints of national development, are closely related to life, health preservation, and the connection with life. They demonstrate tremendous potential in modern marketing [4]. As consumer demand for brand stories and cultural connotations increases, enterprises are eager to integrate traditional culture with modern marketing strategies to enhance brand cultural power and consumer identity. The twenty-four solar terms provide strong support for innovative brand storytelling.

This paper reveals the practical application value of the twenty-four solar terms in digital marketing, providing strategic guidance for traditional industries such as Liaoning Sea Cucumber in digital transformation. We hope to establish a theoretical framework based on solar terms marketing, explore specific strategies in product development, and market marketing to help companies utilize cultural elements to enhance brand value and achieve marketing model innovation.

2. Cultural and social value of the twenty-four solar terms

2.1. Cultural value of the twenty-four solar terms

The twenty-four solar terms, marking the transition of the four seasons and changes in the natural environment, embody the

connotation of national development and carry a profound historical imprint. The combination of solar terms and festivals, such as the Dragon Boat Festival and the Mid-Autumn Festival, demonstrates the deep cultural heritage of the Chinese nation, intertwining humanistic emotions with natural rhythms. In 2016, the United Nations Educational, Scientific and Cultural Organization (UNESCO) included “Chinese Twenty-Four Solar Terms” in the Representative List of the Intangible Cultural Heritage of Humanity. This move further enhanced the international influence of the twenty-four solar terms, making them an important window for the world to understand Chinese culture.

By tapping into and utilizing the historical value of the twenty-four solar terms, against the backdrop of digital marketing, brands can infuse historical warmth, leveraging profound cultural heritage to build unique brand memories in the minds of consumers. Through the clever integration of solar terms and brand stories, enhancing the cultural strength and recognition of the brand, enterprises can narrate the historical depth and cultural charm of brand narratives.

2.2. Practical value of the twenty-four solar terms

The twenty-four solar terms are closely related to life, health preservation, agriculture, and modern marketing activities. As a crystallization of ancient wisdom, the twenty-four solar terms represent the ancient people’s precise grasp of natural laws, providing modern people with a set of life guidelines based on natural changes, offering important references for adapting to the seasons and adjusting lifestyles.

From the perspectives of life guidance and agricultural production, each solar term has unique phenological phenomena and customs, such as eating spring pancakes on the day of Lichun and eggs on the day of Li Xia. These customs reflect the harmonious matching of food and seasons. With the increasing pursuit of quality of life by consumers, the promotion of these solar term customs can not only satisfy consumers’ pursuit of healthy living but also evoke emotional resonance in marketing, enhancing brand affinity [5]. Meanwhile, solar terms are a reflection of agricultural timing. In modern agricultural marketing, solar terms can serve as important nodes for product promotion. Brands of agricultural products such as sea cucumbers can enhance product sales by accurately grasping market rhythms.

Furthermore, the practical significance of the twenty-four solar terms lies in their innovative integration with modern life. As the unique charm of traditional culture gradually becomes apparent, an increasing number of modern products and services begin to incorporate elements of solar terms, conveying brand information in innovative ways [2]. For example, some limited-edition products themed around solar terms and related clothing series. Through innovative marketing strategies, brands not only demonstrate respect for traditional culture but also attract consumers’ attention, enhancing brand value.

In the context of digital marketing, the practical significance of the twenty-four solar terms is further amplified. Especially for emerging e-commerce brands, short-term marketing activities centered around solar terms, such as H5 interactive games, short video sharing, live interaction, etc., can quickly attract consumers’ attention, increasing brand exposure and topicality. Moreover, based on big data, brands can formulate and implement targeted marketing strategies according to consumers’ consumption behaviors and preferences for different solar terms, thereby achieving better results in increasing consumer engagement and conversion rates.

The value of the twenty-four solar terms is reflected in various aspects of life, agriculture, and modern marketing. In the context of digital marketing, brands can establish deeper emotional connections with consumers by exploring and utilizing the practical functions of solar terms, enhancing brand stickiness. Meanwhile, through innovative marketing strategies, brands can achieve dual enhancements in brand communication and sales. The discovery of this value has profound implications, particularly for traditional industries, such as the sea cucumber industry, facing digital transformation, helping them find new growth points in intense market competition.

