

SPECIAL DOUBLE ISSUE

\$12.00 JUNE 14/21, 2010

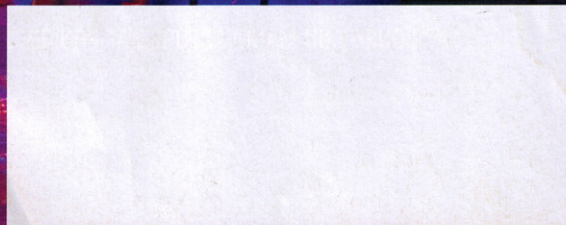
# AVIATION WEEK

## & SPACE TECHNOLOGY

EMERGING MARKETS

## India Rising

- MANUFACTURING ■ AIRPORTS
- SPACE ■ AIRLINES ■ DEFENSE
- BUSINESS AVIATION ■ MRO



The McGraw-Hill Companies

[AviationWeek.com/awst](http://AviationWeek.com/awst)



# Following the Money

As the Indian economy booms, aerospace becomes the next growth opportunity

BRADLEY PERRETT/NEW DELHI

**T**he surest sign that India is a rising power in aerospace is the private investment flowing into the industry.

In contrast to state-directed efforts elsewhere in Asia, the growth in Indian aerospace manufacturing and engineering is above all in businesses that rely at most indirectly on government support.

"Aerospace is the next growth opportunity in India," says Avind Mehra, the head of the aircraft and aerostructures operation that Indian conglomerate Mahindra is setting up.

Mahindra's judgment is telling. Surveying potential investments across the economy, the experienced and successful group—with operations from information technology to automobiles, infrastructure and finance—could choose almost any sector for its next expansion. It has chosen aerospace.

One obvious reason for the growth of Indian aerospace is low cost—above all, the competitive wages paid to Indian engineers and technicians. But there is also the sheer availability of qualified people. Western companies have debated for years what to do about aging engineering workforces. It is becoming increasingly clear that, to a large extent, the answer is India.

Two other key factors driving the industry forward are the increasing availability of defense work for private

companies and the opportunity to gain business from foreign suppliers compelled to offset their sales to India with domestic purchases.

Then there are the two great advantages in the background of so much of India's successful engagement with the global economy: the English language and the Common Law system shared with the rest of the English-speaking world. The country's respect for intellectual property helps set it apart from some competitors, too.

Rising wages will challenge the companies, however, and all Indian businesses suffer from the country's poor infrastructure and the official corruption that inhibits economic activity generally.

A comparison with China is unavoidable, and two big differences between their aerospace industries should be noted. First, India's industry is still small. The dominant company, Hindustan Aeronautics Ltd., had revenue of \$2.6 billion in its latest financial year; China's Avic is about 10 times larger. So the Indian aerospace story is still mostly about potential and growth rates, not absolute scale.

Second, China's industry is growing through state-dominated giants that are only partly exposed to the market. India also has a state-owned aerospace subsector, but it has not been a strong performer (see p. 58). In India, the fastest growth is in private companies that,

far from seeking to develop aerospace as a supposedly strategic part of the economy under the direction of New Delhi, are simply trying to make money.

Unlike private companies in some other Asian countries, they are neither expected nor paid to undertake patriotic glamour projects, such as developing an economically doubtful "national" aircraft in one category or another.

And foreign aerospace suppliers are not told to hand over a bundle of technology in return for working with Indian partners on civil programs.

General Electric is one of the most notable foreign participants in the industry. Bansidhar Phansalkar, general manager of Indian engineering operations for GE Aviation, has 600 engineers working on advanced research and development, 75% of them with post-graduate degrees. GE would pay 10 times as much to run such an operation in a Western country, Phansalkar estimates. More importantly, he can find many more engineers, and expects that the business will keep growing by 10-15% a year.

The availability of engineers is on the minds of other Western companies that come to India looking for suppliers.

"Clearly, the big leaders of the global industry are looking at the next generation of commercial aircraft and how to assemble the engineering resources to develop them," says Raman Subramanian, vice president for strategic initiatives at engineering and manufacturing company Quest. "They are looking at doing a significant portion of the engineering in India."

"There is a constant push from our customers to get capability going on current programs so we will be ready for a larger-scale involvement in the next one."



Indian manufacturers are competing for orders that would offset India's purchase of foreign defense products, such as the Boeing P-8I.



In some cases, Quest can only infer that its customers are deliberately upskilling Quest. "But in several cases they have clearly articulated it in as many words"

Just three or four years ago, Quest might have been contracted simply to do engineering analysis—crunch numbers for a problem that its customer was dealing with. The company, expected only to deliver data, would not even know what the customer was developing.

