

The Future of Chinese Drone Manufacturers in the Global Market

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Abstract

Driven by technological advances, Chinese drone manufacturers have occupied an important position in the global unmanned aerial vehicle market. This paper takes DJI as a typical case, applies market-entry theory and SWOT analytical framework to explore the competitive status, internal strengths and weaknesses, as well as external opportunities and threats of Chinese drone enterprises in global competition. It sorts out major international market-entry approaches including exporting, licensing, joint ventures and green-field investment, and discusses corresponding SO, ST, WO and WT strategic orientations for drone manufacturers. The study shows that complete industrial-supply chains, leading core technologies and large global market share constitute core competitive edges for Chinese drone firms. Nevertheless, they are confronted with technical bottlenecks, component-supply risks, cross-national regulatory barriers and geopolitical challenges. Facing booming demand from emerging markets and expanding UAV-enabled application scenarios, Chinese drone manufacturers can achieve sustainable global development via continuous technological innovation, differentiated product layout, localized compliance adaptation and diversified market expansion. Chinese drone enterprises possess huge potential and will become a vital driving force for the development of the worldwide drone industry.

Keywords

Chinese Drone Manufacturers; Global Market; SWOT Analysis.

1. Introduction

1.1. Problem

Advances in science and technology have enabled the Chinese drone industry to become a major player in the global drone market. The applications of this technology range from military reconnaissance to civilian film production, from agricultural pest control to logistics and distribution, and from passenger transport to rescue operations and medical treatment. Chinese drone manufacturers have established a strong presence in the global market through innovative technologies and a high level of competitiveness. The drone boom has also contributed to the worldwide fame of Chinese drone manufacturers such as DJI. This seminar paper examines the topic ‘The Future of Chinese Drone Manufacturers in the Global Market’ to demonstrate why Chinese drone manufacturers hold a strong position in the global market and how they can demonstrate greater competitiveness in the global market in the future. The relevance of this topic stems, among other things, from the fact that Chinese drone manufacturers are a major force in the global market and hold a market share in several countries. The practical relevance of the topic arises from the growing field of drone applications.

1.2. Objectives

The aim of this seminar paper is to address the three research questions listed below. The first step is to gain a thorough understanding of the concept and methodology of market entry in

order to analyse the reasons why Chinese drone manufacturers are able to occupy a significant position in the global market. Building on this first research question, the second question will be used to describe in greater detail the strengths, weaknesses, opportunities and threats facing Chinese drone manufacturers such as DJI, using a SWOT analysis approach. Finally, forecasts regarding the prospects and future developments of Chinese drone manufacturers will be provided.

2. Basic Definition

2.1. Drones

Unmanned aerial vehicles, or UAVs for short, is a collective term for aircraft that do not have a human pilot on board. They are operated using radio-controlled devices and autonomous software systems. In some cases, UAVs are also controlled entirely or partially autonomously by on-board computers.[1]

2.2. Market

2.2.1. Definition

In economics, the term 'market' is used to describe the meeting or regulated bringing together of supply and demand in relation to a good or service. These are collectively referred to as economic goods. Exchange is the fundamental principle of a market and is generally carried out using a medium of exchange (in particular, money).

2.2.2. Types and Forms

Markets are classified into four types: perfectly competitive markets, monopolistically competitive markets, oligopolistic markets and monopolistic markets. This classification is based on the characteristics of the various market structures.

2.3. Market Entry

2.3.1. Definition

The term 'market entry' refers to the initial launch of a product in a specific market. This may involve a brand-new product that the supplier wishes to launch for the first time in a specific target market, or an established product that the supplier wishes to launch in a new market (e.g. abroad).

2.3.2. Various Strategies

The penetration pricing strategy is a strategy that uses low prices to rapidly capture market share and exploits price elasticity to undermine brand loyalty; it is suitable for highly competitive markets. However, it must be implemented carefully to avoid damaging the brand image, and relies on economies of scale to be profitable. They carry the risks of a long payback period, the difficulty of raising prices, and the need for technological optimisation to prevent counterattacks.

The skimming pricing strategy is characterised by high prices at the start of the market, targeting consumers with a high willingness to pay, followed by successive price reductions to expand the market; this strategy applies to highly innovative products. Essentially, R&D costs are recouped quickly through high early contribution margins and depend on market segmentation. For this reason, 'moats' must be built to protect against competitors.

