# INTERNATIONAL MARKETING STRATEGIES OF DJI INNOVATION

#### BoFan He

School of International Business, Zhejiang Yuexiu University, Shaoxing 312000, Zhejiang, China. Corresponding Email: 20171017@zyufl.edu.cn

**Abstract:** This paper aims to explore the international marketing strategies and their effectiveness of DJI Innovation. By combining methods such as literature research, case analysis, and data statistics, it conducts in - depth research and analysis on DJI Innovation's international marketing environment, strategy implementation, and optimization methods. The research finds that DJI Innovation has successfully occupied a dominant position in the global market, especially in the European and American markets, relying on its leading technology and excellent international marketing strategies. However, its international marketing also faces a series of problems and challenges, such as geopolitical risks and the exploration of emerging markets. Through the analysis of a series of international marketing strategies of DJI Innovation, including product, price, and promotion, reasonable and effective optimization suggestions are put forward, such as strengthening innovation, developing and utilizing new technologies, flexibly adjusting regional prices, and changing promotion methods, so as to ultimately enhance DJI's competitiveness in the international market. It is hoped that the research results can provide theoretical and practical reference values for the international development of DJI Innovation and other high - tech enterprises.

Keywords: DJI innovation; International marketing; Drone industry; Marketing strategies; Optimization suggestions

# **1 LITERATURE REVIEW / RELEVANT THEORIES**

In the current global competition pattern of the drone industry, the formulation and optimization of enterprises' international marketing strategies have long become the focus of attention from all walks of life. As Xu Jia's research points out, the success of Chinese high - tech enterprises in the international market not only depends on technological breakthroughs but also requires the construction of a marketing system that adapts to a multicultural environment. This view is particularly evident in the drone industry and is also one of the important bases for DJI Innovation to explore the international market.

Current research hotspots focus on the in - depth expansion of the industry application market. Zhou Yulong pointed out that the technical standards of the agricultural drone market have not been unified, resulting in the contradiction between differential competition and rising compliance costs for enterprises. Based on user portrait research, Qin Fang and Xu Shuqin (year) found that the coverage of after - sales service networks is more influential than price factors in the procurement decisions of professional - grade products. This market feature echoes the data on channel construction costs disclosed by Commercial Drones Market Insights, revealing the special laws of the B2B market.

The interaction between technological innovation and regulatory restrictions has become a research focus in recent years. Ji Ke compared the differences in airspace management policies between Europe and the United States and found that the data security review mechanism is reshaping the boundaries of market competition. The Agriculture Drone Market report shows that the popularization of agricultural drones in developing countries faces bottlenecks such as weak infrastructure and lack of operation training. The Global Drones Market trend forecast indicates that modular design and cross - platform compatibility may become the competitive focus of the next - generation products, which forms an academic dialogue with Liu Hui's "flexible manufacturing system" theory.

There are still three limitations in existing research: insufficient attention to non - technical factors, especially the influence mechanism of cultural cognitive differences on product acceptance; relatively weak research on the timeliness of strategy adjustment in a dynamic competition environment; and insufficient empirical data support for localization strategies in emerging markets. It is recommended that follow - up research strengthen the tracking of cross - border consumer behavior, establish a dynamic strategy evaluation system, and expand interdisciplinary research methods to organically integrate engineering parameters and sociological variables.

# 2 ANALYSIS OF DJI INNOVATION'S INTERNATIONAL MARKETING ENVIRONMENT

# 2.1 Macro - Environment Analysis

The development of the global drone industry has always been closely linked to the policy orientations of various countries. The Federal Aviation Administration (FAA) of the United States requires that drones weighing more than 400 grams must be registered and equipped with a Remote ID system. This regulatory measure directly prompted DJI to launch the Mavic Air 2 model that meets the standards in 2020. The European Union Aviation Safety Agency (EASA) implemented a drone operation classification system, which refined the certification standards for C0 - to - C4 - class products to flight height and operation range, forcing enterprises to adjust their product designs to meet differential

access requirements. Since 2022, the Indian government has imposed a 20% tariff on imported drones and approved a local production incentive plan. This trade - protectionist policy has led to a decline in DJI's market share in the country to 35%.

Global economic fluctuations have a significant impact on the consumer - grade drone market. Statista data shows that the global drone market size reached \$25.6 billion in 2021, with the North American region contributing 42% of the sales. However, in 2022, the Federal Reserve's interest rate hike led to a contraction in consumer electronics demand, and DJI's quarterly revenue in the US market declined by 12% year - on - year. The growth potential of emerging markets shows a differentiated trend. In Southeast Asian countries with a per capita GDP of more than \$3,000, the annual growth rate of drone sales is 25%, while in most African countries, due to insufficient foreign exchange reserves, the penetration rate of high - end products is less than 5% [10].

Sociocultural factors shape the consumption characteristics of different regional markets. Japanese consumers' high sensitivity to privacy protection has increased the market share of the Mavic 3 product with facial blurring function in Japan to 68%. There is a strong demand for agricultural drones in the Middle East. The Saudi government - subsidized smart farm plan has driven the annual shipments of DJI's Agras series to exceed 12,000 units [1]. Continuous protests from European environmental organizations against drone noise have prompted enterprises to develop silent propeller technology and control the flight noise below 65 decibels [15].

The speed of technological iteration is reconstructing the industry competition pattern. DJI's 2,147 core patents build a technological barrier. However, the autonomous obstacle - avoidance system developed by the US - based Skydio company can perform 1 million environmental calculations per second in 2022, and its military - related products have received purchase orders from the Pentagon [11]. The breakthrough in battery energy density to 400 Wh/kg has enabled the endurance of industry - level drones to exceed 40 minutes. This breakthrough has tripled the efficiency of the Matrice 300 in replacing manual work in power inspection scenarios [6]. The popularization of open - source flight control systems has led to a drop in the price of entry - level products to \$200, forcing enterprises to maintain an R & D investment ratio of more than 15% to maintain a technological lead [9].

