UDC 33 **DOI: 10.34670/AR.2023.98.43.013**

Promotion of unmanned aerial vehicles to the overseas market by Shenzhen DJI Innovation Technology Co., Ltd.

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This paper has been supported by the RUDN University Strategic Academic Leadership Program.

Abstract

The global market for unmanned aerial vehicles has been growing rapidly for over 10 years, and the market is forecast to continue to grow strongly in the coming years. The centers of development of the unmanned aerial vehicles market today are the markets of North America, China and Europe, however, other countries are also developing, but at a slower pace and volume. For the next 5 years, development trends are planned to continue, and the global drone market will grow by more than 3 times. Such a rapid development of the drone industry is associated with the active production and implementation of drones in the commercial and private sectors of society. The introduction and use of unmanned aerial vehicles in the commercial sector has given companies more opportunities to work, increasing the quality of work by obtaining clearer and more complete information on a particular object from a drone, increasing the speed of work, and most importantly, reducing the use of manual labor and increasing employee safety in cases where previously a person himself performed complex and dangerous work related, for example, to obtaining information in life-threatening places. The relevance of the topic of the article on bringing DJI drones to the North American market lies in the fact that it is the largest and at the same time the fastest growing market for unmanned aerial vehicles.

For citation

Jiachen Ye, Sakharchuk N.S. (2023) Promotion of unmanned aerial vehicles to the overseas market by Shenzhen DJI Innovation Technology Co., Ltd. *Ekonomika: vchera, segodnya, zavtra* [Economics: Yesterday, Today and Tomorrow], 13 (2A), pp. 167-174. DOI: 10.34670/AR.2023.98.43.013

Keywords

Russian-Chinese relations, development, construction, positioning strategy, unmanned aerial vehicles.

Introduction

Unmanned technology is one of the innovative business areas that is gradually entering our lives. Many international companies are developing in this direction.

Currently, there is an active introduction of high-tech innovative products. One of the areas of high-tech products is unmanned technologies, which means devices, vehicles and vehicles equipped with an automatic control system or controlled by a person from the outside, which can move without direct human participation.

For a long time, unmanned technologies have been related to the military, however, today they can be used in completely different areas of life in completely different ways: for example, research assistant robots, unmanned vehicles, unmanned rail and air vehicles, as well as unmanned aerial vehicles and much more.

To date, the world market of unmanned technologies presents a fairly wide range of unmanned technologies and the functional systems attached to them [Drones and the Coronavirus…, www].

The main advantages of introducing and using drones are:

– no direct involvement of the pilot – reduced risk to human life;
– lower energy consumption compared to traditional technologies;
– reducing the burden on the environment, environmental friendliness, no emissions;
– a large range of sizes, which allows you to use the size of the drone that is needed;
– unmanned aerial vehicles are capable of monitoring, reconnaissance and transmitting information in real time;
– ease of data collection.

Currently, the use of unmanned aerial vehicles is becoming more profitable and more efficient than the use of conventional technologies for various factors. There is a wide range of applications for unmanned aerial vehicles, but even today, in 2022, there is a constant opening of new areas for their use.

Speaking about the current areas of application of unmanned aerial vehicles, it is possible to distinguish 3 sectors in which unmanned aerial vehicles are mainly used – military, civil and environmental sector (see Table 1).

Table 1 - Unmanned aerial vehicle applications [Drones Market…, www]

CIVIL	ENVIRONMENTAL	MILITARY
Photographing the area	Air quality monitoring	Combat aircraft
Construction	Yield monitoring	Medical supplies in the war zone
Exploration	Soil condition monitoring	Intelligence service
Supplies	Water resources control	Border Guard
Agriculture	Underwater environment control	bombing
Disaster Management	Mountain Areas Inspectorate	rocket attacks
Logistics		
Supervision		

In the military sector, unmanned aerial vehicles are used as combat aircraft, which inflict damage on the enemy from the air or drop bombs, and if they fall, they provide insecurity for the pilots, because the pilots control them remotely. Also, military drones provide the delivery of medicines, surveillance and espionage in the military zone.

In the environment sector, drones are being used to check air quality, monitor soil, crops,

mountains, water and the underwater world. In general, drones are used to protect the environment and all living organisms that live on it.

