RUDN Journal of Economics
Вестник Российского университета дружбы народов. Серия: Экономика
ISSN 2313-2329 (Print); ISSN 2408-8986 (Online)
2024 Vol. 32 No. 3 489–502
http://journals.rudn.ru/economics

DOI: 10.22363/2313-2329-2024-32-3-489-502
EDN: MCATFF
UDC 338.4

Research article / Научная статья

China's Aviation Industry: From Follower to Competitor in the Global Aerospace Market

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Abstract. The Chinese aviation industry has come a long way from the initial attempts at licensed aircraft assembly production in the 1930s to the formation of a powerful scientific and industrial complex capable of developing and producing a wide range of world-class aircraft. The establishment of large aircraft corporations AVIC and COMAC in the early 2000s allowed the industry to become more efficient and to start developing its own civil and military aircraft. The launch of the C919 project demonstrates that China can compete with aircraft leaders in the regional airplane market. Over the past decade, China has made significant progress in mastering advanced technologies and knowledge-intensive areas of aircraft construction. 3D printing, production of composite materials, radio electronics and avionics, including electronic warfare systems, are being actively introduced. Progress has been demonstrated in the development of aircraft engines, which have been commercialized in China's first passenger aircraft. At the same time, technological challenges remain for the Chinese aviation industry, such as the need to develop competitive aircraft engines. Nevertheless, given the current pace of development, the PRC's influence in the global civil and military aircraft market can be projected to grow further. The purpose of the study, the results of which are outlined in this article, is to comprehensively examine the current state and prospects of the Chinese aviation industry and assess its competitiveness compared to Airbus and Boeing. The analysis of the industry has shown that the Chinese aviation industry in a short historical period was able to overcome the technological lag and reach the level of world leaders in a number of areas. Modern China has a powerful scientific and industrial potential to create competitive aviation equipment, including civil passenger airplanes for domestic and international markets. Further development of advanced technologies, including stealth, hypersonics and electro-aviation, opens up prospects for taking the Chinese aviation industry to a new level in the future.

Keywords: China, AVIC, COMAC, aircraft industry, R&D, aerospace

Conflicts of interest. The authors declare that there is no conflict of interest.

Authors' contribution. The authors contributed equally to this article.

Article history: received 12 March 2024; revised 18 May 2024; accepted 11 June 2024.

For citation: Reshetnikova, M.S., Kochergin, I.A., & Shvets, S.S. (2024). China's Aviation Industry: From follower to competitor in the Global Aerospace Market. *RUDN Journal of Economics, 32*(3), 489–502. https://doi.org/10.22363/2313-2329-2024-32-3-489-502

Китайская авиапромышленность: эволюция от последователя к конкуренту на глобальном аэрокосмическом рынке

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Аннотация. Китайская авиапромышленность прошла долгий путь развития от первоначальных попыток лицензионного сборочного производства самолетов в 1930-х гг. до формирования мощного научно-промышленного комплекса, способного разрабатывать и производить широкий спектр авиационной техники мирового уровня. Создание крупных авиакорпораций AVIC и COMAC в начале 2000-х гг. позволило повысить эффективность отрасли и приступить к разработке собственных образцов гражданской и военной авиатехники. Запуск проекта C919 демонстрирует, что Китай способен соревноваться с Boeing и Airbus на рынке региональных самолетов. За последнее десятилетие Китай добился значительных успехов в освоении передовых технологий и наукоемких направлений авиастроения. Активно внедряются 3D-печать, производство композитных материалов, радиоэлектроника и авионика, включая системы радиоэлектронной борьбы. Продемонстрирован прогресс в создании авиационных двигателей, получивших коммерческое применение на первом китайском пассажирском самолете. В то же время перед китайским авиапромом сохраняются технологические вызовы, такие как необходимость создания конкурентоспособных авиадвигателей. Тем не менее, с учетом имеющихся темпов развития, можно прогнозировать дальнейший рост влияния КНР на глобальном рынке гражданской и военной авиатехники. Цель исследования заключается во всестороннем изучении текущего состояния и перспектив китайской авиационной промышленности и оценка ее конкурентоспособности по сравнению с Airbus и Boeing. Анализ отрасли показал, что китайская авиапромышленность за короткий исторический период смогла преодолеть технологическое отставание и выйти на уровень мировых лидеров в ряде направлений. Современный Китай обладает мощным научно-промышленным потенциалом для создания конкурентоспособной авиационной техники, в том числе гражданских пассажирских самолетов на внутренний и международный рынки. Дальнейшее развитие передовых технологий, включая стелс, гиперзвук и электроавиацию, открывает перспективы выведения китайской авиапромышленности на новый уровень в будущем.