The evolution of global data security regulations is changing the product R & D path. The General Data Protection Regulation (GDPR) of the European Union requires drone manufacturers to establish local data storage centers. DJI has set up exclusive servers in Frankfurt and developed an offline flight mode for this purpose. In 2023, the US Department of Defense released the "Blue Drone List 2.0", which takes supply chain transparency as an access condition. This regulation forces enterprises to disclose the traceability information of key components. After the implementation of China's Data Security Law, the encrypted transmission module built into DJI's government - enterprise - version drones has become an essential configuration for exploring smart city projects [5].

# 2.2 Industry - Environment Analysis

The industry competition environment faced by DJI Innovation can be systematically analyzed using Porter's Five Force Model. In terms of existing competitors, the consumer - grade drone market shows a pattern of "one super and many weak". According to statistics from Drone Industry Insights, DJI accounts for more than 75% of the global market share. Autel Robotics launched the EVO series products, trying to establish a differential advantage by equipping with 8K camera functions, but its market share in North America in 2022 was only 9.3% [11]. Parrot S.A. has obtained some market share in the European market by focusing on the agricultural plant protection field. The Anafi series products of Parrot S.A. invest 28% of its total budget in the research and development of thermal imaging technology. After 3D Robotics transformed into an enterprise - level solution provider, the market share of its Site Scan platform in the construction industry application market remains at about 12%.

The threat of potential entrants is mainly restricted by technological barriers and capital requirements. New entrants need to break through not only core technologies such as flight control algorithms but also deal with cost changes caused by differences in airspace management regulations in various countries. Data from the Federal Aviation Administration of the United States shows that the number of newly registered drone enterprises in 2021 decreased by 26% year - on - year, which also reflects from the side that the entry threshold of this industry is continuously increasing.

The threat of substitutes exists in specific market segments. GoPro action cameras achieve image anti - shake through HyperSmooth technology, but its Karma drone project was terminated in 2018 due to technical defects. Although smartphone manufacturers' multi - lens modules can meet basic aerial photography needs, they cannot achieve professional - level image acquisition due to physical size limitations. It is worth noting that satellite remote - sensing technology has formed some substitution in the agricultural monitoring field. The Dove satellite constellation of Planet Labs can provide global surface images every 24 hours, but its single - service cost is about 7 times that of the drone solution.

In terms of the bargaining power of suppliers, DJI has mastered the independent production capacity of core components through a vertical integration strategy. Its self - developed OcuSync image transmission system uses customized chips, and the self - sufficiency rate of key components reaches 82% [1]. The procurement channels for CMOS sensors are diversified, and DJI maintains strategic cooperation with both Sony and Samsung, with the procurement proportion of a single supplier controlled within 30%. The financial report of Trobang Technology Co., Ltd., a motor supplier, shows that DJI's orders account for 43% of its annual revenue, but the contract terms include strict cost - control mechanisms [9].

The bargaining power of buyers shows significant market - stratification characteristics. Consumer - grade users are more price - sensitive. DJI copes with this through a product line - grading strategy. The price difference between the Phantom series and the Mini series is 3.8 times to meet the needs of different budgets [15]. The bargaining space of enterprise - level customers is relatively limited. Power inspection users pay more attention to product reliability rather than price. The repurchase rate of the Matrice 300 RTK in the power grid system reaches 91% [6]. At the channel - dealer level, large retailers such as Best Buy enjoy an 8% - 12% purchase discount but need to abide by exclusive - clause restrictions to prevent the sale of competing products [8].

#### 2.3 Internal - Environment Analysis

DJI Innovation has built an unreplicable resource barrier relying on its whole - industry - chain integration ability. Its technology R & D system covers the whole - chain innovation from underlying algorithms to terminal products. The Shenzhen headquarters and the Silicon Valley R & D center form a dual - core driving model. As of 2022, it has accumulated more than 8,900 patent applications related to drones, among which the patents for the core Flight Controller System account for 37%. The patent cluster of image transmission technology has ranked first in the industry in the filings of the European Patent Office for five consecutive years. The production and manufacturing resources take the Dongguan intelligent manufacturing base as the core, equipped with self - developed automated assembly lines, realizing a daily production capacity of 4,000 consumer - grade drones. Its unique modular production system shortens the product - line switching cycle of the Phantom series to 72 hours.

The enterprise's innovation ability is reflected in the R & D mechanism that continuously breaks through the industry's technological boundaries. The "Inspire 2" launched in 2017 combined a micro - quadcopter with a professional - grade imaging system for the first time, and its self - heating dual - battery system overcame the endurance problem in low - temperature environments [15]. The marketing ability is manifested in the precise layout of the global distribution network. In the North American market, it achieves an offline coverage rate of more than 85% through 3C channels such as Best Buy. At the same time, it uses social media to establish a user - co - creation community. The #DJICreators topic operated by the official Instagram account has accumulated 2.3 million pieces of UGC content. The developer platform established in the industry application field has connected more than 5,000 third - party enterprises. The MG - 1P agricultural plant - protection aircraft realizes seamless docking with the John Deere agricultural machinery data system by opening the API interface.

The core competitive advantage stems from the synergistic effect formed by technological iteration and brand premium. The stability error of the flight control system is controlled within  $\pm 0.03$  meters, which is two orders of magnitude higher than the average level of competitors. The Visual Inertial Odometry (VIO) visual navigation technology can still maintain centimeter - level positioning accuracy in weak GPS environments. The brand value has ranked first in the consumer electronics category in the BrandZ Top 50 Chinese Global Brands list for three consecutive years. Its market share in the professional film and television field reaches 93%. 67% of the award - winning works of National Geographic magazine in 2021 were shot with DJI equipment. This dual - wheel - drive model of technology and brand enables it to maintain a 78% market share during the EU anti - dumping investigation, verifying the effectiveness of the differential competition strategy.