The civilian sector, which uses drones, is by far the fastest growing. Many countries are actively using unmanned aerial vehicles for aerial photography and mapping. In the telecommunications industry, drones are often used to assess the condition of towers and find possible faults. Also in the civilian sector, drones are actively used in construction, logistics and transport. Drones can lift both large and small items into the air and quickly transport them to their destination. For example, some countries (USA, China) countries use this possible purpose of drones to deliver medicines and other consumer goods. This has become especially true during COVID-19 [6].

It is also worth noting that the use of drones to ensure the safety of the city and its population is gaining popularity in the civilian sector. For example, the US Department of Emergency Management uses drones to search and rescue people.

In Mexico, the use of drones has led to a reduction in the number of robberies, a decrease in overall crime and an increase in the number of arrests.

Thanks to modern drone technologies, including BigData, neural networks and artificial intelligence, the collected data can be used to create models of accidents and crimes in order to more accurately determine their causes and dynamics.

Despite the relevance of the use of drones in various sectors of the economy and life, there are several significant problems in the implementation and use of them:

– Insufficient flexibility in the use of unmanned aerial vehicles compared to traditional technologies, aviation. Thus, the level of 100% reliability is still in question.
– Lack of clear legislation regarding the use of consumer and commercial drones and prohibition of their free use (licensing) in the airspace.
– Security and safety. Today, the problem of not the least importance is the unpunished invasion of private and public life by drones.
– To solve this problem, it is necessary to think over ways to protect life and laws, rules for the operation of unmanned aerial vehicles.
– Absence in some countries of a modern production base oriented towards the mass consumer and mass commercial markets, which leads to higher costs and higher cost of devices.

Based on an analysis of the global drone market, Drone Industry Insights revealed that its volume is $14.1 billion in 2021, in North America $4.5 billion, in Asia $4.4 billion. dollars, in Europe 4 billion dollars It is seen that Asia occupies almost the same market share as North America. It is worth noting that by 2024 the global market expects growth by 20.5% to $43.1 billion, while Asia will reach $18.4 billion (42.69% of the world market), North America – 11.9 billion dollars as the second largest market, and Europe – 9.7 billion dollars [North America Small UAV Market…, www].

There is a consolidated competition in the global market for small unmanned aerial vehicles, i.e. Basically, the global drone market is split between a few major major companies. The main companies in the UAV market for 2021 are DJI (Chinese company), Yuneec International (Chinese company), DELAIR (French company), Intel Corporation (American company), Parrot Drones SAS (French company).

Methods

In the study, the authors used some methods such as analysis and synthesis, induction and deduction, historical and logical, abstraction and concretization.

Results

The North American market, which includes the US, Canada and other parts of North America, is not only the largest market for drones, but also the fastest growing. Its volume for 2020 was $4.5 billion, and according to forecasts for 2024, it will be $11.9 billion.

Picture 1 - Drone Market – Growth Rate by Region (2020-2025) [The Western Drone Show, www]

The most widely used drones in the North American market are geodesy, aerial photography, 3D modeling, monitoring of oil/gas pipelines and similar infrastructure inspections, and real estate surveys.

The demand for unmanned aerial vehicles from intelligence, surveillance and reconnaissance missions in the military and surveillance missions in law enforcement sectors, fueled by the growing military spending of countries, is expected to further propel the North American market for small unmanned aerial vehicles.

The small UAV market in North America is moderately competitive and lacks dominant players. Some of the major players are DJI (Chinese company), Intel Corporation (American company), Yuneec International (Chinese company), Parrot (French company), GoPro (American company).

For the most part, the trends of the global market for unmanned aerial vehicles coincide with the trends of the territorial markets, but there are also some differences.

Global UAV Market Trends:

– the rapid growth of the UAV market, both in monetary and physical terms;
– developing and spreading urban networks of unmanned aerial vehicles – unmanned delivery from medical supplies to food, retail packaging and industrial materials; companies are developing unmanned delivery solutions for both urban and rural areas. In 2019, the delivery of UAV goods began to spread to the United States, Australia, Ghana and other countries [1];
– active introduction of UAVs in segments served by satellites and manned aircraft;
– narrowing the boundaries between professional and consumer drones;
– increase in demand for drone insurance;
– growing demand for high quality data;
– fashion for the purchase and use of consumer drones;

– growing use of drones in areas such as construction, agriculture, energy, entertainment, oil / gas sector.