Ключевые слова: Китай, AVIC, COMAC, авиационная промышленность, исследования и разработки, аэрокосмическая промышленность

Заявление о конфликте интересов. Авторы заявляют об отсутствии конфликта интересов.

Вклад авторов. Вклад авторов равнозначен на всех этапах исследования.

История статьи: поступила в редакцию 12 марта 2024 г., проверена 18 мая 2024 г., принята к печати 11 июня 2024 г.

Для цитирования: *Reshetnikova M.S., Kochergin I.A., Shvets S.S.* China's Aviation Industry: From follower to competitor in the Global Aerospace Market // Вестник Российского университета дружбы народов. Серия: Экономика. 2024. Т. 32. № 3. С. 489–502. https://doi.org/10.22363/2313-2329-2024-32-3-489-502

Introduction

In recent decades, the aviation industry has become one of the most dynamically developing sectors of the global economy (Sarıgül, Coşkun, 2022). At the same time, the civil aviation market is traditionally dominated by two companies — the American Boeing and the European Airbus (Stekler, 2023). Recently, however, China has been actively joining them, seeking to take a significant share of the global commercial aircraft market (Hirsh, 2023).

The examination of the Chinese aircraft industry and its rivalry with Boeing and Airbus is a vital topic. This is because China is actively trying to overtake the United States as the industry leader by producing an increasing number of airplanes. It will be feasible to determine the level of threat that Chinese aircraft manufacturing companies pose to the established market players by having a thorough understanding of their prospects and capabilities.

The purpose of the study, the results of which are outlined in this article, is to comprehensively examine the current state and prospects of the Chinese aviation industry and to assess its competitiveness compared to Airbus and Boeing.

Methods

The theoretical and methodological foundation and information basis for studying the role of the Chinese aircraft industry in the modern world and its competition with Airbus and Boeing are the works of Russian and foreign scientists devoted to the development of the Chinese aircraft industry and the analysis of its interaction with the world's leading industry players.

Results

China's aviation industry is a high-tech branch of Chinese engineering industry focused on the design, production, testing and maintenance of military and civil aircraft. Its establishment and development have gone through several key periods (Table 1).

The early stages of aircraft manufacturing in China may be traced back to the late 1930s. Small-scale fighter production was established with licenses from international companies. For instance, the Italian company Fiat produced fighters in Nanchang, and efforts were made to arrange for the assembly of American Curtiss F11C Goshawk biplanes, though these attempts were not successful in gaining traction (Plotnikov, 2007).

China received its first I-16 aircraft from the USSR in 1937. Negotiations between the two countries over the potential for localizing Soviet aircraft production in China were initiated shortly afterward. Consequently, an agreement was signed in 1939 to build an aircraft manufacturing close to Urumqi. With parts supplied from the USSR, this plant was expected to construct up to three hundred I-16 fighters annually. But following the start of the WWII, the plant was only able to produce individual units and never attained its full projected capacity (McGuire, 2011).

Table 1

The phases and periods of the Chinese aviation industry's development

Stage	Years	Key partners	Main features	Key products
The birth of aviation industry	Late 1930s	Italy USA USSR	Small-scale fighter production under license	I–16
	1940s	USSR	Unlicensed small-scale production Combat aircraft shipment	Chan–28
First steps	1950s	USSR	Licensing assembly	–
	1960–1970s		Building own combat aircraft based on the previously accumulated experience of assembling Soviet machines	–
	1980s–1990s	USSR / Russia	Adoption of licensed production of Su–27. Purchase of Su–30 fighter-bombers. Appearance of aircraft manufacturing corporation	–
Creation of national aviation industry	2000s	Russia USA EU	Aircraft manufacturing complex was restructured into a single state-owned corporation -AVIC. Comac as a specialized company to develop and manufacture Chinese long-range passenger aircraft	C919 project ARJ21
Global player	2010 to now		AVIC and its subsidiaries develop, manufacture and service a wide range of aircraft, including civil and military aircraft, helicopters, drones, and space and maritime systems. COMAC specializes exclusively in the production of civilian passenger aircraft.	CR929 project Y–20 J–20 Xian MA60 MA600 MA700

Source: built by the authors.