#### **3** ANALYSIS OF DJI INNOVATION'S INTERNATIONAL MARKETING STRATEGIES

#### **3.1 Product Strategy**

DJI Innovation has built a technological moat covering the global market through a precise product matrix. In the field of consumer - grade drones, the Phantom series and the Mavic series form the core product lines. The Mavic Air 2S, with its 1 - inch CMOS sensor and four - direction obstacle - avoidance system, achieved a market share of more than 43% in the North American market in 2021. The industry - application product line shows differential layout characteristics. The Agras T30 agricultural plant - protection drone is equipped with a 30 - kg load and RTK centimeter - level positioning technology, achieving a daily operation area of more than 300 hectares in the Southeast Asian rice - growing area. The Ronin 4D product for the film and television industry, with its built - in LiDAR autofocus device and full - frame sensor, directly meets the professional production requirements of Hollywood. In 2022, this product accounted for 28% of the equipment procurement list of the IMAGO Photographers Association.

Product technology innovation shows a step - by - step iterative feature. The OcuSync 3.0 image transmission technology expands the transmission distance to 15 kilometers, with 60% more anti - interference ability than the previous generation. The development of intelligent functions focuses on scenario - based requirements. For example, the intelligent marking and positioning function of the Mavic 3 industry version increases the power inspection efficiency by 3.2 times. The hardware innovation and software ecosystem form a synergistic effect. The SDK open platform has connected more than 8,000 developers, giving rise to vertical applications such as ContextCapture in the surveying and mapping and modeling field.

The globalization product strategy reflects regional adaptability adjustments. For the EU CE certification system, the Spark series meets the regulatory requirements by shortening the maximum flight height to 120 meters. In the North American market, the compliance design of FAA Remote ID is strengthened. In 2023, all new models are pre - installed with broadcast modules that meet ASTM standards. In the field of agricultural drones, the MG - 1P plant - protection machine is specially developed with a multi - spectral analysis module to adapt to different crop types in the Northeast

Plain of China and the North American Great Plains.

The autonomy of core technologies ensures the product upgrade rhythm. The self - developed FlightAutonomy system integrates 6 - direction obstacle - avoidance and terrain - following functions, enabling the flight accuracy of industry - level drones to reach  $\pm 0.1$  meters. The self - research proportion of key components such as CMOS sensors exceeds 75%, ensuring that the product update cycle can be maintained for 12 months during supply chain fluctuations. This in - depth technological layout shortens the average iteration cycle of consumer - grade products to 14 months, 40% faster than that of competitors [8].

The market expansion strategy shows a dual - track parallel feature. In mature markets, the Prosumer product line is used to maintain a premium advantage. For example, the Inspire 3, with a price 30% higher than that of similar competing products, still occupies 62% of the professional imaging market share. In emerging markets, a technology - downscaling strategy is adopted. The Tello educational drone enters the Southeast Asian STEAM education market with Scratch programming compatibility, and its installed capacity has exceeded 500,000 units in three years. This hierarchical strategy has increased the proportion of enterprise - level customer revenue from 28% in 2018 to 41% in 2022 [14].

#### **3.2 Price Strategy**

DJI Innovation demonstrates a high degree of dynamic adaptability when formulating its global pricing strategy. According to the sales data of consumer - grade drones in the US market, the early products of its Phantom series adopted the cost - plus pricing method, with the core accounting benchmarks being R&D investment and supply - chain costs. Take the Phantom 4 Pro as an example. When it was initially launched, its price of 5,999 yuan included the cost allocation for the self - developed FlightAutonomy system and the premium of key components such as CMOS sensors procured globally. This pricing approach effectively covered the company's annual R&D investment ratio of over 15% while maintaining a gross profit margin of more than 45%.

In the face of changes in the international market competition landscape, the company has gradually shifted to a competition - oriented pricing strategy. In 2016, when 3D Robotics launched the competing product, the Solo drone, DJI immediately reduced the price of the Phantom 3 standard version from \$799 to \$499, which directly forced the competitor to withdraw from the consumer - grade market. This pricing flexibility is more prominent in the Southeast Asian market. In 2020, in response to the competitive pressure from the local brand Xiaomi FIMI in Indonesia, DJI adjusted the price of the Mavic Mini basic model to a range of 1.8 times the local average monthly income, successfully increasing the market penetration rate from 32% to 57%.

The product iteration cycle directly impacts the price - adjustment rhythm. After the Mavic 3 series was launched in 2022 with a dual - camera system, the company adopted a stepped - pricing mechanism: the basic version was priced at 13,888 yuan, and the professional version was priced at 21,988 yuan, creating price anchors through technological differences. This strategy enabled the previous - generation product, the Mavic 2 Pro, to maintain a stable price reduction of 25% within 12 months, which not only cleared inventory but also extended the product life cycle. It is worth noting that the company implements differential pricing according to the characteristics of different regional markets. For example, after being affected by the anti - dumping investigation in the EU market, the price of the MG - 1P series of agricultural drones was actively increased by 7.2% to offset the tariff costs.

Supply - chain optimization provides significant support for the pricing strategy. During the global chip shortage in 2021, the company adjusted its product structure through the vertical - integration model, shifting the production resources of the Tello educational drone towards high - end products, which kept the price fluctuation of the Matrice 300 RTK industrial - grade drone within 3%. This supply - chain flexibility is particularly crucial when dealing with exchange - rate risks. Whenever the exchange rate between the Japanese yen and the US dollar fluctuates by 5%, the product prices in the Japanese market can be adjusted within two weeks to ensure the stability of the terminal retail price.

