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How high will Russian aviation fly?

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Abstract: The study provides the historical context of the Russian aviation industry reflecting the periods of its growth and decline. It reveals the competitive advantage strategies that have been implemented by the Russian government in an attempt to revivify an enfeebled nation's aeronautic industry. The paper discusses the newly formed Joint Stock Company (JSC) United Aircraft Corporation (UAC) and its strategies to break into global markets, including UAC innovative product offerings. Whether or not, the recent efforts of the Russian government serve as a fulcrum for the Russian aviation industry that will leverage Russia into the global market, remains to be seen.

Keywords: Russia; United Aircraft Corporation; aviation manufacturing industry; competitive advantage; transportation research; innovative activities; Russian economy; strategic partnerships.

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Irina Swenson is doing her Graduation in Business Administration at the Florida Institute of Technology and plans to continue her higher education in International Business. Her Russian background and international travel experience contribute to her various perspectives on global initiatives and reflect her interest in research involving global strategy, international relations and the Russian economy. She is enrolled in the undergraduate Business Administration program

1 Introduction

The dissolution of the Soviet Union in 1991 cued the turbulent attenuation of the nation's economy. The transformation from a command economy to a market-oriented one was too abrupt and resulted in concurrent debilitation of the nation's previously strong aeronautic industry. The independence of the former Soviet republics, which were integral parts of the Soviet aircraft manufacturing, resulted in a large number of specialised final assembly lines and manufacturing facilities being out of Russia's reach, thereby, breaking the aircraft supply chain along with disintegrating and fragmenting the industry.

The study discusses the topic of competitive advantage on example of UAC as well as the state of the Russian economy. Furthermore, it surveys the global aviation manufacturing industry and the historic background of the Russian manufacturing sector. The formation of UAC, including its corporate strategies, product innovations, and internal and external challenges in their pursuit of sustainable competitive advantage, are analysed. The performance of newly formed corporation will determine how high Russian aviation will fly in the future.

2 Firm's competitive advantage

Being the focal point of any firm's performance, the subject of competitive advantage that is sustainable in the long run mandates continuous scrutiny and yields numerous views. The Resource-Based View (RBV) theory suggests that sustainable competitive advantage is based on the following attributes: it must be valuable, it must be rare, it must be inimitable, and it must be non-substitutable (Barney, 1991). RBV acknowledges that factors of production are considered to be elastic in supply (Barney, 2001). However, some resources and capabilities can only be developed over a long period of time. It is not always clear how to develop these capabilities or resources. This reality makes it evident that the "supply inelasticity can become a source of sustained competitive advantage" (Barney, 2001, p.645), and the firms that possess these types of inelastic supply will be able to generate above normal profits (Barney, 2001).

While some of the resources refer to tangible assets, such as physical capital, others are less-tangible or non-tangible, which include organisation capabilities and practices (Lockett et al., 2009). Recently, the source of competitive advantage for many companies shifted from physical, tangible assets to the intellectual and knowledge-based resources (Ramaswami et al., 2009).

Sustained competitive advantage requires sustained innovation (Maital and Seshadri, 2007). "An *innovation* is an idea, practice, or object that is perceived as new by an individual or other unit of adoption" (Rogers, 1983, p.11). Rogers (1983) stated that the 'newness' aspect of an innovation may be expressed in terms of either knowledge, decision to adopt or persuasion. It is common to use 'innovation' and 'technology' as synonymous. Rogers (1983) identified the following characteristics of innovations:

- *Relative advantage*: measure in economic terms and include social-prestige components, convenience and satisfaction
- *Compatibility*: the degree to which an innovation is perceived as being consistent with the existing values, past experiences, and addressing needs of adopters
- *Complexity*: the degree to which an innovation is perceived as difficult to understand and use
- *Trialability*: the degree to which an innovation may be experimented on a limited bases
- *Observability*: the degree to which the results of an innovation are visible to others.

The innovation development process consists of several steps including the recognition of a need or problem, research, development, commercialisation of an innovation through diffusion, and adoption of the innovation by users (Rogers, 1983). To bring an innovation to market, companies conceive an invention and create a 'value chain' around it, which include R&D, production, supply chain management, quality assurance and customer service (Maital and Seshadri, 2007). The indirect value chain consists of human resource management, finance, strategy, marketing and sales (Maital and Seshadri, 2007).