3. Solar terms marketing enhancing the brand influence of Liaoning Sea Cucumber

3.1. Integration of solar terms marketing with Liaoning Sea Cucumber production and fishing

The twenty-four solar terms are a product of ancient Chinese agricultural civilization, reflecting the laws of changes in nature, and have important guiding significance for agricultural production, fishing, and other activities. As a precious marine product, the growth and fishing of Liaoning Sea Cucumber are closely related to China’s twenty-four solar terms.

During the growth process of Liaoning Sea Cucumber, different solar terms signify different climatic conditions and natural environments, which directly affect the growth rate and quality of Liaoning Sea Cucumber. For instance, during relevant spring solar terms, providing sufficient food and suitable growing conditions can promote the rapid growth of Liaoning Sea Cucumber. As the temperature gradually rises, Liaoning Sea Cucumber enters an important period of growth. Liaoning Sea Cucumber brands can release new products at specific solar term nodes, name products after solar terms, or use the symbolic meaning of solar terms to shape brand image, such as limited-edition products or “Spring Awakening” themed advertisements, aiming to leave a deep impression on consumers and achieve brand differentiation.

The fishing activities of Liaoning Sea Cucumber are also influenced by solar terms. Specific solar terms may cause certain changes in natural conditions such as seawater temperature and currents, thereby altering the activity habits of Liaoning Sea

Cucumber and affecting fishing results. Enterprises adjust fishing strategies based on solar term changes, selecting the optimal fishing time and location to adapt to the weather and achieve sustainable development of the fishery. Liaoning Sea Cucumber brands can integrate solar term elements into the storytelling of the brand, combining the natural changes of solar terms with cultural customs, aligning brand stories with the quality characteristics of the fishing process, enhancing brand regional identity, and elevating the brand's upscale image.

3.2. Application of solar terms marketing strategies in Liaoning Sea Cucumber brand marketing

The reminder function of the twenty-four solar terms is equally important in modern marketing. Liaoning Sea Cucumber brands can use methods such as push notifications on shopping app homepages, search results, and recommendations on social media to convey marketing messages to consumers on the day of a solar term, thus establishing closer external marketing relationships with consumers. Brands can also try to integrate with traditional festivals, such as promoting sea cucumber and rice dumplings during the Grain in Ear and Dragon Boat Festival, resonating with the revival of all things and the spirit of Qu Yuan. Similarly, during the Mid-Autumn Festival and Autumn Equinox, launching salted mooncake and sea cucumber gift boxes echoes seasonal changes and aligns with the natural rhythm. Connecting marketing strategies closely with consumers' daily lives effectively enhances product sales and brand market penetration.

The value of solar terms marketing is also reflected in the integration of Liaoning Sea Cucumber brands with other industries or cultural elements, using solar terms as a bridge to create novel and unique marketing activities. For example, launching a joint sea cucumber pastry with a snack brand during the Lesser Fullness of Grain term, or collaborating with a tourism brand to plan autumn outings during the Start of Autumn, cross-industry cooperation to a certain extent can break industry boundaries, stimulate consumer interest, and create new consumption scenarios.

Brands can conduct various themed marketing activities online around solar terms, such as interactive games, knowledge contests, video sharing, or live events, focusing on introducing the natural phenomena, traditional customs, and dietary health knowledge related to solar terms. While conveying the concept of "health preservation," it attracts the attention of young people and conveys humanistic care and professional information. For example, initiating the #XiaoxueSeason# topic on Weibo encourages users to share interesting stories about the Xiaoxue solar term and sets up physical prizes, creating a hot topic and increasing the brand's online exposure.