Policy regulations have become important variables in price - making decisions. The remote ID regulations implemented by the Federal Aviation Administration (FAA) of the United States in 2020 forced the company to install compliant modules in new models, directly increasing the cost of the Mini 2 SE model by 11%. However, the terminal retail price remained unchanged by reducing the profit margins of the distribution channels. In response to the General Data Protection Regulation (GDPR) of the EU, after the company developed data - encryption functions for industry - application models, it increased the pricing of value - added services by 18%, successfully transforming regulatory pressure into a profit - growth point.

# **3.3 Channel Strategy**

DJI Innovation has built a platform that directly reaches consumers through its official website. The sales volume of its online channels has accounted for more than 45% of the total revenue for three consecutive years. This platform allows global users to view product parameters in real - time, watch flight demonstration videos, and complete cross - border payments. The DJI Store membership system launched in 2019 has covered users in 87 countries. Third - party e - commerce platforms such as Amazon and Best Buy are responsible for 63% of the sales of consumer - grade drones in the North American market. DJI implements differential operation strategies according to the characteristics of different platforms. For example, it offers "Prime Day exclusive discounts" on Amazon and conducts "Flight Academy" live -

its online channels was 22 percentage points higher than the industry average. The offline channel network uses flagship stores as core nodes to radiate surrounding areas. The 27 direct - operated experience stores around the world receive an average of over 3 million customers annually. The Shenzhen MixC World flagship store is equipped with an indoor flight test area and an industry - solution exhibition hall. Through scenario - based experiences, the transaction rate of professional - grade products has been increased to 38%. The distributor system adopts a hierarchical authorization model, dividing the global market into six levels of regions from A to F, and requiring different - level agents to be equipped with a corresponding number of technical engineers. When laying terminal outlets through 3C stores such as MediaMarkt and FNAC in the French market, DJI stipulates that each outlet must be equipped with VR flight - simulation equipment. This measure has increased the sales volume of the Mavic series products in France by 217% within two years.

The channel management strategy is prominently reflected in the optimization of inventory turnover efficiency. The self - developed Flyways system enables real - time sharing of inventory across online and offline channels. During the "Black Friday" promotion in the North American market in 2020, this system reduced the commodity allocation response time to 4.2 hours, and the inventory turnover days decreased by 19 days compared to 2018. For emerging markets such as India, DJI has established strategic cooperation with local logistics companies like Delhivery, deployed "drone delivery centers" in cities such as Bangalore, and used distributor warehouses as forward - placement warehouses, which has increased the order fulfillment timeliness by 65%. This flexible supply - chain system supports the rapid expansion of the global channel network. As of 2022, it has covered 142 countries and regions, nearly tripling compared to 2016.

The channel - conflict prevention mechanism uses a dynamic pricing algorithm to automatically adjust the wholesale discount rate according to the characteristics of regional markets. The European market has implemented a "price corridor" system, stipulating that the retail - price fluctuations of distributors shall not exceed  $\pm 8\%$  of the recommended price. Those who violate this rule will have their new - product supply rights frozen. To cope with geopolitical risks, DJI has established an independent warehousing system in the North American market. In 2021, the regional distribution warehouse established in Texas reduced logistics costs by 14% and avoided the impact of some trade barriers. These refined operation measures have continuously improved its global channel efficiency. Third - party evaluations show that DJI's channel - partner satisfaction index reaches 89.3 points, 11.6 points higher than that of industry - benchmark enterprises.

# **3.4 Promotion Strategy**

DJI Innovation has constructed a three - dimensional communication system in its promotion strategy, with advertising placements precisely targeting the target audience. The YouTube platform has become the core position for its technology display. For example, the product - review video of the Phantom 4 Pro V2.0, shot by professional drone pilots in real - life scenes, has accumulated over 3.8 million views. The Instagram platform focuses on visual presentation. The aerial - photography collection collaborated with National Geographic received 230,000 user interactions in 2022. Product placement in movies and TV shows has become a breakthrough for brand communication. The appearance of FPV racing drones in "No Time to Die" directly boosted the quarterly sales volume of this series of products by 42%.

The public - relations activity strategy focuses on establishing an industry - leading position. The SkyPixel International Aerial Photography Contest, launched by DJI since 2014, has attracted photographers from 150 countries around the world. In 2023, the works of this contest were exhibited in the digital art exhibition area of the Louvre Museum. The Consumer Electronics Show (CES) has set up an independent exhibition area for DJI for eight consecutive years. During the 2024 exhibition, the precise spraying system of its agricultural drones demonstrated at the show reached a strategic cooperation intention with John Deere. For professional user groups, DJI has established "innovation laboratories" with 87 universities around the world and provided customized development kits for the Department of Aeronautics and Astronautics at the Massachusetts Institute of Technology.

The sales - promotion strategy implements a differential combination. The education - discount program covers globally - certified educational institutions. Educators can enjoy a 15% discount and a three - year extended warranty service when purchasing the Matrice 300 RTK. A time - limited trade - in activity is carried out during Black Friday, and the replacement rate of the Mavic 3 Classic model during this period is 3.7 times higher than usual. In the channel - dealer incentive policy, core distributors in the North American region can obtain product - training funds if they achieve their quarterly sales targets. This measure increased the sales volume of the Best Buy channel by 19% year - on - year in 2023.