At the same time, unlicensed production of Soviet I-16 fighters was underway in China at the former Italian-Chinese SINAW facility in Nanchang, which had previously produced Fiat aircraft. These aircraft, dubbed the Chan-28, were simplified copies of the I-16, assembled from dissimilar parts removed from defective Soviet fighters. Serial production of the Chan-28 was never established because of the design's obsolescence. In general, during the war years, the Soviet Union provided substantial assistance to China in building up its national air force by consigning shipments of several types of combat aircraft, including SB bombers (Heymann, 1975).

After the formation of the People's Republic of China in 1949, the Chinese leadership set a course to create its own aviation industry with the active assistance of the USSR. In 1951, the government's Administrative Commission for Aviation Industry was established. From the mid-1950s, Chinese factories began licensing assembly of a number of Soviet aircraft, which contributed to the accumulation of experience. However, in the 1960s, co-operation with the USSR was interrupted due to the deterioration of relations provoked by the policy of the 'Great Leap Forward' and the 'Cultural Revolution' in China. This dealt a serious blow to the development of the aviation industry (Heymann, 1975).

Despite the break with the USSR, in the 1960s the PRC began work on building its own combat aircraft based on the previously accumulated experience of assembling Soviet machines under licences. Since the end of the Cultural Revolution period and the Cold Period with the USSR, China has continued to build up competences in aircraft construction, modernizing the air force and developing civil aviation (Heymann,1975).

In the military sphere, the most significant step was China's adoption of licensed production of Soviet Su-27 fighters and the purchase of a batch of Su-30 fighter-bombers from Russia. Later, the first Chinese modifications of these machines appeared. Also, during this period, China was actively developing unmanned aerial systems of various classes and purposes.

In civil aviation, the PRC has made some progress in the development of regional passenger and transport aircraft. By the end of the 1990s, the country had formed large aircraft manufacturing corporations, which became the basis for further development of the industry (Mohanty, 2000).

In the early 2000s, China's aircraft manufacturing complex was restructured into a single state-owned corporation, AVIC, uniting numerous fragmented enterprises (Long et al., 2024). This improved the efficiency of the industry and its competitiveness in the global market.

In 2008, Comac was established as a specialized company to develop and manufacture Chinese long-range passenger aircraft. Comac's flagship project was the C919 airliner, designed to carry 158–192 passengers and the first Chinese airliner of this class. The C919 made its maiden flight in May 2017. In parallel, together with Russia, a project was launched to develop a wide-body long-haul CR929 aircraft to compete with the Boeing 787 and Airbus A350 (Tyroler-Cooper, Peet, 2013).

In the military sphere, in the 2010s China presented the first Y-20 heavy military transport aircraft and made a big leap in the field of combat aviation. In 2017, the fifth-generation J-20 fighter was put into service, and the development of the advanced sixth-generation fighter is underway.

One of the unresolved problems of China's aviation industry remains excessive dependence on imported aircraft engines. The national engine industry is still behind — most Chinese aircraft were equipped with imported engines for a long time. Nevertheless, intensive work is underway to develop its own engine designs.

China's Aviation Giants: AVIC and COMAC

Chinese civil aircraft manufacturers AVIC and COMAC are leading players in China's growing aviation industry. Both companies are state-owned and closely aligned with China's national efforts to develop its own aviation industry and reduce dependence on foreign aircraft imports (Chow et al., 2017).

AVIC (Aviation Industry Corporation of China) is a giant state-owned aerospace and defence conglomerate that develops, manufactures and services a wide range of aircraft, including civil and military aircraft, helicopters, drones, and space and maritime systems. Headquartered in Beijing, AVIC has more than 100 subsidiaries, 27 listed companies and approximately 500,000 employees worldwide (Changxi, 2016).