The sustainable market performance linked to the organisational capabilities, to bundle skills as well as accumulating knowledge. Resources leading to competitive advantage cannot remain static (Ambrosini and Bowman, 2009). Aerospace companies, which are characterised by complex technology, innovative products, intellectual property, high government support, and close ties with the military are constantly looking for ways to sustain the advantage. The managers must not just have a good understanding of the resources that are under their control, but must recognise the resources that are under the control of other firms (Lockett et al., 2009).

3 Russian economy

Being a resource-based economy, Russia's relative competitive advantage is largely based on its natural resources, such as hydrocarbons (oil and gas), energy-intensive manufacturers (steel and aluminium), and other commodities (Ahrend, 2008). Russia exploits its natural resource abundance as a powerful engine for growth, and uses it as an instrument to affect its foreign policy and international influence (Barnes, 2007). Russia holds the world's largest gas reserve, and is an important supplier of oil and gas to Europe (Goldthau, 2008). The recent upturn in oil prices contributed to the further development of the Russian economy. The Russian government managed the obtained revenue from high oil prices by replenishing the Stabilisation Fund and keeping the government debt below 5% of its GDP (Barnes, 2007; Hanson, 2007).

After the financial crisis of 1998, Russia experienced an economic growth of approximately 6.7% annually. This was partially due to high oil prices, which enabled Russia to build a $1 trillion economy, making it one of the world's 10 largest economies (Goldthau, 2008; Hanson, 2007). In addition to the export of raw materials, Russian economic growth was driven by the boom in domestic consumption and investment, including foreign direct investment (Goldthau, 2008). Hanson (2007) stated that

Russia has two main advantages: a technological ability and the substantial margin of under-utilised capacity.

Despite the economic growth, Russia has experienced the 'Dutch disease' by displaying a rapid decline in the manufacturing sector, while benefiting from intense exploitation of vast natural resources (Hanson, 2007). Preoccupied with 1991 re-organisation and its metamorphoses to the open market economy, Russia neglected its manufacturing and aerospace sectors leaving them in a dilapidated state.

To overcome the slump in manufacturing industries, the government of Russia decided to form state holdings or JSCs in several sectors designated as a national strategic priority. The JSCs are presented in the form of financial and industrial holdings, and consist of a number of private and government plants and companies (Hammons et al., 2008). However, the state owns the controlling stake of JSCs. The growing pressure of global competition is one of the reasons for Russian businesses to seek government support (Yakovlev, 2007). The examples of JSCs and state holdings include the newly formed UAC, the Rosoboroneksport Grouping, which incorporates the largest Russian carmaker VAZ, the United Shipbuilding Corporation, Atomenergoprom (the civil nuclear industry), the Nanotechnology research grouping, and others.

4 Global aviation manufacturing industry

A few aircraft producers that work in close cooperation with global suppliers of engines, landing gears, avionics and other aircraft components currently dominate the aviation industry (Kort and Kluiters, 2003). They are Boeing and Airbus, two worldwide suppliers of long-haul aircraft; Boeing, Lockheed Martin and Northrop Grumman, the US defence industry companies; the European Aeronautic Defence and Space Company N.V. (EADS) and BAE Systems, the European-based companies (Rosecrance, 2008).

The scope and the economies of scale in the aircraft design, assembly, maintenance, marketing and other operations allow firms to realise cost saving, to increase operational efficiency and effectiveness, and to improve the product and service quality (Nolan et al., 2008; Rosecrance, 2008; Ugboro and Talley, 2001; Weston, 2001). It is common for manufacturers to outsource components that were previously conducted in-house, and not just for support services but also for activities 'closer to core' (Harland et al., 2005). As suppliers develop capabilities, they may take on the role of "systems integrators", enabling manufacturers to outsource entire sub-systems to few suppliers (Harland et al., 2005).

Having a family of aircraft with common platforms gives manufacturers the ability to spread R&D innovations and to obtain economies of scale in procurement of components (Nolan et al., 2008). Branding, which is linked to product reliability and technological leadership, also plays a critical role in achieving competitive advantage.