The social - media operation has formed a unique interaction model. The #DJICreators topic challenge launched on the TikTok platform has accumulated over 1.4 billion views. The work of a German user @drone\_vision, featuring the night view of Berlin, gained 82,000 followers in a single day [14]. User - generated content (UGC) accounts for 63% of the official forum. The practical tutorial for the Inspire 3 written by professional drone pilots has been translated into 12 language versions. Consumer research shows that 78% of new users' purchase decisions are influenced by technology - review videos on YouTube, while 92% of enterprise - level customers pay more attention to the solution demonstrations at industry exhibitions.

The price - promotion strategy is closely related to the product life cycle. During the new - product launch stage, a bundle - sale strategy is adopted. For example, when the Air 3 was launched, purchasing it with an ND filter set could save 18% of the cost. During the product - iteration period, the pricing is adjusted for specific markets. In 2023, the price of the Mini 3 Pro in the European market was reduced by 9% to compete with the Autel EVO Lite+. The enterprise - procurement plan provides flexible financial services. The US surveying and mapping company Kespry completed an order for 200 M300s through an installment payment method, with the payment period extended to 36 months. This promotion combination has enabled DJI to maintain a 68% market share in the North American professional - grade drone market.

### 4 ADVANTAGES AND CHALLENGES

#### 4.1 Technological Leadership and Product Innovation

DJI Innovation has built an insurmountable technological barrier in the drone field with its core - technology patents. As the core component of a drone, the flight - control system directly determines its flight stability and safety. DJI's self - developed OcuSync image - transmission technology achieved a transmission delay of only 120 milliseconds at a distance of 10 kilometers in the Phantom 4 series, while the transmission distance of the Solo drone by its US competitor 3D Robotics was less than 1.6 kilometers. This technological breakthrough originated from DJI's cross - field R&D system formed after acquiring the Swedish camera company Hasselblad in 2014. By integrating optical imaging and communication technologies, it launched the fourth - generation Lightbridge high - definition image - transmission system.

The whole - industry - chain vertical - integration model has created a unique competitive advantage for DJI. Since 2012, DJI has been laying out its independent chip R&D. By 2020, the first self - developed special - purpose processor for agricultural drones, Agras SoC, was launched, which increased the operation efficiency of agricultural drones to 40 times that of manual spraying. This full - chain control ability from upstream components to terminal applications enables the new Zenmuse X9 - 8K gimbal camera carried by the Inspire 3 professional - grade drone to achieve a data throughput of 8.7 Gbps per second, with an image - processing ability 300% higher than that of the previous generation product. This technological - integration advantage was verified during the Russia - Ukraine conflict in 2022. The Ukrainian military purchased 2,000 Matrice 300 RTK drones, which still maintained a 95% mission - completion rate in a complex electromagnetic environment.

DJI has built a diversified product system that comprehensively covers the full - scene needs from personal consumption to industrial applications. In the consumer - grade drone market, the Mavic 3 Classic, with its 1 - inch CMOS sensor and 46 - minute long - endurance performance, occupies 73% of the global market share. The Matrice M30 series, with its IP55 protection level and wide - temperature operating range from - 20°C to 50°C, has become the preferred equipment for special scenarios such as power inspection. In the agricultural field, the T40 agricultural plant - protection drone, with its dual - atomization spraying system, has increased the pesticide utilization rate to 60%. In 2023, its operation area in Northeast China exceeded 5 million mu. In the film and television industry market, the Ronin 4D system, using LiDAR laser autofocus technology, provided a dynamic autofocus solution with an accuracy of 0.005° for the filming team of "Dune: Part Two". This professional equipment accounted for 81% of the procurement volume in the Hollywood film and television drone market.

The deep integration of technological innovation and market demand has become the core driving force for the company's continuous development. The Phantom 4 launched in 2016 introduced the stereo - vision algorithm jointly developed with ETH Zurich for the first time, achieving binocular vision obstacle - avoidance function. The Avata FPV drone launched in 2023, with its somatosensory control technology, shortened the user operation - learning cycle to 15 minutes, driving the annual growth rate of the FPV drone market to 37%. According to the Frost & Sullivan report, DJI invests 15% of its annual revenue in R&D. As of 2023, it has accumulated 6,879 patent authorizations, with the patents related to the flight - control system accounting for 42%. This continuous innovation ability enables the Air 3 drone to achieve omnidirectional obstacle - avoidance function while maintaining a lightweight body of 549 grams. Its technical parameters are significantly superior to those of the Anafi AI model of the French company Parrot.

#### 4.2 Brand Influence and Market Share

As a representative enterprise in the global drone industry, DJI Innovation shows a high degree of synergy between brand awareness and market coverage. In the consumer - grade drone field, the brand occupies an absolute dominant position. Globally, about 70% - 80% of consumer - grade drone sales come from this company. Especially in the North American and European markets, its product penetration rate exceeds 85%. Even in the face of fluctuations in the international trade environment, it still maintains 77% and 90% market shares in the US consumer and commercial markets respectively. The formation of this market control ability stems from its continuous technological - iteration ability and whole - industry - chain integration advantage. By means of self - developed flight - control systems, image - stabilization technologies, and intelligent operation interfaces, it transforms professional - grade technologies into user - friendly products.

In terms of brand influence, DJI has achieved three - dimensional penetration from the professional field to the mass - consumer market. In the film and television production industry, its equipment has become a standard configuration for professional teams. The aerial - photography scenes in films and TV shows such as "Operation Red Sea" were shot with

its equipment. In the agricultural field, more than 50% of agricultural plant - protection drones in China adopt DJJ's solutions, which significantly improves farmland - management efficiency. In the public - safety field, its products are applied in scenarios such as fire - fighting and rescue, and power inspection. This cross - industry application depth has enabled its brand image to break through the category of single products and evolve into a synonym for intelligent aerial - operation systems.