Product differentiation refers to meeting the needs of a specific consumer group by offering unique product features, high-quality services or innovative marketing methods that differ significantly from those of the competition. This methodology applies to products or services that offer high added value.[2]

2.3.3. Demographic Change

Market research begins with a detailed survey to assess demand, competition, market size and growth potential in the relevant market. This helps to minimise risk and ensure that resources are invested in highly competitive markets.

When developing a specific market entry strategy, consideration must be given to selecting an appropriate market positioning, target customer segments, pricing strategies for the products and other measures.

As part of product development, manufacturers must ensure that products meet market needs and find target customers. Furthermore, manufacturers must ensure quality, functionality, cost-effectiveness and competitiveness.

Brand building and promotion involve establishing the brand image and increasing brand awareness through advertising and public relations. The use of digital marketing, social media and other channels to generate attention and attract potential customers is crucial in this regard. The development of distribution channels involves establishing effective distribution channels, including online and offline distribution networks. Manufacturers are responsible for ensuring that products reach consumers smoothly and for providing good customer service. After entering the market, manufacturers must continuously monitor the market, track feedback and competition, and adapt their strategies in a timely manner to market changes.

Following these steps enables manufacturers to minimise the risk of market entry and maximise their chances of success.

2.4. Market Entry Strategies

2.4.1. Definition

Market entry strategies are plans and methods used by companies to facilitate the launch and sale of products or services in a new market.

2.4.2. Necessity

The company is dedicated to researching effective strategies for international market entry, with the aim of expanding its business globally, overcoming challenges and succeeding in new markets. Expansion into international markets offers a range of benefits.

Access to new customers and markets is a key factor in a company's success. International market entry strategies are a tool for tapping into a larger customer base and gaining access to new markets that offer untapped potential for revenue growth.

Diversification and risk mitigation: Expansion into international markets enables companies to diversify their business activities and reduce their dependence on a single market. This helps to mitigate risks associated with economic downturns or market-specific challenges.

International market entry is crucial for companies to gain competitive advantages and establish themselves as global market leaders in their industry. This, in turn, strengthens their brand image and gives them an edge over their competitors.

2.4.3. Types and Forms

The choice of an appropriate international market entry strategy depends on a variety of factors, including market conditions, the company's international experience, its resources and capabilities, and its strategic objectives. Some of the most common international market entry strategies are outlined below.

Export: Here, the company sells its goods or services to customers in another country via direct or indirect sales channels. This strategy utilises existing production and distribution networks to enter new markets with low risk and low investment.

Licensing or franchising: The company allows a business in the target country to use its brand, product or processes, often in return for a fee or a percentage of turnover. This strategy enables rapid expansion whilst reducing capital investment and operational control.

Partnership or joint venture: The company forms an alliance with one or more companies in the target country to jointly serve a new market. This approach helps companies leverage their partners' distribution networks, customer base and regulatory expertise, and is particularly suitable for entering markets with complex regulations or cultural differences.

Greenfield investment: The company establishes new production facilities in the target country.

Acquisition: The company acquires an existing company in the target country.

Selecting an appropriate market entry strategy requires a careful evaluation of the respective advantages and potential implications. It is crucial to carefully assess the specific market conditions, business objectives, resources and capabilities before selecting the most suitable strategy.

3. SWOT Analysis

3.1. Definition

The term 'SWOT analysis' refers to a method used to assess a company's internal structure and its market position. The acronym SWOT is formed from the first letters of the English terms for strengths, weaknesses, opportunities and threats. By combining these four aspects, it is possible to devise creative measures and strategies that can ensure the success of an organisation or individual.

The purpose of a SWOT analysis is to conduct an in-depth analysis of the internal and external environment, to accurately identify strengths and weaknesses, to pinpoint opportunities, to respond effectively to threats, to formulate strategic plans in a systematic manner, and to achieve sustainable and steady development and success.[3]

3.2. How it Works

The SWOT analysis provides a comprehensive analytical framework for the strategic planning and decision-making of an organisation, a project or an individual by assessing four key aspects of their organisation: strengths, weaknesses, opportunities and threats.

Strengths: Identifying areas that are performing well internally and understanding what is already working well, so that these successes and techniques can be applied to other areas in need of improvement.

Weaknesses: Analysing areas that are not achieving the desired results internally, identifying opportunities and resources for improvement, and providing a starting point for enhancing performance.

Opportunities: Building on existing strengths and weaknesses, this examines what can be done externally to strengthen the competitive position, including resources to address weaknesses and untapped market gaps.

Threats: Identifying external areas that could cause problems. These risks are often uncontrollable and require attention to changes in the industry, new market trends and the performance of competitors.