The design of a new aircraft requires significant investment and up-front costs. However, as Nolan et al. (2008) pointed out, a successful plane can lock up the market for over 20 years, resulting in sales of USD$ 25–40 billion and high profits. The development of new civilian planes is usually financed by the airlines that buy the aircraft. In regard to the military sector, governments offer to finance the development of fighter jets, transporter planes and helicopters, which can also lead to cross-financing from private companies.

The study will present an overview of Boeing and Airbus, as an example of aviation industry leaders.

4.1 Boeing and Airbus

Nolan et al. (2008) described that in the 1960s three main producers for the US commercial aircraft were Boeing, McDonnell Douglas and Lockheed. Boeing and McDonnell Douglas were amalgamated in 1997. After this merger, Boeing accounted for over 80% of the world's total commercial aircraft in service (Nolan et al., 2008). In addition to commercial and military manufacturing, Boeing designs and manufactures rotorcraft, electronic and defence systems, missiles, satellites, launch vehicles, and advanced information and communication systems (Boeing Company, 2009). Boeing provides services to NASA and operates the Space Shuttle as well as the International Space Station. With its headquarters in Chicago, Boeing operates across the USA and in 70 countries. The total company revenues for 2008 were USD$ 60.9 billion (Boeing Company, 2009).

In 1970, to compete with Boeing, France and Germany joined forces to build commercial airplanes and formed Airbus, which was later joined by Spain and Britain. Airbus is heavily supported by the European governments. "In 2006, following the sales of BAE Systems' shares, Airbus became an EADS company" (Airbus, 2009). Its manufacturing and aircraft parts sub-assembly facilities are spread across 12 sites in Europe, with final assembly in Toulouse and Hamburg. Airbus incorporates a global network of more than 1500 suppliers in over 30 countries. Its engineering centres are in North America and Russia, whereas sales and customer support centres are in Japan and China (Airbus, 2009).

Currently, Boeing and Airbus are in heavy competition with the long-range, mid-size B787 Dreamliner and with the super-large A380, respectively.

Boeing and Airbus strategies are based on the coordination and planning of the supply chain rather than on direct manufacturing (Nolan et al., 2008). Those companies have large procurement budgets. For example, Boeing spends on average $29 billion annually on procurement. Nolan et al. (2008) suggested that as much as 60–80% of the end-product value of aerospace products is derived from the external supply network. Companies are constantly competing in their supply chains. Airbus implemented the final assembly of large sub-systems, while Boeing revolutionised its supply chain by selecting risk-sharing partners who develop and design aircraft sub-systems. Boeing and Airbus lowered supply chain costs of the aircraft sub-systems development, which helped to reduce overall expenditures and improved the efficiency and effectiveness of their operations. The major manufacturers want to deal with fewer suppliers. Therefore, most aviation suppliers want to move up the chain to develop more of an integrator role (Butterworth-Hayes, 2009).

Nolan et al. (2008) analysed the cascade effect, which is the process of concentration through demerging of non-core businesses and merging of core businesses across the value chain. Boeing and Airbus practise industrial planning by selecting the most capable suppliers. By redesigning the supply chain, Boeing and Airbus created the sub-systems integrators, which specialise in one of the core aircraft activities. For example, only three engine makers can produce jet engines for Boeing and Airbus: GE, Rolls-Royce and United Technology, which includes Pratt & Whitney (Nolan et al., 2008).

Boeing suppliers invest significant amount of financial resources in R&D and hold a large number of intellectual property rights.

5 Russian aviation manufacturing industry

Throughout the years, Russian aviation was not getting the attention it deserved and was depicted as 'backward'. As a result, Russian inputs to aviation history were underrated. The patchy nature of Russian aviation is apparent. However, its contribution to aviation and aerospace is noteworthy. Russia produced many great aerospace scientists and engineers. One of them is Konstantin Tsiolkovsky, the father of theoretical astronautics (Burleson, 2002), who built Russia's first wind tunnel in 1891 and in 1903 published his paper on "Exploration of Space with Reactive Devises" (Karwatka, 1999). His research was followed by Korolyov and Glushko, who largely contributed to the success of the space exploration. Russian aeronautical achievements include Sputnik 1, the first artificial satellite launched in 1957, followed by the Yuri Gagarin flight, the first human in outer space, orbiting the Earth in 1961.