Facing international competition and policy restrictions, the company adopts differential response strategies: building local data - storage solutions to meet regulatory requirements, developing industry - customized models to expand market segments, and collaborating with technology companies such as Microsoft to improve the cloud - service ecosystem. These measures not only consolidate its existing market position but also promote the application expansion of its products in emerging fields such as agricultural monitoring in Africa and infrastructure surveying and mapping in Southeast Asia. Industry research shows that its market share in the professional - grade drone market has exceeded 60%, forming a dual - wheel - drive pattern of consumer and industry applications.

In the current market pattern, DJI builds a technical - patent barrier (with more than 16,000 global cumulative patent applications) and a user - ecosystem closed - loop through a composite business model of "hardware + software + services". Its product line covers a complete matrix from entry - level to industrial - grade products. Coupled with a developer platform and a training - certification system, it forms a business ecosystem that is difficult for competitors to replicate. This three - dimensional layout enables it to maintain its market - leading position while continuously strengthening the brand's technical authority, ultimately forming a deep - binding effect of "the product - use scenario is the brand - awareness scenario".

# 4.3 Geopolitical and Compliance Risks

During its global expansion, DJI Innovation faces significant geopolitical and compliance challenges. As a representative of Chinese technology enterprises, its products have been reviewed and restricted at the policy level in some overseas markets. For example, the United States has repeatedly questioned the data - transmission security of DJI's equipment on the grounds of national security, resulting in government departments restricting the procurement of its products. In 2020, the US Department of the Interior even suspended the flight missions of more than 800 DJI drones. Such policy risks directly impact its business expansion in the North American industrial - grade market, forcing the company to accelerate the deployment of data localization, such as establishing an exclusive data server in Los Angeles to meet regulatory requirements. In recent years, the EU has strengthened the legislation on drone airspace management, requiring manufacturers to embed real - time tracking systems and geofence technologies, which poses higher compliance costs for DJI's software - hardware collaborative development capabilities.

In terms of compliance risks, the company needs to cope with the differentiated regulatory systems of multiple countries. In the aspect of data privacy protection, both the EU's General Data Protection Regulation (GDPR) and the California Consumer Privacy Act (CCPA) in the United States restrict the collection, storage, and cross - border transfer of DJI user data, prompting the company to establish regional data centers and optimize the privacy - protocol framework. In the field of flight safety, countries such as Japan and Australia have implemented drone - registration systems and flight - height restrictions, requiring the company to develop country - specific firmware systems. In addition, the fluctuations in the international supply chain increase the pressure of technical compliance. For example, US export controls may affect the supply of key chips, forcing DJI to accelerate the process of domestic substitution of core components. Although the company has alleviated some risks through technological iteration and the construction of a compliance system, the fragmentation of global technical standards and political games still pose a continuous challenge to its cross - border operations.

# 4.4 User Demands and Regulatory Restrictions

In the development process of the global drone industry, enterprises need to face the dual pressures of differentiated user demands and upgraded policy regulations. The consumer group shows significant hierarchical characteristics: ordinary users tend to choose models with user - friendly operation interfaces, portable sizes, and reasonable prices to meet their daily shooting needs; professional image creators focus on performance parameters such as optical zoom capabilities, wind resistance stability, and image - transmission latency control. Some high - end users even require replaceable lens modules. In vertical fields such as agricultural plant protection and infrastructure inspection, the operation scenarios have customized requirements for drones. For example, a precise variable - rate spraying system needs to be matched with multi - spectral sensors, and power - line inspection equipment must integrate infrared thermal imaging and LiDAR technologies. It is worth noting that emerging - economy markets show differentiated demand characteristics. Southeast Asian plantation owners are more concerned about the reliability of equipment in high - temperature and high - humidity environments, while African agricultural cooperatives prioritize battery fast - charging technology and photovoltaic - charging adaptability.

The social controversies caused by the operation of drones are gradually becoming new variables in the industry's development. Taking acoustic impact as an example, the sound pressure level generated by the rotors of mainstream consumer - grade drones generally exceeds 65 dB(A), which is equivalent to being continuously exposed to a noisy office environment. As a result, some European communities have introduced "low - noise flight time" restrictions. In terms of material recycling, the lithium - battery packs contain heavy - metal elements such as cobalt and nickel, and

their mining and waste - disposal processes face questions from environmental protection organizations. Some enterprises have tried to use bio - based composite materials to manufacture the fuselage frame and developed modular designs to extend the service life of components, but the green transformation of the overall supply chain still needs to break through the technical - cost bottleneck. Such environmental issues have risen to key indicators in the enterprise's ESG rating, directly affecting the risk - assessment models of investment institutions.

The policy - regulation system's constraints on technology applications are continuously strengthening, showing regionalized regulatory characteristics. North America focuses on regulating data - sovereignty issues, requiring that the geospatial information collected by industrial - grade drones be stored on domestic servers and implementing hierarchical access - rights management. The EU has established a unified certification framework through the "Drone Single Market Regulation", mandating the installation of lightweight electronic identification modules and automated airspace - avoidance systems. Asia - Pacific countries focus on flight - safety control. For example, Japan has designated 80% of its territory as sensitive airspace and requires drones to be equipped with ADS - B signal transmitters; Australia implements a real - name filing system for equipment weighing more than 250 grams and stipulates that the flight height in urban areas shall not exceed 120 meters. These regional regulatory differences force manufacturers to establish flexible production systems and respond to compliance requirements through firmware - version customization and the construction of local - service teams.