In the civil aviation field, AVIC manufactures Xian MA60, MA600 and MA700 series regional turboprop aircraft at its subsidiary Xian Aircraft Industrial Corporation. These turboprop aircraft are designed to carry 60 to 86 passengers on regional routes. However, AVIC's focus is on military and defence products, including fighter jets, bombers, transport aircraft, helicopters and unmanned aerial vehicles (Carriço, 2011).

COMAC (China Commercial Aircraft Corporation) specializes exclusively in the production of civilian passenger aircraft. The company was established in 2008 by the Chinese government to develop and manufacture large passenger aircraft with a capacity of more than 150 passengers.

COMAC currently has two main aircraft in its product line-up: the ARJ21 regional jet and the C919 narrow-body medium-haul aircraft. The ARJ21, which made its maiden flight in 2008 and began deliveries in 2015, seats between 70 and 105 passengers and is designed for regional routes.

The C919, COMAC's flagship product, is a twin-engine narrow-body aircraft with a capacity of 150 to 190 passengers that has been designed to compete with the Boeing 737 and Airbus A320 in the medium-haul market. The C919 made its maiden flight in 2017 and began deliveries to Chinese airlines in 2023.

The civil aircraft production chain in China includes several key stages and participants. COMAC is responsible for the overall development, design and integration of its aircraft, but also relies on a wide network of suppliers and subcontractors that produce various components and systems (Zhang et al., 2014).

AVIC, with its huge production base and expertise in aircraft manufacturing, plays an important role in COMAC's supply chain. Many AVIC subsidiaries, such as Chengdu Aircraft Industry Group, Shenyang Aircraft Corporation and Xi'an Aircraft Industrial Corporation, produce various parts and components for COMAC aircraft, including fuselage, wings and other airframe components. In addition, AVIC works closely with COMAC in the development and production of aircraft systems such as avionics, flight control and flight systems. AVIC subsidiaries, such as AVIC Avionics Systems Co., Ltd. and AVIC Electromechanical Systems Co., Ltd. are key suppliers of these critical systems for COMAC aircraft (Long et al., 2024).

In addition to AVIC, other state-owned companies such as Aluminum Corporation of China (CHALCO), which supplies aluminum parts and components, and Baosteel

Group, which produces steel components for aircraft, are also involved in the civil aircraft production chain.

COMAC actively co-operates with foreign aircraft manufacturers and suppliers to gain access to advanced technologies and know-how. For example, COMAC has co-operation agreements with companies such as Bombardier, Boeing and Ryanair to share expertise and jointly develop certain components and systems (Niosi, Zhegu, 2010).

Overall, China's civil aircraft production chain is a complex network of state-owned and private companies that interact with each other under the leadership of COMAC and AVIC. This chain combines the efforts of various enterprises and suppliers to create fully integrated aircraft capable of competing in the global civil aviation market (Hu et al., 2024). Continuing the theme of the types of aircraft produced, it should be noted that AVIC and COMAC have different focuses and product lines (Table 2).

Table 2

Comparison of COMAC and AVIC in terms of product focus

Key features	AVIC	COMAC
Brief overview	giant aerospace and defence conglomerate	focus solely on the production of civilian passenger aircraft
Production purpose	both civilian and military	solely civilian
Civil Aviation Models	Xian MA60, MA600 and MA700 regional turboprops with a capacity of 60 to 86 passengers.	ARJ21–70 to 105 passengers and is designed for regional routes. The C919 is designed to carry between 150 and 190 passengers.
Military aviation	focuses on military and defence aviation products	does not produce military and defence aviation products
Fighters	Chengdu J–10, Chengdu J-20, Shenyang J-11, Shenyang J-16 JF-17 (co-development with Pakistan).	–
Bombers	Xian H–6, Xian H-20.	–
Transport aircraft	Y–7, Y-8, Y-9 families Xian Y–20	–
Helicopters	Z–8, Z-9, Z-10, Z-11 и Z-18,	–
UAV	Wing Loong, Caihong, Cloud Shadow	–
Other	electronic warfare aircraft, long-range radar detection and control aircraft, maritime patrol aircraft and refuelling aircraft.	–

Source: compiled by the authors.