North American UAV Market Trends:

– The rapid growth of the UAV market, both in monetary terms and in kind (in particular, the Federal Aviation Administration (FAA) admitted that it underestimated the growth dynamics of the UAV market. According to its forecasts, the number of commercial UAVs in the United States should have grown to 450 thousand by 2022, in fact, this figure was already exceeded in 2019. There is a transition of manufacturers and service companies from the stage of studying technologies for creating drones to their implementation).

– development of standards for regulating the flights of unmanned aerial vehicles;

– expanding the volume of global supplies (up to $2.4 million by 2023, increasing by 66.8% of the compound annual growth rate) [The International Drone Conference & Exposition, www].

The growth in the use of unmanned aerial vehicles will occur in key segments such as agriculture, construction and mining, insurance, media and telecommunications [Journal of Unmanned Vehicle Systems, www].

Discussion

China dominates the global consumer and commercial drone market. Shenzhen (Guangdong Province) became the main center of the new industry. The largest drone manufacturer and one of the most innovative companies in the world is the Chinese company SZ Dajiang Innovation Technology Co., Ltd., abbreviated (and better known) as DJI.

DJI is engaged in the production of multicopters, controllers and video cameras. Today, this Chinese company is not only a pioneer, but also an absolute leader in the sector. Analysts estimate that it owns 70% of the global consumer drone market, with 80% of revenue generated outside of China.

Currently, China produces more than 80% of the civilian drones in the world, and most of them are produced by one company – DJI. It was Chinese companies that created this industry, since unmanned aerial vehicles (UAVs) were used primarily by the military in the early 2000s. The 2010s saw a flood of investment in the industry and drones have become a means of entertainment for ordinary consumers, as well as a useful tool for architects, builders, farmers, filmmakers and many other professionals. Drones can now be used in a wide range of industries, from aerial photography and e-commerce to inspection and surveillance of power lines.

Today, there are about 70,000 companies in the Chinese drone industry that produce drones, components and software.

DJI's dominance in the consumer segment has forced thousands of other manufacturers to fight for survival in the commercial UAV space. The result has been a thriving and highly creative sector of the industry. Partnerships with various institutions – law enforcement, advertising agencies, energy companies, military and technology entities – have become standard among drone manufacturers.

DJI's core business is the manufacture and supply of unmanned aerial vehicles with a unique aerodynamic design for commercial and industrial applications, including aerial photography, real-time monitoring, cargo delivery to hard-to-reach regions, biological defense and precision farming, and drone interception – offenders. The company also develops software and manufactures additional equipment for unmanned systems: payload and automatic piloting modules, ground control stations for unmanned aerial vehicles.

In addition, the company provides instruction, support and technical support to customers.

DJI's main goals:

– growth in sales and revenue;
– entering new markets;
– internationalization (finding such methods for the development and production of unmanned aerial vehicles that will be able to simplify the adaptation of the product to the linguistic and cultural characteristics of international markets;
– establishment of systemic sales - sales (dealer network development);
– scaling niches that generate revenue (the main niches that generate the main revenue of the company are aerial photography; monitoring of linear objects – power lines, pipelines, oil pipelines; agriculture and forestry, real-time monitoring – construction sites, protected objects, mining).

Recommendations and conclusions

The overall goal of DJI's marketing strategy is to ensure that the latest drones enter the North American UAV market and gain a foothold on it within 3 years. DJI's main goal is to enter the North American market - Canada and the United States.

To find potential partners and customers, the company is actively promoting its product and the company's brand: exhibitions, fairs, tender platforms, publications in magazines and other events that increase awareness and create loyalty to the DJI product and brand.

The first step for a company is to register a commercial drone for use, and the second step is to register a drone for use. To register a drone, it is necessary to collect a large list of documents (documents on the technical characteristics of the product, instructions for use, a description of the drone's software, the possibility of exiting emergency situations when using the drone, etc.) and submit them to Transport Canada, which will decide whether the drone is safe to use. If the ministry approves the use of the drone, then the next step is the registration of the drone, which, in addition to collecting the necessary documentation, also involves testing the flight of the drone at one of the training grounds in Canada, in Alberta or Quebec [ibid].

