Safran and Avic, long-standing partners, have created a joint venture to develop advanced technologies for commercial turboprop engines.

Robust and economical to operate, turboprop planes are winning over more and more operators. Aircraft and engine-makers alike are obviously keeping a close eye on the booming regional turboprop market, including Safran and Avic, the Chinese aircraft manufacturer. In November 2014, the two partners, through their companies Snecma and Saic, respectively, signed an agreement to create a joint venture dedicated to the development of key components for commercial turboprop engines. "It's a daunting challenge, because we're not involved in this market for the moment," notes Vincent Garnier, head of product strategy at Snecma's Commercial Engine division. "But along with Avic we fully intend to develop world-class technology in this area. The results of this R&D will then be applied to our respective engine programs."

Sharing expertise

Snecma, as one of the world's leading aero-engine manufacturers, has developed a sound grasp of turboprop technology for military turboprops, through its role in the development and production of the TP400 turboprop engine for Europe's A400M military transport (via the Europrop International consortium). "Entering the commercial turboprop market implies even more demanding requirements," explains Vincent Garnier. "In addition to exemplary fuel consumption, we also have to offer highly reliable, inexpensive technologies, plus
simplified maintenance. But we have a real ace in the hole, namely our experience as a partner on the CFM56 (via CFM International, the 50/50 joint venture with GE), the world's best-selling commercial engine, and the development of its successor, the new-generation LEAP."

Avic company Saic (South Aviation Industry Co. Ltd.) offers long-standing expertise in small turboprop engines, and wanted to expand its technological scope. "Our needs really converged in this case," notes Garnier.

**State-of-the-art technologies**

The joint venture's first goal is to design, test and produce two main components: power turbines and flame tubes. "The power turbine is a key component, and its performance has a direct influence on fuel consumption," says Vincent Garnier. "The flame tube, also known as the 'combustor can', is where combustion takes place. We are looking to develop stronger metals that require less cooling."

The research teams for the new joint venture will be based in China, and will be able to call on the experience of the two parent companies, as well as developing their own expertise. Both Safran and Avic will eventually draw on these advanced technologies to design new generations of engines.

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**A booming market**

Fuel-efficient turboprop aircraft are winning over Asian markets such as China and Indonesia, an island nation where air travel is essential. Reflecting this growth, Indonesian airline Lion Air ordered 40 ATR regional turboprop planes in November 2014. Some countries in Africa and South America could well provide sales opportunities as well. In the West, certain regional airlines may also replace their fleets in the coming decades with new-generation aircraft.

**Safran's role on ATR turboprops**

ATR, a subsidiary of Airbus Group and Alenia Aermacchi (Finmeccanica), is one of the world's leading manufacturers of regional turboprop planes, having sold 1,400 since being founded in 1981. Safran is a major supplier on the ATR 72 families, including wiring, wheels, brakes and landing systems, flight controls and cockpit equipment.