

# UC San Diego

## Newsletters

### **Title**

SITC Bulletin Analysis: Competition and Cooperation: The Story Behind the Y-20 Maiden Flight

### **Permalink**

<https://escholarship.org/uc/item/06k0x5q5>

### **Author**

LU, Hanlu

### **Publication Date**

2013-03-27

## *Competition and Cooperation*

### *The Story Behind the Y-20 Maiden Flight*

Hanlu LU

Research Analyst

UC Institute on Global Conflict and Cooperation

---

The successful maiden flight of China's heavy lift military transportation aircraft Y-20 at Shaanxi Yanliang Aviation Base (陕西阎良航空基地) has drawn worldwide attention to the Chinese aviation industry. The speedy process of the design and manufacturing capabilities shown in the Y-20 project also raises the question of foreign technological support. While lack of competition has been one of the biggest problems faced by the state monopolized industries, in the Y-20 case, competition existed throughout the planning period, and later regional cooperation was organized to accomplish the project's goals. This analysis looks at the main players in the Y-20 project and the details of the developmental process.

### Competition in China's Aviation Industry

China's aviation industry is monopolized and centralized. Almost all aircraft design, test, and manufacturing units are subsidiaries of or affiliated with the Aviation Industry Corporation of China (AVIC). Born in the era of the planned economy, the industry has also been divided regionally with each company having its own model, specializations, and growth. Although no competition exists at the national level, competition is commonly seen among AVIC's subsidiaries at the regional level when it comes to a large project, which can bring intensive funding and enormous attention. For example, the C919 large passenger aircraft project led to such serious competition between regions that even provincial governments joined in the lobbying efforts.<sup>1</sup> Competition also reportedly exists between Chengdu Aircraft Design Institute (成都飞机设计研究所) and Shenyang Aircraft Design Institute (沈阳飞机设计研究所), which resulted in the launch of the Shenyang J-31, a seeming competitor of the J-20 stealth fighter created by Chengdu.

### The Y-20 Competition: "Shaanfei" or "Xifei"?

Competition played a role during the preparation stage of the Y-20 project as well, but subsequent consolidation of corporate resources during the Y-20's development appears to have been a factor in the aircraft's relatively short path to its maiden test flight. The two main players in the Y-20 competition were Shaanxi Aircraft Corporation (陕西飞机工业有限公司 "Shaanfei") and Xi'an Aircraft Corporation (西安飞机工业有限公司 "Xifei"). A 2003 interview with Hu Xiaofeng, the general manager of "Shaanfei" at the time, revealed that the competition around the Y-20 was "fierce" and "territorial."<sup>2</sup> The players in the competition acted early and vigorously. From a technical perspective,

---

<sup>1</sup> Interview notes with a scholar who participated in the selection of the 16 national megaprojects.

<sup>2</sup> Hu Xiaofeng, *Xunmeng Dafeiji* [Pursue the Dream of the Large Aircraft], (Beijing: Hangkong Gongye Chubanshe, 2007), 158.

*This material is based upon work supported by, or in part by, the U.S. Army Research Laboratory and the U.S. Army Research Office through the Minerva Initiative under grant #W911NF-09-1-0081. Any opinions, findings, and conclusions or recommendations expressed in this publication are those of the author(s) and do not necessarily reflect the views of the U.S. Army Research Office.*

Shaanfei was better qualified to undertake the project because it specialized in middle- to large-size transportation aircraft and had appropriate infrastructure and accumulated knowledge.<sup>3</sup> Its Y-8 middle-size transportation aircraft, for example, has been the only domestically made transportation aircraft used by the PLAAF. Shaanfei's enthusiasm for the project was well shown in many of Hu Xiaofeng's interviews in the early 2000s, in which he expressed that Shaanfei was capable and willing to take the initiative to build China's large transportation aircraft.

However, Shaanfei's close neighbor "Xifei" was even more aggressive, even though not specialized in building transportation aircraft. The company has designed and manufactured a variety of aircraft models, including the MA-60 regional commercial jet that has been sold to Laos and Cameroon, and its JH-7 Bomber, which has been used by the PLA Navy. Compared to Shaanfei, Xifei has done a better job in self-development and expansion, as well as market outreach. It was able to initiate a 3 billion yuan feasibility study for a large transportation aircraft for the PLAAF as early as 1993, even when there was no official plan for a project like the Y-20.