By combining these four areas, the SWOT analysis provides a clear overview of the strengths and weaknesses of a company or individual and highlights opportunities for improvement and strategic directions for addressing threats, contributing to sustainable and robust growth and success.

3.3. Advantages

The SWOT analysis is a flexible and comprehensive analytical tool for positioning companies or projects within economic or cultural contexts. A key aspect of the analysis is the evaluation of its ability to facilitate comparison with competitors. The development of strategies for improvement and risk avoidance: By identifying strengths and weaknesses as well as opportunities and threats, the SWOT analysis contributes to the development of targeted strategies to address shortcomings or avoid potential threats. Data collection within the framework of the SWOT analysis is characterised by transparency and clarity. This enables users to accurately assess and understand both their internal and external situations.

The application of SWOT analysis is straightforward and can also be presented visually. It is a descriptive tool that reduces the complexity of the analysis and is therefore considered easy to use.

Integration of internal and external factors: SWOT analysis integrates both internal and external influencing factors, thereby forming a sound basis for positioning, strategic adaptation and further decision-making.

3.4. Strategies

SO Strategy: Under this strategy, the company focuses on its existing strengths and external opportunities. By developing and reinforcing these strengths, it can further increase its profits or expand its market share and achieve rapid growth.

ST strategy: In the face of potential external risks or threats, companies skilfully deploy their strengths to ward off or mitigate these risks, thereby ensuring they remain stable in a volatile market environment.

WO strategy: When a company identifies specific weaknesses and the external environment offers attractive opportunities, it should actively seek ways to turn these weaknesses into strengths in order to fully capitalise on these opportunities and achieve rapid development.

WT strategy: Under this strategy, companies address their own weaknesses and external risks; by reducing or eliminating these weaknesses, they can effectively reduce the risks to which the company is exposed and ensure the smooth operation of the business.

Each of these four strategies has its own merits, and companies should select and apply them flexibly in accordance with their own actual situation and changes in the external environment.

4. DJI as a Corporate Example

4.1. About DJI

DJI, known as Shenzhen DJI Innovative Technology Co., Ltd, is the world's leading manufacturer of drones and a pioneer in the field of aerial imaging systems. Since its foundation, DJI has been committed to the research, development and innovation of drone technology in order to drive the industry forward. With a strong R&D team and advanced technologies, DJI has achieved remarkable successes in the fields of drone flight control, navigation, power systems and imaging. Its products cover consumer, professional and industrial applications to meet a wide range of needs. DJI actively participates in the development of industry standards and focuses on social responsibility, supporting disaster relief, environmental protection and other areas. As a global market leader in the drone industry, DJI has earned the trust of users worldwide thanks to its technological strength, product range and commitment to social responsibility. DJI will continue to dedicate itself to the research and development of drone technology and lead the industry through new developments.[4]

4.2. Analysis of DJI Using a SWOT Matrix

DJI is now the world's leading developer and manufacturer of drone flight control systems and drone solutions, with customers in more than a hundred countries around the world, accounting for 70% of the global market. As a microcosm of the growth of the Chinese drone industry, analysing DJI's strengths, weaknesses, opportunities and threats is of great significance for investigating the competitiveness of the Chinese drone industry.

Strengths: Comprehensive industrial and supply chains: The growth of Shenzhen's manufacturing base has driven the industrialisation of drones and the formation of a comprehensive industrial chain, effectively reducing costs and accelerating the industrialisation process. Companies such as DJI have benefited from this boom and are further reducing their costs through economies of scale and sophisticated supply chain management. The Greater Bay Area's robotics industrial chain provides DJI with cost efficiency and shorter product development cycles. DJI's leading drone technology-including its self-developed flight control, image processing and sensor technology of international standard, as well as its strong capability for technology migration-has been applied to intelligent robotics and autonomous driving to create a 'land and air' ecosystem.

Large market share: DJI holds a leading position in the global drone market, with an extremely high market share in consumer and commercial drones. Among these, the global market share of consumer drones exceeds 70%, and the penetration rate in the North American market reaches 85%, with excellent technical capabilities.

Weaknesses: DJI's drone technology is difficult to penetrate: DJI's drone technology faces challenges: technical bottlenecks, limited range restricting applications, poor weather resistance affecting deployment, and high dependence on key components with significant supply chain risks. DJI drones are highly commoditised, and the fundamental technological barriers are being challenged. Capital and companies are flooding in, competition is intensifying, and product imitation is eroding the advantages. DJI must strengthen technological innovation and confidentiality.