After registering the drone, the company will first enter the Canadian market for unmanned aerial vehicles, and then the US market, presenting unmanned aerial vehicles there with Canadian registration, which will confirm the quality and safety of the product. Theoretically, permission to use drones could be obtained in the US, but it would take more time and procedures would be much more complicated.

The company will use direct export technology with manufacturing and/or assembly in China. In the target market, the company will actively cooperate with distributors. Service and training on the use of the unmanned aerial vehicle will be provided by North American partners (distributors/dealers).

In addition to developing cooperation with distributors, the company, as in China, will cooperate with companies whose main activity is the provision of services using drones.

In the future, it is possible to create a joint venture in the target market.

DJI has to promote drones in the North American market to be successful.

Promotion activities in the North American market:

– Participation in exhibitions, such as the International Exhibition of Unmanned Technology and Intelligent Dashboards in 2022 in Shanghai;
– Presence at tender sites.
– Mentions in scientific publications and magazines Magazine WINGS, Journal of Unmanned Vehicle Systems (JUVS), Journal TECHNOLOGY, MIT Technology Review.

– Electronic marketing (sending commercial offers to potential customers by mail).
– SEO (search engine optimization).
– Corporate site optimization.
– Entry into the international rating of drones.
– Mini videos as drone reviews.

The most demanded areas of application of unmanned aerial vehicles in North America are aerial photography, 3D modeling, monitoring of linear objects, and geodesy. In addition, even during the coronavirus infection, drones remain relevant in the fight against the virus, for example, for spraying disinfectants on city streets, delivering necessary goods, monitoring order on the streets, transmitting voice information using a drone, etc.

The Chinese company DJI develops drones in such modifications that allow them to work in popular areas of drone use in the United States and Canada. Thus, the introduction of DJI's new flagship drone into the North American unmanned aerial vehicle market is the most promising strategic move.

An analysis of DJI's external environment revealed that Canada and the United States have an active policy of protectionism, active support of their own business, which leads to increased competition and the emergence of new players that make it difficult to enter the North American market. However, at the same time, there is a trend in the target market for the active introduction of innovative technologies into the commercial sector, which indicates a constant and growing demand for unmanned aerial vehicles and allows you to be sure that the innovative product will be in demand.

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Продвижение беспилотных летательных аппаратов компании Shenzhen DJI Innovation Technology Co., Ltd. на зарубежный рынок

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Аннотация

Мировой рынок беспилотных летательных аппаратов быстро растет уже более 10 лет и, по прогнозам, в ближайшие годы будет продолжать расти. Центрами развития рынка беспилотных летательных аппаратов сегодня являются рынки Северной Америки, Китая и Европы, однако и другие страны также развиваются, но меньшими темпами и объемами. В ближайшие 5 лет тенденции развития сохранятся, и мировой рынок дронов вырастет более чем в 3 раза. Столь бурное развитие индустрии дронов связано с активным производством и внедрением дронов в коммерческий и частный секторы общества. Внедрение и использование беспилотных летательных аппаратов в коммерческом секторе дало компаниям больше возможностей для работы, повысив качество работы за счет получения более четкой и полной информации о том или ином объекте с дрона, увеличив скорость работы, а главное, сокращение использования ручного труда и повышение безопасности работников в случаях, когда ранее человек сам выполнял сложную и опасную работу, связанную, например, с получением информации в опасных для жизни местах. Актуальность темы статьи о выводе дронов DJI на рынок Северной Америки заключается в том, что это самый крупный и в то же время самый быстрорастущий рынок беспилотных летательных аппаратов.

Для цитирования в научных исследованиях

Е Цзячэнь, Сахарчук Н.С. Promotion of unmanned aerial vehicles to the overseas market by Shenzhen DJI Innovation Technology Co., Ltd. // Экономика: вчера, сегодня, завтра. 2023. Том 13. № 2А. С. 167-174. DOI: 10.34670/AR.2023.98.43.013

Ключевые слова

Российско-китайские отношения, развитие, строительство, стратегия позиционирования, беспилотные летательные аппараты.

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