Moreover, in social media marketing, Liaoning Sea Cucumber brands can combine with public welfare causes, using solar terms as entry points to conduct public welfare marketing. For example, launching a "Guarding Spring, Planting Hope" themed event as Arbor Day approaches, where for every purchase of a product, a tree is planted in remote areas under the purchaser's name, linking the meaning of solar terms with social responsibility to enhance the social image of the Liaoning Sea Cucumber brand. This creates emotional resonance with the target audience and enhances the brand's social image.

4. The impact of digital transformation on the marketing model of Liaoning Sea Cucumber

4.1. Prospects for the digital transformation of the Liaoning Sea Cucumber industry

The transformation of the marketing model of Liaoning Sea Cucumber epitomizes the wave of digital transformation. Traditional industries like the sea cucumber industry often lag behind in emerging digital markets due to their entrenched offline sales models and relatively conservative business strategies. However, with changes in consumer behavior, the proliferation of internet technologies, and government policy initiatives, traditional industries must embrace change to achieve sustainable development [1].

The "Fourteenth Five-Year Plan for National Fisheries Development" explicitly states that traditional industries need to deepen supply-side structural reforms, enhance supply adaptability, and meet the increasingly upgraded demands of consumers. This implies a comprehensive upgrade for the sea cucumber industry from production and marketing to services, to adapt to the new trend of online consumption. As a representative of the sea cucumber industry, Liaoning Sea Cucumber needs to innovate in several areas:

Firstly, precise positioning: The high-quality and high-value characteristics of Liaoning Sea Cucumber are more suitable for approaching the high-end market. On one hand, it is necessary to promote the official certification of Liaoning Sea Cucumber geographical indications, and on the other hand, to create products with uniqueness and various combinations. By shaping a high-end image, Liaoning Sea Cucumber can reach more high-end consumer groups and enhance brand value. Secondly, adapting to the trend of youthfulness: Innovate in content marketing, social media interaction, and e-commerce platform promotion. Build a comprehensive marketing network through innovative activities such as daily check-in activities on WeChat Official Accounts or live streaming room sign-in giveaways (note: internal testing should be conducted to ensure information is delivered to users). Implement search engine optimization (SEO) to improve website structure and content, increase the ranking of Liaoning Sea Cucumber in search engines to increase potential customer visits. Introduce packaging and flavors that cater to youthful tastes and utilize new technologies such as AR, VR, for example, partnering with an IP related to sea cucumber babies for travel, offering a

360-degree panoramic view of each sea cucumber for immersive shopping experiences, and providing virtual tours of Liaoning Sea Cucumber breeding bases in virtual reality.

Furthermore, optimizing the industry model by enhancing supply chain efficiency through cooperation with technology companies, establishing specialized teams for precise marketing and personalized recommendations in different niche markets. Additionally, constructing an integrated omni-channel sales network combining online and offline channels, maintaining consistent pricing online and offline, enabling cold chain delivery from the nearest retail store to the customer's home upon online orders, breaking the limitations of traditional retail, and providing a seamless shopping experience [7]. Collaborating with leading snack companies (such as Bestore) to develop portable, upgraded flavor new products; partnering with high-end postpartum care centers to supplement sea cucumber nutrition for new mothers.

Utilizing advanced intelligent production equipment and technology to improve the production efficiency and quality stability of Liaoning Sea Cucumber, using Internet of Things (IoT) technology to achieve real-time monitoring and traceability of Liaoning Sea Cucumber production, processing, and transportation links, ensuring product quality and safety. Simultaneously introducing digital management systems such as ERP and CRM to optimize internal resource allocation and automate business processes, enhancing management efficiency and response speed.

The transformation of the marketing model of Liaoning Sea Cucumber is essentially a collision between traditional culture and modern technology, a close integration of traditional industries with the digital economy. Through such transformation, on one hand, it helps the Liaoning Sea Cucumber industry to respond to market challenges, and on the other hand, it taps into its rich cultural resources to provide consumers with more valuable and attractive products and services, thereby standing out in intense competition and achieving a perfect integration of tradition and modernity [6].