5.1 Period of growth

Going back to the beginning of the 20th century (1913), Russia's military airplanes were as advanced as the French, and talented engineers were endemic to Russia. Irrefutably, the well-known Ilya Muromets (the world's first multi-engine strategic aircraft), the Russkii Vitiaz (the world's first heavy bomber), and the agile S-16 fighter, created by Igor Sikorsky, were the best of that time (Stamper, 2000).

The development of Russian aviation ebbed and flowed through the years: the first unit of the strategic bomber (Sikorsky) was followed by long-range heavy bombers (TB-1/3) in the late 1920s and early 1930s. World War II, as well as Stalin's desire for an intercontinental bomber, gave an impetus to the development of long-range strategic aircraft in the early 1950s. However, Khruschev's divergence to the idea of the ballistic missiles depleted the bomber funds redirecting the strategic aircraft manufacture to the production of intercontinental nuclear missiles (Muraviev, 2001).

Later in Brezhnev's era (1964–1982), there was an attempt towards centralisation of the aerospace industry and a shift back to develop strategic aircraft. Though, only by the late 1980s, the USSR was able to get on par with the USA. Another leap in Russian aerospace technology was signified by the Su-27 fighter, widely acclaimed as the best combat fighter in history, along with the MiG-21. By 1990, due to the rapid modernisation during the 1980s, Soviet plants were manufacturing aircrafts that were equivalent if not superior to Western and US counterparts (Muraviev, 2001).

5.2 Period of decline

The disintegration of the Soviet Union in 1991 took an enormous toll on the Russian aviation and aerospace industry. The cessation of orders from the Russian Federation Air Force and former Warsaw Pact nations virtually halted the production, manifesting in significant layoffs and the reduction of the scientific and engineering specialists needed for further industry development (Johnson, 1997).

During the Soviet era, Russian aviation manufactured about 25% of all aircraft and 40% of all military aircraft in the world (Kort and Kluiters, 2003). Kort and Kluiters (2003) pointed out that in 1990 the USSR produced approximately 500 aircraft and 215 helicopters, whereas in 2000 Russia produced only 10 and 40, respectively. After the Soviet Union's disbandment, about 400 government firms under the Ministry of Aviation control remained. Aeroflot, which had a fleet of 3200, was broken up into 484 separate carriers, some with no more than 2–5 planes (Kort and Kluiters, 2003). A considerable number of modern Russian aircraft was left in the former Soviet republics of Kazakhstan and Ukraine. Kazakhstan returned Russian strategic bombers in exchange for Russia's assistance in creating the Kazakh's own armed forces. Ukraine refused to return the aircraft to Russia and only in 1999 agreed to exchange the aircraft for the reduction of the Ukraine's outstanding multi-billion-dollar debt to the Russian Federation. Moreover, the disintegration of the Warsaw Pact resulted in the USSR's former East European allies joining NATO drawing all their Soviet-produced aircraft into the Western alliance (Muraviev, 2001).

By allowing foreign companies to sell aircraft to Russia, domestic manufacturers lost their market share of aircraft production to Boeing and Airbus. Most Russian aircraft were designed in the 1960s and 1970s, therefore, they cannot compete with Western producers in the areas of comfort and fuel efficiently. Russian engines need more maintenance and have a shorter lifespan. Not all Russian aircraft are in compliance with strict international noise and pollution regulations, which restrict their entry into foreign markets (Kort and Kluiters, 2003).

The Soviet aviation industry's structure included the chief designers' bureaus (upstream) and the head production plants (downstream), which were designed vertically and dispersed geographically to prevent concentrated losses in case of invasion or strategic bombing. The state managed the activities of this intentionally fragmented industry by approving designs and assigning them to the various manufacturers. The separate stages of aircraft production were organised into separate companies located in various parts of the former USSR. The distance between aircraft suppliers and producers resulted in the high transportation costs and low degree of integration of different stages of the production chain (Gasparre, 2008).

With the fall of the old economic system, the aviation industry had a very hard time reorienting itself towards a free market economy. There were too many designer bureaus, prevalence of managerial inefficiency and misconduct, and unawareness regarding new ways of conducting business. Furthermore, all these issues were exacerbated by retrenchment. In the post-Soviet era, the lack of clear State policies, the insufficient old structure of state departments, and the conflict between enterprises competing against each other contributed to slowing down the aviation sector (Kort and Kluiters, 2003).