AVIC, as a giant aerospace and defense conglomerate, produces a wide range of civil and military aircraft. In the field of civil aviation, AVIC produces the Xian MA60, MA600 and MA700 families of regional turboprop aircraft, which can carry 60 to 86 passengers. However, AVIC's focus is on military and defence aviation

products. In this area, AVIC manufactures various types of fighters, bombers, transport aircraft, trainer aircraft, helicopters and unmanned aerial vehicles (UAVs) (Long, Corbett, Shats, 2024). AVIC's fighter line-up includes the Chengdu J-10, Chengdu J-20, Shenyang J-11, Shenyang J-16 and JF-17 (jointly developed with Pakistan). Bombers include the Xian H-6 and the advanced Xian H-20. Transport aircraft are represented by the Y-7, Y-8, Y-9 families and the latest Xian Y-20 heavy transport aircraft. In the helicopter segment, AVIC produces the Z-8, Z-9, Z-10, Z-11 and Z-18 multi-role helicopters, as well as a promising heavy transport helicopter. The UAV product line includes reconnaissance and attack drones such as Wing Loong, Caihong and Cloud Shadow. AVIC also develops and manufactures electronic warfare aircraft, long-range radar detection and control aircraft, maritime patrol aircraft and refueling aircraft (Long, Corbett, Shats, 2024).

COMAC, on the other hand, focuses exclusively on the production of civilian passenger aircraft. Its current product line includes the ARJ21 regional jet and the C919 narrow-body medium-haul jetliner. The ARJ21 seats 70 to 105 passengers and is designed for regional routes. The C919, COMAC's flagship product, is designed to carry 150 to 190 passengers and is a competitor to the Boeing 737 and Airbus A320 in the narrow-body medium-haul aircraft market (Hu et al., 2024).

Together, AVIC and COMAC aim to provide China with a full range of aviation products, reduce dependence on imports and strengthen China's position as a growing aviation power on the world stage.

Inventions and advanced technologies in aircraft construction by Chinese manufacturers

China's aviation industry is experiencing a real technological renaissance. The country, once reliant on imported parts and outdated Soviet designs, is now rapidly developing its own advanced technologies and embarking on a course towards technological independence (Wang, 2023).

One of the key technologies being actively adopted by Chinese aircraft manufacturers is 3D printing or additive manufacturing. This technology makes it possible to create complex parts and structures from metal powders by building up material layer by layer. Compared to traditional manufacturing methods, such as casting or machining, 3D printing offers a number of advantages (Cao, Shi, 2023). Firstly, additive technology enables the creation of one-piece parts with complex internal structures that would be impossible or extremely difficult using conventional methods. This ensures high strength and rigidity of the structure at a lower weight, which is critical in aircraft construction. Secondly, 3D printing significantly reduces manufacturing time and costs. Parts can be produced as needed, without the need to create expensive molds and tooling. This simplifies logistics and reduces storage costs for parts. Thirdly, additive technologies enable the creation of topologically optimized designs that cannot be manufactured using traditional methods. Such structures have higher strength and stiffness at a lower weight, which increases the efficiency and cost-effectiveness of aircraft. Chinese aircraft manufacturers are

actively introducing 3D printing into the production of parts for engines, airframes and other systems. For example, Shenyang Aircraft Company, a subsidiary of state-owned aviation corporation AVIC, uses additive technologies to create J-15, FC-31 fighters and other combat aircraft[1].

Another important area of innovation in the Chinese aircraft industry is the development and application of new composite materials (Zhang et al., 2023). Composites based on carbon fiber reinforced with polymers or ceramics have exceptional strength and stiffness with very low specific gravity. The use of composite materials in aircraft construction allows to significantly reduce the weight of the structure, which directly affects the efficiency, flight range and other important characteristics of aircraft. In addition, composites have high corrosion resistance and resistance to external factors (Chen et al., 2023).