In 2007 it was announced that Xifei would be the major manufacturer of Y-20 project.<sup>4</sup>

## Collaboration and Ukrainian Support

Although Shaanfei did not win the competition, it did not lose either. The competition resulted in a regional consolidation of resources facilitated by the establishment in 2009 of the AVIC Aircraft Corporation Ltd., a large state-owned enterprise under the direct administration of AVIC made up of five subsidiaries, including Xifei and Shaanfei and three other key aviation institutes in Shaanxi province.<sup>5</sup> These aviation companies and research institutes, together with their resources, technologies, and personnel, were grouped in a joint effort to develop the Y-20.<sup>6</sup> Hu Xiaofeng, the general manager of Shaanfei, was eventually promoted to general manager of AVIC Aircraft Corporation. Thus, after one to two decades of competition, the Y-20 project was established in 2007, and after only five years the debut flight was successfully made in January 2013.

In fact, there is much speculation about the rapid development of the project, especially from the Russian media. They inferred that the Y-20 was based upon the An-170, a model designed but not yet produced by the Ukraine Antonov Aeronautical Scientific and Technical Complex (ASTC). It further inferred that the development of Y-20 received technological help from ASTC.<sup>7</sup> A 2003 publication by Hu Xiaofeng provides some credit to this assumption. In his paper, Hu proposed using the An-70, a Ukrainian heavy transportation aircraft model still in its testing stage, as China's model for its large transportation aircraft.<sup>8</sup> Since the 1996 Zhuhai Air Show, ASTC also has indicated a strong intention to cooperate with the Chinese, partially because of a shortage of funding. Although the An-70 model was not chosen, it is possible that there was cooperation with ASTC at the technological level considering both sides had indicated a strong intention to collaborate and with Hu becoming the primary leader of AVIC Aircraft Corporation later on.

3 Ibid., 159.

4 "Daxing Yunshuji Queding Xifei Zongzhuang" [The Large Transportation Aircraft Project Was Confirmed to Be Assembled in Xifei], NetEase, July 16, 2008, <http://shanxi.news.163.com/08/0716/07/4GV5V1E50056007M.html>.

5 "Zhonghang Feiji Youxianzeren Gongsi Zhengshi Guapai Chengli" [AVIC Aircraft Corporation Ltd. Was Established], Sina News, February 18, 2009, <http://mil.news.sina.com.cn/s/2009-02-18/1805542627.html>.

6 "Zhonghang Feiji Youxianzeren Gongsi Zhengshi Guapai Chengli" [AVIC Aircraft Corporation Ltd. Was Established], Sina News, February 18, 2009, <http://mil.news.sina.com.cn/s/2009-02-18/1805542627.html>.

7 "E Cheng Yun 20 Henkeneng Yuanzi Wukelan Taotai An 170 Yunshuji" [Russia Infers Y-20 Is Built Upon the Ukraine Eliminated An 170 Model], Huanqiu News, January 30 2013. <http://mil.huanqiu.com/observation/2013-01/3598317.html>.

8 Hu Xiaofeng, *Xunmeng Dafeiji*, 26.

## Conclusion

Whether with Ukrainian help or not, the quick development of the Y-20 demonstrates Chinese capabilities in the defense aviation sector, and further indicates China's ambition in catching up in science and technology development, especially its goal to have a strong military with advanced modern armament. The Y-20 case is interesting not only because of its quick development, but also because it demonstrates that some form of competition plays an important role in the Chinese aviation industry, which is rarely seen in other Chinese defense industries. Unfortunately, there is not enough evidence to fully evaluate whether this competition has been effective.

It is also unknown why initial competitive efforts were replaced by cooperation and consolidation in both the Y-20 and C919 projects. It might be because in a strategically important project, no single company can be trusted to successfully complete the project alone. It also possible that with a project as large as the Y-20 it was decided that each player would be allowed to share in its economic benefits. Such cooperation is not unknown in the West. The F-22 fighter, for example, was jointly developed by competitors Lockheed Martin and Boeing. Whatever the reason, the Y-20 project appears to have achieved satisfying results so far. The supposed fighter aircraft competition between Chengdu and Shenyang, however, led to two stealth fighter models, the J-20 and J-31. Such differences suggest that no one model exists for the limited competition in China's defense industry and that much remains unknown about the inner workings of Chinese defense procurement.