6 United Aircraft Corporation

The need for a new official government strategy for rescuing the industry became evident. During the 1990s, most aviation firms were incorporated into JSCs with the combination of private and state ownerships. The Ministry of Finance agglomerated organisations into larger units or holdings for better resource allocation. The restructuring of Russia's aircraft industry was indispensable not just to overcome the crisis in the aircraft sector, but essential for the nation's overall success.

Understanding this, in 2006, Vladimir Putin, the Russian president at that time, signed a decree establishing of the JSC UAC.

> "The goal of Joint Stock Company «United Aircraft Corporation» (UAC) is to maintain and enhance the scientific and production potential of the Russian aircraft industry, to ensure the security and defense capabilities of the country, to pool intellectual, industrial and financial resources for the implementation of new aircraft development programs." (UAC website, 2009)

By integrating Russian aircraft building companies with state assets, UAC manufactures, designs, upgrades, sells and provides maintenance to civilian, military and unmanned aircraft (UAC, 2008a). Instituting UAC was an attempt by the Russian government to turn around the aviation industry, which, when strengthened, will boost economic development of Russia. The fact that the Russian government owns most of UAC means that Russian aviation will be managed as a national resource at the top level.

The UAC is a consolidation of more than 100 commercial and military aircraft companies including Sukhoi Company, Irkut Corporation (Yakovlev Design Bureau and Beriev), Ilushin (IL and VASO), Tupolev (Aviastar-SP, NAZ Sokol, TAVIA), and other aviation corporations (see Appendix). Some of the companies focus on the design, production, sale and post-sale services to the civilian and military aviation markets, whereas others concentrate on maintenance and modernisation of the aircraft delivered earlier or on the output of combat aircraft components. UAC shares are held by approximately 91% of Russian Federation and 9% by private investors.

The UAC 2008 report for 2007 activities stated that the main provisions of the UAC development strategy is to achieve a 10% share in the world civil aviation market and more than a 50% share in the domestic market by 2025 along with maintaining the share in the military aircraft market at a level of 12–15% (UAC, 2008b).

The current UAC product portfolio consists of long-haul aircraft (IL-96-300/400), medium-haul aircraft (Tu-204/214, MS-21) and short-haul aircraft (Superjet 100, An-148, Tu-334). Examples of military aircraft include long-range (strategic) aircraft (Tu-95MS, Tu-160), the front-line aircraft (Su-27SK, Su-30MK, SU-22, SU-25), naval aircraft (Su-33) and combat trainer aircraft (Yak-130) (UAC, 2008a, 2008b, 2008c).

The current financial crisis has a negative impact on a global aviation resulting in a downturn in passenger traffic and cancellation of aircraft orders. The UAC is faced with adapting to the current situation. New initiatives included corporate restructuring, revision of strategic plans, formation of new financial budget and economic plan, aircraft delivery deadlines update, and revision of other strategic initiatives (UAC, 2009a, 2009b). The meeting of the UAC Board of Directors in April 2009 outlined the revised 2009–2012 aircraft production plan, which includes decreased manufacturing in view of the global economic crisis.

> "It calls for construction of 118 regional jets, 58 narrow body airliners of the Tupolev Tu-204/214 family and 9 Ilyushin Il-96 wide body quads ... a total of no less than 196 civil aircraft in 2009-2012, including 22 this year." (UAC, 2009a, 2009b)

However, the UAC production plan indicated an increase in output of new jetliners and no change in military and special purpose aircraft production.

The Russian government, through the UAC formation, is actively pursuing its plan to re-store the Russian aircraft manufacturing industry. In February 2008, Russia's President at that time, Vladimir Putin, signed the Decree to build the "National Aircraft

Construction Centre" (UAC, 2009). The National Aircraft Construction Centre will be located in the municipal district of Zhukovsky, just outside Moscow. It will include the UAC headquarters, engineering complex, testing and certification complex, corporate training centre, and corporate scientific centre. Furthermore, the Russian Transportation and Exhibition Complex will be created. The launch of the National Aircraft Construction Centre will help to strengthen the UAC position in the global aviation market.

To continue the centralisation of the Russian aviation industry in October 2009, the UAC acquired a 100% interest in the MiG aircraft corporation, a military aircraft design bureau.