Chinese engineers develop not only new composite materials, but also improve the methods of their production and implementation in the aircraft design. One of the brightest examples is the technology of 'seamless' structures, where separate composite parts are joined into a single integral structure without the use of mechanical fasteners (Siengchin, 2023). This approach avoids weakening the structure at joints and increases its strength and reliability. In addition, the absence of rivets and other protruding elements improves aerodynamic performance and reduces drag.

In addition to improving the airframe and powerplant design, Chinese aircraft manufacturers are actively developing avionics and onboard systems. Modern combat and civil aircraft are equipped with multifunctional digital cockpits, communication and navigation systems, as well as various auxiliary systems that improve flight safety and efficiency (Meng et al., 2023; Su, 2023).

China's first mass-produced low-observable fighter is the J-20, which entered service in 2017. This aircraft is equipped with advanced avionics, including active phased array radar, and is designed to gain air superiority. China is currently actively working on a new generation of stealth fighters known as the J-35, J-XY and H-20. These promising aircraft will have even higher low-observable characteristics and advanced onboard systems.

One of the key areas that determine the success of the aircraft industry is the design and manufacture of aircraft engines. Engine performance directly affects such important aircraft parameters as speed, range, payload and fuel efficiency. For a long time, China had to rely on imported aircraft engines. However, in recent years, the country has made significant progress in developing its own advanced propulsion systems for civil and military aircraft.

One of the key achievements has been the development of the CJ-1000A turbofan engine, also known as the Yangtze River. This twin-circuit turbojet engine with a thrust of about 35 tones is designed to be installed on China's newest passenger jetliner, the Comac C919. The CJ-1000A engine was first introduced in 2011 and has undergone

[1] Chinese fighter jets take advantage of Additive Manufacturing. Additive Manufacturing. Retrieved from https://www.metal-am.com/chinese-fighter-jets-take-advantage-of-additive-manufacturing/

extensive testing, including bench and flight tests. It was certified for commercial operation in 2023 and began entering service with Chinese airlines along with the C919 aircraft (Zhou, Zhou, Qi, Guo, Qian, 2023).

In addition to the above-mentioned areas, Chinese scientists and engineers are actively researching and developing new materials and advanced manufacturing technologies for aircraft construction. This allows China to close the gap in important areas, such as the production of high-tech aircraft engines. The development of competitive designs, such as the CJ-1000A, demonstrates success in this area. Active research in stealth technologies, hybrid power plants and new materials opens up prospects for the development of advanced next-generation aircraft.

AVIC's place in China's aviation market

AVIC provides a significant share of China's needs in aircraft for various purposes, covering both civil and military segments of the market. The corporation holds leading positions in the domestic market in regional passenger aircraft, military aircraft and specialized aircraft (Szepan, 2012).

As for comparison with Airbus and Boeing, AVIC is still inferior to these giants in the mainline passenger airliner segment. Although the corporation is involved in the development of the Chinese C919 airplane designed to compete with the Airbus A320 and Boeing 737, it does not have its own line of long-range passenger airliners. In this key market segment, Airbus and Boeing continue to dominate the Chinese market. Nevertheless, AVIC has an advantage over Airbus and Boeing in such niches as regional turboprop aircraft, military aviation and certain types of specialized aircraft (transport, reconnaissance, electronic warfare, etc.). In these segments, the corporation holds leading positions in the Chinese market and is actively developing export deliveries. In addition, AVIC plays a key role in the realization of China's ambitious plans to create its own line of long-range passenger aircraft. In addition to participation in the C919 program, the corporation is involved in the development of the Chinese-Russian wide-body long-haul CR929 aircraft, designed to compete with the Boeing 787 and Airbus A350 in the future (Barton, 2016).

One of AVIC's most important assets is its enormous production capacity. The corporation has an extensive network of aircraft manufacturing plants throughout China, equipped with modern equipment and qualified personnel. To ensure a full cycle of aircraft production, AVIC's structure includes enterprises of the engine building, aggregate building and instrumentation industries. This allows the corporation to develop and produce critical aircraft components in-house. The availability of developed scientific and design potential is another advantage of AVIC. The corporation includes dozens of specialized research institutes, design bureaus and pilot plants, based on which advanced research and development in the aviation sphere is carried out.