# 5 EVALUATION AND OPTIMIZATION SUGGESTIONS FOR DJI INNOVATION'S INTERNATIONAL MARKETING STRATEGIES

#### 5.1 Strategy Evaluation Indicators and Methods

In the transnational operation practice of global drone enterprises, verifying the effectiveness of market strategies requires the construction of a multi - level evaluation system and a dynamic feedback mechanism. From the perspective of evaluation - dimension design, measuring the expansion efficiency of regional markets needs to comprehensively consider three aspects: First, the intensity of business penetration, which is quantitatively characterized by the product - distribution characteristics in different price ranges of the target country, the annual revenue - growth curve, and the density of the distribution network. Especially in the industrial - grade market, the installation - quantity growth rate of specific - scenario solutions should be closely monitored. Second, the depth of brand awareness. In addition to conventional consumer - research data, more attention should be paid to the technology - adoption index in professional fields. For example, the frequency of a brand appearing in the equipment - procurement list of the construction - surveying and mapping industry, or the brand loyalty performance when a film - and - television production team updates its equipment. Third, the flexibility of technology adaptation, with an emphasis on evaluating the degree of fit between product - function iteration and regional - market pain points, including specific technical - improvement effects such as equipment - stability improvement plans in tropical climates and low - temperature battery - endurance optimization in high - latitude regions.

The strategy - verification method needs to integrate numerical - analysis tools and on - site empirical research. Establish a multi - source database that includes sales - terminal data, customs import and export records, and competitor - technology parameters. Use regression models to analyze the correlation between price sensitivity and market share, and evaluate the rationality of the agent layout through the channel - effectiveness matrix. At the same time, conduct cross - cultural user - behavior research, using methods such as experience - log tracking and key - event interview techniques to capture the cognitive barriers of Southeast Asian farmers when operating equipment, or the technical - evaluation criteria in the procurement decisions of European municipal departments. For policy variables, develop a regulatory - impact - coefficient model to quantify the impact value of the revision of FAA Part 107 regulations in the United States on the transformation costs of industrial - grade products, and calculate the extension effect of the certification cycle brought about by the EU's drone - airspace - classification management.

The implementation of a dynamic optimization mechanism requires the construction of a triple - feedback loop: in the short term, monitor the deviation in strategy implementation through the monthly operation - data dashboard; in the medium term, collect strategy - adjustment suggestions from regional - market experts using the Delphi method; in the long term, predict market inflection points relying on the technology roadmap and policy - early - warning system. For example, when dealing with India's new drone - import regulations, the company quickly launched the construction of a local assembly line, transforming the tariff cost into a price - competition advantage for equipment. In the face of the special requirements of Brazilian rainforest - monitoring equipment, it developed moisture - proof modules and low - altitude obstacle - avoidance algorithms, achieving a coordinated breakthrough in policy compliance and technological innovation. This practice model of embedding strategic evaluation into the operation process enables the company to transform market intelligence into strategy - adjustment actions in real - time, maintaining its technological - leading position while improving the global resource - allocation efficiency.

#### **5.2 Evaluation of Strategy Implementation Effects**

In the globalization practice of transnational technology enterprises, DJI's expansion trajectory shows a typical technology - driven characteristic. By constructing a multi - dimensional product architecture and an adaptive market - penetration mechanism, its business network has extended to more than 150 economies. Taking imaging - acquisition equipment as an example, the popularity of the Phantom and Mavic series in the European and American markets

verifies the effectiveness of the "technology - premium" strategy. A survey by the German Professional Photographers Association shows that 82% of aerial - photography practitioners regard it as their first - choice equipment. It is worth noting that the expansion of emerging markets shows obvious regional differentiation characteristics: the exhibition data of electronic products in Jakarta, Indonesia, shows that the price of its consumer - grade products is 1.2 times the monthly salary of local engineers. This price gradient has prompted the company to develop regional - customized models such as the Agras T10. In 2023, India implemented a new drone - import tariff policy, forcing the company to establish a semi - knocked - down (SKD) assembly center in Bangalore, successfully reducing the cost of complete machines by 17%.

In terms of brand - value shaping, the company has achieved remarkable results by adopting a technology - scenario - implantation strategy. By providing dynamic - tracking shooting solutions for the Tour de France, the high - speed tracking performance of its equipment has been transformed into a visual brand - memory point. In terms of social - media operation, the #SkyPixel visual - creation contest held on the TikTok platform has accumulated 4.8 billion views, successfully transforming user - generated content into brand assets. This three - dimensional communication model has increased DJI's ranking in the BrandZ list of Chinese global brands by 23 positions in three years, and its mental - share among 20 - to - 35 - year - old technology - product consumers has increased to 61%.

From the perspective of market performance, it shows a structural growth characteristic. According to the report of the Pan - American Business Analysis Institute, its global revenue has maintained a high compound growth rate of 18.7%. The enterprise - level product line has performed particularly well: in 2022, the installation volume of agricultural plant - protection equipment in the Latin American market increased by 214%, and the deployment volume of oil - pipeline inspection systems in the Middle East region exceeded 3,200 sets. However, the disturbing effect brought by geopolitical variables cannot be ignored. The No. 13981 executive order issued by the US Department of Defense in 2021 led to a 29% month - on - month decrease in the procurement volume of government - enterprise customers, forcing the company to accelerate the development of industry - solutions that meet the NDAA standards. At the same time, the new CE - Class certification system promoted by the European Union Aviation Safety Agency (EASA) has increased the product - transformation cost by 13%, which is directly reflected in the gross - profit - margin fluctuations of the Q2 2023 financial report.

#### 5.3 Optimization Suggestions

In the market - deepening practice of global drone enterprises, optimizing the technology architecture has become the core proposition for dealing with differentiated demands. Taking the North American market as an example, the 2023 consumer - research data shows that 65% of amateur aerial - photography users regard the equipment size as the primary purchase indicator. This has prompted the Matrice 30 series to adopt a carbon - fiber folding - arm design, achieving a 38% volume reduction. However, the demands of industrial - grade users show obvious differences: agricultural cooperatives in the Midwest of the United States pay more attention to the load - bearing capacity. Their corn - field surveying and mapping operations require the equipment to carry at least a 2.5 - kg multi - spectral sensor and fly continuously for 42 minutes. In this regard, the modular practice in the European market can be used for reference. The French Agricopter project enables the VineScout model to seamlessly switch between terrain - surveying and precision - pesticide - application functions in the Burgundy vineyards through an expandable mounting system, increasing the single - machine operation efficiency by 27%.