Opportunities: In a market economy, the development of drone technology is market-driven and decoupled from the high costs of military technology. The era of 'UAV+' has dawned, with applications in agriculture, transport, entertainment and many other areas, such as pesticide spraying, surveillance and aerial photography. Several global companies have announced drone programmes, and civilian drones have become part of everyday life. The Chinese drone market is growing rapidly – from RMB 800 million in 2015 to RMB 117.43 billion in 2023 – and will continue to show strong growth momentum in the coming years. DJI is expected to further expand its market share and open up new opportunities by developing new applications and providing solutions. Many countries have introduced measures to support the development and application of drone technology, which DJI can utilise to drive its own development. The drone industry in Shenzhen has received policy support from the government, which has laid the groundwork and provided crucial backing, and has been supported by industry associations that have established local industry standards, thereby laying the foundation for entry into the international market.

Risks: DJI holds a 70 per cent share of the global consumer drone market, but faces stiff competition from a number of strong rivals. These up-and-coming manufacturers stand out thanks to low prices, new features, different user interfaces and innovative designs. DJI must respond to both domestic and international competition, particularly from international rivals such as Skydio and Parrot, in order to remain at the forefront of continuous innovation. DJI's dominant market position is under threat as it faces challenges from strong competitors such as 3D Robotics and Parrot. At the same time, it is difficult to expand the market as the company struggles with differing drone regulations and licensing procedures across various countries.

Escalating geopolitical risks, procurement restrictions in the US and rising compliance costs in Europe further increase market risks. DJI is under pressure to further develop its technology and must continue to invest heavily in research and development (20% of revenue) to stay ahead of developments. At the same time, the company must contend with patent barriers and the potential disruptive impact of new technologies. Alternative technologies or products could enter the market in the future and threaten DJI's market share and profitability.[5]

The SWOT analysis of these four aspects of DJI allows the following SWOT strategy to be summarised:

SO Strategy: Building on its technological leadership and brand advantages, DJI should seize the opportunity to diversify its development, build a region-wide smart ecosystem, integrate drone technology with robotics and autonomous driving, expand into logistics, agriculture and smart cities, tap into the industrial products market, and accelerate the application of policy support in the Greater Bay Area.

ST Strategy: Strengthen compliance with technical barriers through localised data storage such as AWS US nodes to mitigate geopolitical risks and ensure regulatory compliance. Maintain a high product iteration frequency and launch 2–3 new models per year to erode competitors' market share. Diversify technological development pathways, explore new technologies such as quantum communication and edge computing, reduce reliance on traditional sources, increase technological autonomy, improve the company's ability to respond to risks, and prepare for future competition.

WO Strategy: Optimising the customer service network and establishing regional maintenance centres in collaboration with third parties to respond quickly to customer needs. Improving service quality to increase customer satisfaction and brand loyalty. Price tiering and mid-range models to meet the needs of price-sensitive users and expand the market. DJI developed low-cost agricultural drones for emerging markets in Southeast Asia to capitalise on growth opportunities.

WT Strategy: In the face of adverse conditions and threats, DJI has increased its R&D investment to enhance product safety and technological innovation, strengthened cooperation with the government to ensure regulatory compliance, and removed barriers to market expansion. Meanwhile, the company is diversifying market risks, focusing on emerging regions such as the Middle East and Southeast Asia, and building a collaborative ecosystem.

Looking ahead, DJI will continue to leverage its technological strengths and brand influence to seize growth opportunities in the market. At the same time, DJI will proactively respond to external threats and challenges and consolidate its leading position in the global drone market through continuous innovation and strategic adjustments.[6]

5. Conclusion

With a deep understanding of market entry concepts and strategies, Chinese drone manufacturers have managed to gain a significant foothold in the global market by implementing technological innovations and product differentiation strategies, as well as by localising their products and strengthening their international brand marketing. Despite their clear advantages, Chinese drone manufacturers still face challenges such as dependence on core technologies, international market expansion and regulatory requirements. New challenges also present new opportunities. With the continued growth in demand in emerging markets, accelerated technological integration and innovation, and the deepening of international cooperation, Chinese drone manufacturers stand at a new historical starting point. Chinese drone manufacturers have a bright future and enormous potential. It is expected that, through continuous technological innovation, deeper market expansion and the comprehensive development of internationalisation strategies, Chinese drone manufacturers will play a more

significant role in the global market and become a key driving force in the development of the global drone industry.

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