AVIC invests considerable funds in the development of promising areas such as new-generation aircraft materials, aerodynamics, avionics, engine engineering, stealth technologies, as well as the development of unmanned and hypersonic aircraft.

This research lays the foundation for the development of future aviation technology (Long, Corbett, Shats, 2024).

In addition to production assets, AVIC's great competitive advantage is government support from the PRC government. As a leading national aviation holding company, the corporation enjoys significant protectionism and preferential treatment in terms of government orders, R&D subsidies and preferential lending/taxation. This provides AVIC with stable demand in the domestic market and provides the necessary resources for the development of new projects, including ambitious programs to build long-range passenger airliners to replace imports of Airbus and Boeing products.

At the same time, it should be recognized that with all its considerable resources and government support, AVIC still lags the world leaders in a several key aviation technologies and competencies. This is especially true in the field of aircraft engine building, where the corporation continues to rely heavily on imported Russian and Western power plants (Eriksson, 2010).

The national program to develop domestic competitive aircraft engines has not yet achieved the desired results. Some designs, such as the WS-10, WS-15 and CJ-1000A, although demonstrating good performance, are still somewhat inferior to advanced Western counterparts in terms of key parameters. In addition, a long-term competitive challenge for AVIC may be the entry into the passenger airliner market of its compatriot COMAC Commercial Aircraft Corporation. Successful promotion of COMAC's ARJ21 and C919 series airplanes may push AVIC out of the domestic market of regional and narrow-body passenger airliners in the future.

However, in general, despite the existing challenges, AVIC still holds dominant positions in many segments of the Chinese aviation market. The corporation has a solid production base, a developed defense industry complex, innovation potential and government support. All this allows AVIC to remain a backbone structure in the Chinese aviation industry.

AVIC's prospects will largely depend on the successful implementation of ambitious programs to create full-fledged mainline passenger airliners. Overcoming the technological gap with Airbus and Boeing in this key area of aircraft construction will open the way to global technological leadership. Given the Chinese leadership's focus on gaining strategic independence in the aviation industry, it can be expected that AVIC will receive all the necessary support to achieve this goal.

Conclusion

The Chinese aircraft industry has come a long way from the initial attempts at licensed assembly production in the 1930s to the formation of a powerful scientific and industrial complex capable of independently developing and producing a wide range of aircraft. Over the past decades, China has managed to accumulate significant scientific and technical potential and highly specialized competencies. It should be noted that the unification of efforts of industry enterprises within the framework of state corporations AVIC and COMAC in the early 2000s made it possible to improve the efficiency

of production and start creating domestic models of civil and military aircraft. This was an important step towards gaining strategic independence in the aircraft industry.

Over the past decade, China has made significant progress in mastering advanced technologies such as 3D printing, composite materials production, and radio electronics. This has reduced the gap with Western competitors in a number of areas, including the development of competitive aircraft engine designs. Further, AVIC holds a leading position in China's domestic market in segments such as regional passenger aircraft, military aircraft, and specialized aircraft. Despite the dominance of Airbus and Boeing in the mainline airliner market, AVIC plays an important role in the C919 and CR929 national passenger aircraft programs.

It should also be noted that the production of competitive aircraft engines remains one of the bottlenecks for the Chinese aviation industry, although significant progress has also been made here. At the same time, China is actively introducing digitalization, new materials, and electromobility in the aircraft industry, which will make it possible to create promising equipment. Despite the current dominance of Western manufacturers in a number of segments, China has made significant technological progress and is preparing a solid base for becoming a leader in the global aircraft industry by 2035. With state support and enormous scientific and industrial potential, which its competitors lack, China has every reason to claim leadership in the global aircraft industry in the future. AVIC, with its strong manufacturing base and ambitions for technological development, is set to play a key role in realizing these plans.

Thus, the study allows to conclude that despite the current dominance of Western manufacturers in a number of segments, the Chinese aviation industry in general and the leading company AVIC in particular have great potential for further growth and strengthening of positions on the world stage in the future. Provided that the set goals of developing advanced technologies and creating competitive products are successfully realized, Chinese aircraft manufacturers may well claim the role of a leading force in the global aircraft industry as early as 2035.

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