7 Innovative activities

"Innovation is the use of new technological and market knowledge to offer a new product or service to customers" (Afuah, 1998, p.4). The new product is cost lower, has improved attributes or attributes that it never had before or never existed in that market. Afuah (1998) stated that often new product itself is called an innovation, reflecting that it is the creation of new technological or market knowledge, or it is new to customers.

The UAC strategic direction is to compete in the international aviation arena through its research and development programmes, which result in new sophisticated product offerings. Examples of UAC competitive products include Sukhoi Superjet 100, Il-96-400T freighter, the Antonov An-148-100B regional jetliner and others.

Sukhoi Superjet 100 (SSJ-100) is a new modern regional jet in the 75- to 95-seat category, which is produced by the UAC's Sukhoi's civil division. In the international arena, the SSJ-100 will compete for market share with the Embraer E-Jets (Brazil) and the Bombardier CSeries (Canada). SSJ-100 employed the latest technologies from its design and development to final assembly, which resulted in a modern, economically efficient and globally marketable aircraft. The example of new technologies includes automatic riveting and high-speed part machining, advanced information environment, assembly with laser positioning, manufacturing of wing panel and wing coupling to the fuselage with no manual adjustment and others (Sukhoi, 2009). The SSJ-100 aerodynamic configuration is designed for high cruise M-speed, which does not result in significant increase in fuel consumption with the increase in speed (Sukhoi, 2009). In addition, Sukhoi Superjet 100 offers 10% decrease in operation costs due to its weight, economic fuel consumption, and low maintenance costs (Sukhoi, 2009). Sukhoi (2009) claims that "weight perfection and the SaM146 engine, tailored for this aircraft family, reduce fuel consumption per seat by 10% compared to its rivals".

The SSJ-100 project includes international cooperation such as Boeing (USA), Snecma (France), Thales (Europe), Messier-Dowty (France), Liebherr-Aerospace (France) and Honeywell (USA) (Global Security Org, 2009). Moreover, Sukhoi agreed to sell a 25% stake in the project to Alenia Aeronautica (Italy).

The Superjet 100 debuted at the 2009 Paris Air Show. The first SSJ-100 delivery is scheduled for December 2009. Russia's Aeroflot has placed orders for 30 SSJ-100s. Other orders came from Armavia, Western airlines (35 aircraft) and an unnamed customer (20 aircraft) (Creedy, 2009). Sukhoi plans to manufacture at least 700 Superjet

100s, and sell them to North America, Europe, Latin America and China (Global Security Org, 2009).

UAC innovative activities include the delivery of two new aircraft in October 2009: Il-96-400T freighter and the Antonov An-148-100B regional jetliner by Ilyushin Finance Co. and VASO plant, both UAC members (UAC News, 2009d). The Il-96-400T freighter is the newest member in the Il-96 quad wide-body airliner family with extended fuselage, improved turbofans, and advanced Russian-made avionics. These new features make this aircraft fully compliant to international requirements of aviation safety, navigation and ecology (UAC News, 2009d).

The An-148 is the first civil aircraft design developed from scratch on computer screen using 'paperless' technologies, and the first such to go into series production in Russia (UAC News, 2009d).

In October 2009, the aircraft RA-64048, based on a series Tupolev Tu-204 airframe, took to the air for the first time after one of its engines was replaced by an experimental PS-90A2 engine (UAC News, 2009c). Compared with the current engine production version, the PS-90A2 has lifecycle cost decreased by 35% with a significant increase in engine reliability (UAC News, 2009c).

UAC scientific activities in 2008 included several projects such as the modernisation of current aircraft fleet (Tu-204 model); formation of requirements for a new family of short-haul and medium-haul aircraft (MS-21); development of advanced functional and technological solutions including designing, manufacturing and testing of prototypes of wing and other elements made of polymeric composite materials used in the "Advanced Design and Front End Design of MS21/200/300 Aircraft Family" project, other. UAC scientific research is aimed at the improvement of technical and operational characteristics to ensure aircraft competitiveness in flight (UAC, 2009a, 2009b).