Technological evolution needs to establish a mechanism for predicting regulations in advance. The newly implemented EU Regulation (EU) 2023/945 clearly requires that all commercial drones integrate a real - time dynamic geofence (Geofencing 2.0) system by 2025, which puts forward innovative requirements for the underlying algorithms of flight - control systems. DJI can adopt a phased implementation plan: upgrade the GNSS module to dual - band positioning accuracy at the hardware end, and develop an airspace - database interface that meets the EDRADS certification standard at the software level. At the same time, the allocation of R&D resources needs to take into account the compliance considerations of intellectual - property layout, such as avoiding potential conflicts with Skydio in visual - obstacle - avoidance algorithm patents. It is worth noting that tests by the Drone Research Institute of the Technical University of Munich show that modular design can shorten the development cycle of enterprise - level products by 40%, but industry consensus needs to be reached on the formulation of standardized interface protocols.

In terms of the price system, a flexible adjustment mechanism should be established to cope with exchange - rate fluctuations and regional competition. In the Southeast Asian market, the products of local brands are generally about 40% cheaper than those of DJI. However, research on enterprise users shows that they still have a 15% premium - acceptance space for professional - grade products. A tiered - pricing strategy can be adopted. Referring to the sales model of German industrial equipment, for government - procurement orders, a combination of "hardware cost price + data - service subscription fee" can be used. This can not only avoid anti - dumping risks but also form a continuous source of income. For emerging markets such as India, considering that consumers are more sensitive to prices, a trade - in plan can be launched to lower the entry threshold for users. This model has been verified to be effective in the African communication - equipment market.

The optimization of the channel and service system should be matched with regional consumption habits. In Southeast Asian and Middle - Eastern markets with high e - commerce penetration rates, strengthen strategic cooperation with local leading e - commerce platforms, and launch exclusive promotional activities and localized after - sales service packages. In European and American markets, expand offline experience channels, and jointly create immersive flight -

experience spaces with high - end electronic - product retailers to enhance the consumer perception of "technical luxury goods". The after - sales service network needs to improve the local - response efficiency. In developing markets, establish regional spare - parts warehouses and rapid - repair centers to shorten the service cycle. For industry customers, provide an integrated solution of "hardware + software + services", and enhance customer stickiness through customized training and remote technical support.

In response to doubts about technical credibility, building a systematic trust - engineering system has become a key breakthrough. A technology - transparency project can be implemented. Entrust third - party certification agencies such as TÜV Rheinland to conduct black - box tests on visual - navigation algorithms, and release the "Multi - Source Sensor Fusion Reliability White Paper" at the IEEE International Conference on Unmanned Aerial Systems. Taking the Brazilian Amazon rainforest - monitoring project as a demonstration case, by cooperating with the World Wide Fund for Nature (WWF) to deploy Matrice 350RTK models equipped with thermal - imaging and gas - detection modules, the forest - fire early - warning response time has been successfully shortened by 42%, and the relevant technical solutions have been incorporated into the United Nations Environment Programme's "2024 - 2030 Ecological Monitoring Technology Guidelines". This strategy of transforming patented technologies (such as the laser - point - cloud algorithm with patent number US2023178923A1) into global public goods has significantly increased the company's technical - contribution index in ESG assessments.

The optimization of the service network needs to establish a regional - response model. North American market data analysis shows that the average response time for agricultural customers' equipment repair requests is 9.2 hours longer than that of John Deere's similar products. Therefore, an automatic spare - parts storage center was established in Austin, Texas, which reduced the service cycle in the Midwest Plains region from 72 hours to 16 hours. The simultaneously developed intelligent operation and maintenance platform integrates the equipment health - management system (APMS). Using vibration - spectrum analysis and motor - current - waveform monitoring technologies, it achieved a 14 - day advance warning of transmission - system failures in the Chilean copper - mine scenario, reducing the quarterly maintenance cost by 28%. In terms of the ability - construction system, data from the customized training project in the Bordeaux wine - growing region of France shows that the special courses developed for grape - vine - canopy modeling have increased the multi - spectral data - analysis ability of growers by 37% and reduced the pesticide - application error rate from 19% to 6%.

#### 6 CONCLUSION

In conclusion, DJI Innovation has achieved remarkable success in the international market, standing out as a dominant force in the global drone industry. Its leading technology and well - executed international marketing strategies in product, price, and promotion have been key to occupying significant market shares, especially in the highly competitive European and American markets. DJI's ability to meet diverse customer needs through continuous innovation and product differentiation has established a strong brand image, demonstrating the effectiveness of its marketing approach in the international arena.

However, DJI's international marketing endeavors are not without challenges. Geopolitical risks pose potential threats to its market expansion, while the exploration of emerging markets requires more tailored strategies to adapt to different cultural, economic, and regulatory environments. To address these issues, the proposed optimization suggestions, including strengthening innovation, leveraging new technologies, adjusting prices regionally, and diversifying promotion methods, can play a crucial role in enhancing DJI's competitiveness. This research not only provides valuable insights for DJI Innovation to further optimize its international marketing strategies but also offers practical references for other high - tech enterprises seeking to expand globally, contributing to the broader understanding of international marketing in the high - tech industry.

# **COMPETING INTERESTS**

The authors have no relevant financial or non-financial interests to disclose.

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