4.2. Integration of Liaoning Sea Cucumber digital transformation and seasonal marketing

In the transformation of the Liaoning Sea Cucumber marketing model to enhance brand value and market competitiveness, it is necessary to deeply explore the unique cultural IP of the 24 solar terms. In this process, Liaoning Sea Cucumber enterprises need to truly build differential competitive advantages while maintaining respect and inheritance of traditional culture, and actively embrace new technologies and innovative marketing strategies.

Firstly, using big data and AI technology for precise content delivery and effectively promoting purchase conversion rates. For each solar term, Liaoning Sea Cucumber enterprises can provide customized products and services to their customers. For example, launching a cooling and nourishing package during Li Xia, or a health-warming gift box during the Winter Solstice, utilizing intelligent recommendation systems for personalized product recommendations to improve conversion rates from browsing to purchase. Secondly, to increase consumer awareness of the Liaoning Sea Cucumber brand, physical brand experience stores can be established to offer interactive experiences such as tasting and cooking tutorials for customers [7]. Additionally, thematic events related to each solar term can be held, such as "Lesser Fullness of Grain Health Lectures" or "Li Dong Liaoning Sea Cucumber Cultural Festival," to strengthen the association between the brand and seasonal culture, enhancing brand loyalty.

Furthermore, in brand communication, Liaoning Sea Cucumber enterprises can leverage the cultural symbol of solar terms for creative marketing activities, storytelling, and conveying brand concepts. For instance, conducting weekly city-wide lottery free pulse-taking activities, sharing traditional Chinese culture courses, etc., to establish a close connection with consumers based on culture. Meanwhile, strengthening cooperation with research institutions to innovate in product development, such as developing a digitalized Liaoning Sea Cucumber health management system that combines traditional Chinese medicine health theories with modern technology to provide personalized health guidance. This transforms Liaoning Sea Cucumber from a traditional tonic product to a health technology product, broadening the boundaries of the Liaoning Sea Cucumber industry's development.

In the digital transformation of the Liaoning Sea Cucumber industry, the cultural value of solar terms is fully integrated into marketing strategies. Leveraging modern technology effectively enhances interaction between brands and consumers, optimizes shopping experiences, and focuses on the digitization of product innovation and health management to achieve sustainable development in the new era. This not only promotes the upgrading of the Liaoning Sea Cucumber marketing model but also provides reference for the digital transformation of other traditional industries.

5. Conclusion

Against the backdrop of building a cultural powerhouse and the development of digital technology, this paper thoroughly explores the value of the 24 solar terms, an outstanding traditional Chinese culture, in the transformation of the Liaoning Sea Cucumber marketing model. By systematically exploring the historical and social values of the 24 solar terms, it reveals the potential role of this traditional element in modern marketing and its dual roles in brand communication: guidance and reminder. Furthermore, it further reveals how the Liaoning Sea Cucumber industry, primarily operating offline, can achieve digital upgrading through online marketing strategies, targeting the high-end market, catering to the needs of young consumers, and innovating industry models.

This paper points out that the theoretical framework of seasonal marketing lies in the application strategies in product creation and marketing, and provides practical recommendations for enterprises, such as seasonal theme products, event planning, and cross-industry cooperation. By continuously exploring and utilizing the cultural value of the 24 solar terms, it enhances brand

influence and market competitiveness. At the same time, it also deepens the study of the relationship between seasonal elements and consumer behavior, purchasing decisions, hoping to apply marketing strategies more accurately. In addition, with the continuous progress of technology, new technologies such as virtual reality and augmented reality in seasonal marketing are also areas worthy of further exploration.

The unique IP of the 24 solar terms provides strong empowerment for the digital transformation of Liaoning Sea Cucumber marketing models, demonstrating extensive brand communication prospects for Liaoning Sea Cucumber and the renewal of traditional industries. While enriching the theoretical system of seasonal marketing, it also promotes the innovative application of Chinese traditional culture in the modern business environment, providing substantive guidance for enterprises in practice.

Authors' contributions

Mengmeng Chen and Qifan Huang contributed equally to this paper.

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