8 UAC strategic partnerships

The nature of the aerospace industry requires complex and expensive product development. Therefore, to achieve a competitive advantage, multiple companies must pool their technical and financial resources. The industry norm is to secure vertical and horizontal linkages in which each company specialises in its particular competences (Daniels and Perez, 2007). The UAC's success will depend on the formation of strategic alliances on a global level with companies that already developed their core advantages and have an extensive network of suppliers and customers.

Alliances become important when a company seeks economies of scale in production and development as well as gaining market share (Chalhoub, 2007). The global strategic partnerships will allow UAC to enter foreign markets, to gain economies of scale by joining efforts in aircraft component production and assembly of particular models, to acquire necessary technical and industrial solutions, to obtain additional investments, to share financial risk, to advance marketing efforts and to gain knowledge of international standards and regulations. Strategic alliances help to leverage 'know-how' and transfer the knowledge. Foreign firms are interested in gaining Russian technology for performance and cost, whereas Russian companies interested in overcoming regulatory bodies and gaining access to the outside markets (Daniels and Perez, 2007).

Taking into consideration Boeing's long history of cooperation with Russia's aerospace and IT industries, in June 2008 Boeing and UAC signed an agreement to

expand collaboration on commercial aviation activities (UAC, 2008c). Both Boeing and UAC recognise the benefits of partnership in the areas of R&D, manufacturing, design and marketing research. Boeing has already constituted itself as a major Western investor in Russia's intellectual expertise through its Moscow-based Technical Research Centre and its Design Centre, which were established in 1992 and 1998, respectively. Their established combined work on projects, such as Boeing's Dreamliner, UAC's Superjet, the International Space Station and Sea Launch (a heavy-lift commercial satellite-launch service), is a solid foundation for the long-term cooperation that will benefit both these entities (Tull, 2007).

Forming international alliances between firms that are in the same industry but based in different countries is cardinal tactic of competing globally. The European Aeronautic Defence and Space Company (EADS) and UAC recognised the need for the strategic cooperation by signing several agreements (EADS, 2009). One of the agreements is to establish a partnership in the Airbus A350 XWB program, where Russia will be offered up to 5% of the airframe production as a risk-sharing partner (EADS, 2009). UAC will be designing and building components for this aircraft in Russia. Another agreement institutes a joint venture that has dual locations in Germany and MiGs Lukhovitsy, Russia, to set up freighter conversion centres for the Airbus A320 family (EADS, 2009).

9 UAC challenges

UAC is facing a number of internal and external challenges including current economic downturn and strong competition. Furthermore, Russia has a long history of badly managed enterprises that are owned by government. With a complex organisational structure, UAC might lack the managerial skills, financial resources and marketing ability to break into the highly monopolistic aviation market. By being a centrally planned economy, Russian enterprises do not possess enough experience and expertise in operating outside the command economy (Daniels and Perez, 2007).

Higher levels of integration might result in higher levels of complexity of the process, which require strong communication and independent decision-making skills (Roy and Roy, 2004). Roy and Roy (2004) noted that integration can lead to re-organisation of the existing resources, complexity of operations, organisational disruptions, and often hidden costs. In the case of UAC, it will not be enough to just accumulate resources through the centralised Russian aviation manufacturing companies and to pool together their expertise. Value needs to be created and competitive advantage must be achieved (Roy and Roy, 2004).

Creating a niche in the aviation market will help UAC successfully compete not only with already-established players, but also with newcomers. The rapid development of the Chinese aircraft manufacturing industry should not be ignored.

Additionally, UAC needs to overcome the conservatism of the air transportation industry regarding the Russian-based technology, which might be perceived by some as not being comparable with current Western technology. The newly manufactured Russian aircraft employ the latest technological advances, and are in strict compliance with all international requirements.

Furthermore, Russian companies might face difficulties to sell their products to the countries producing similar products. For instance, the US government is one of the world's largest customers for space products and will not buy from non-majority

US-owned companies (Daniels and Perez, 2007). Therefore, to tap into the US market, UAC needs to work in collaboration with US companies.

10 Conclusions

The Russian economic future will be based on industry and services rather than its natural resources (Goldthau, 2008). The Russian government is determined to upgrade its aviation sector through the consolidation of aviation-related companies and to achieve competitive advantage in the areas of new product offerings, proprietary process technology, specialised skills and brand reputation. The factors to success lie in whether the UAC aviation industry consolidation will create value and provide competitive sustainable advantage.

To re-store Russian aviation competitive advantage, it is not sufficient enough to follow the strategy of globalisation, which is employed by Boeing and Airbus. UAC needs to find a niche, where competition is not that strong. For example, Superjet 100 will be competing in the business jet sector with the Embraer E-Jets, and the Bombardier CSeries.

Barney (1991) classified the firm's resources into three categories: physical capital (technology, plant, equipment, raw material), human capital (training, experience, intelligent) and organisational capital (firm's reporting structure, planning, controlling). It seems that with the consolidation, UAC acquired physical and human capital needed for successful aircraft manufacturing. However, the company's success will largely depend on its organisational capital, which was centralised under the UAC umbrella.

The aviation industry requires extensive R&D innovations and large financial resources, which creates high barriers to entry. Moreover, high-tech products take time to develop, are hard to substitute, and the patrons of high-tech products are usually not swayed by bargain prices (Porter, 1998). Boeing and Airbus have extensive global supply chains, large financial investments allocated to R&D, and loyal consumer base that includes both government and private organisations worldwide. Adopting a global strategy is vital for successful international competition. Creating strategic alliances and coalitions is an integral part of executing global strategies, which UAC is actively pursuing. However, political environment often outweighs economics considerations on a large scale affecting integration with foreign partners and availability of foreign markets.

To succeed, UAC needs to fully utilise its internal strength (resources, assets, expertise, R&D innovation), to overcome its weaknesses (organisational capabilities and processes, bureaucracy, corruption), to take advantage of external opportunities (forecasted increased demand in air travel, strategic partnerships), and be aware of outside threats (the monopolistic nature of the global aviation market, politics, current economic downturn).

As consumers, we will benefit from the strong competition in terms of new technologically advanced, safe and comfortable offerings. The answer to the question, whether Russia's new conglomerate will power Russian Aviation into the global market, remains to be seen.

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Appendix: United aircraft corporation companies

	Company	*Activity*
1	JSC "Aviation Holding Company 'Sukhoi'"	Aircraft production from front-end engineering to comprehensive after sales support.
2	JSC "Sukhoi Design Bureau"	Aircraft R&D
3	CJSC "Sukhoi Civil Aircraft"	Marketing in the domestic and international markets; civil aircraft research, development, design, etc
4	JSC "Komsomolsk-on Amur Aircraft Production Association named after Yu.Gagarin"	Production of military and civil aircraft for domestic and foreign markets; production of technical packages for licensed production, etc
5	JSC "Novosibirsk Aircraft Production Association named after V.P. Chkalov"	Series production of military and civil aircraft

Appendix: United aircraft corporation companies (continued)

	Company	*Activity*
6	JSC "UAC – Transport Aircraft"	Development, modernisation and production of ramp transport aircraft
7	JSC "Ilyushin Aviation Complex"	Development, testing, certification of civil and military aviation equipment, etc
8	JSC "Voronezh Aircraft Manufacturing Company"	Manufacturing, repairs and after sales support of aircraft
9	JSC "Ilyushin Finance C°"	Financial and operational leasing of modern Russian-made civil aircraft and export financing
10	JSC "Tupolev"	Development, production and repairs of aircraft
11	CJSC "Aviastar-SP"	Aircraft production. Specialisation on production of modern passenger and cargo aircraft
12	JSC "Scientific and Production Corporation "IRKUT"	IRKUT Corporation is the vertically integrated holding company, which consolidates a number of prominent aircraft design and manufacturing companies
13	JSC "Yakovlev Design Bureau"	Engineering, testing and production of new types of civil and military aircraft; R&D
14	JSC "Beriev Aircraft Company"	Design of hydroplanes and amphibian aircraft; Prototype aircraft manufacturing, testing and transfer into serial production, etc
15	JSC "Finance Leasing Company"	Leasing of aircraft and industrial equipment
16	JSC "Nizhny Novgorod Aircraft Building Plant "SOKOL"	Serial production of military and civil aircraft; Upgrading, repair and overhaul-period renewal of "MiG" aircraft
17	JSC "Taganrogskaya Aviatsiya"	Repairing and upgrading of heavy types of aircraft
18	JSC V/O Aviaexport	An exporter of Russian-made aircraft equipment

Source: UAC website (2009)