Now the customer will ask Quest to handle the development on its own, typically a project that is not too challenging, such as re-engineering a part that is already in service.

Quest has stepped beyond that by developing an entirely new product, but one for the ground: testing equipment. It expects the next stage will be to engineer parts for a development of a current aircraft, such as a stretch or an update, while its customers hold its hand and help it to acquire new skills.

After that, it should reach the final objective: taking a risk-sharing role in the engineering of an entirely new aircraft, such as a replacement for the Boeing 737 or Airbus A320 family.

A similar process has played out at GE's engineering center in Bengaluru (formerly Bangalore), but faster. The center was set up in 2000 and within three years had moved from analysis to such challenging work as advanced system design, advanced mechanical design and combustion. Phansalkar says progress was fast because the center belonged to GE.

Under a different model, more than 500 engineers at Quest work for Rolls-Royce, which has also engaged Tata Consulting to deliver engineering services.

Boeing trains its partners in program management and lean manufacturing, says the company's Indian president, Dinesh Keskar.

In manufacturing, no outside company seems to be deliberately fostering Dynamatic Technologies, but the company is working hard at learning new skills and taking on more complex work.

"We will graduate from smaller structural assemblies to larger, more sophisticated structural assemblies," says Udayant Malhoutra, chief executive.

The company had five engineers working for foreign clients three years ago. Now it has 50 assigned to such work and in three years expects to have 500.

Unsurprisingly, demand for engineers

is pushing up salaries—by 7-10% a year, say industry executives. To the extent that the industry cannot offset those pay rises with higher efficiency, the wage inflation will steadily sap its competitiveness.

A common solution is to carefully dilute the experience of the engineering teams by filling out the lower ranks with new people and using the long-time employees as leaders.

"Employees with the right skills are not available off the shelf," says Malhoutra. "With the increasing number of foreign aerospace companies entering India, retaining skilled manpower may pose a problem."

"The Indian private aerospace industry is in its infancy, and we feel that the wage rates will eventually rise faster than the average across the economy."

"We are not here  
because there is an offset  
policy and **we are forced  
to do work here**"

However, to be competitive, the productivity levels will need to increase dramatically."

There is evidence that manufacturers can greatly improve their efficiency. Dynamatic says it has approximately doubled its sales in India each year since 2006 while quadrupling its staff. That suggests a dramatic rise in output per worker.

The exact effect of the government's offsets policy is a little hard to fathom. On the one hand, it is clear that it will draw business to India, even if it fails to bring in the highest technology (see p. 53).

Yet local companies and the foreign ones with offset obligations all stress that their objective is to make money out of an Indian manufacturing contract on its own merits; the offset obligations will be met as a side effect. But if that is entirely true, then one must wonder why the offset policy is needed at all.

The attitude of Samtel Display Systems probably best represents the view of the Indian industry. "We want to be in the global supply chain, and not just because customers are obliged to work with us under the offset rules," says Executive Director Puneet Kaura. "We want customers to look at us as an opportunity, not as an obligation."

The offsets policy opens doors, he says. It brings foreign aerospace manufacturers into contact with Samtel, giving it a chance to prove itself.

Dynamatic won a contract from Spirit AeroSystems to build flap-track beams for the A320 family in 2007 without any influence from the offsets policy, although the work is now counted as an offset.

We "would basically like to work on the basis of giving the customer value for money, and in the process if it helps the customer meet offset obligations, we are in favor of it," says Malhoutra.

Access to defense work helped Dynamatic get the Spirit business, because the Indian company could show that it had experience and a plant.

Rolls-Royce stresses the need to have a deeper local presence in India than in the past, and not just to hand out offset work. It is important to be seen as engaged in the Indian industry.

"We are not here because there is an offset policy and we are forced to do work here," says Anil Shrikhande, president of Rolls-Royce India. "Our approach to being in India is not to discharge offset obligations. We don't have what I refer to as a suitcase mentality"—meaning, the company does not just want to fly in, sign a sales contract, and fly back home.

"We do things in which India has comparative advantage, and a by-product is that we will be able to discharge those offset obligations."

The conglomerate Mahindra has bought two Australian companies to jump-start its aerospace business, whose Indian plant should be in production by the end of next year.

The business case is based mainly on low costs and the offset opportunities, says Mehra.

The company does not lack ambition. "Our aim is to be the Embraer of India," he says. At first it will make metal aerostructures and its own general aviation aircraft.

The government's Hindustan Aeronautics, mainly a defense company, is heavily engaged in the Sukhoi Su-30MKI program, but it too has proven that it can garner commercial work, winning a follow-on order for 2,000 A320 family forward passenger doors. The company also produces flaperons for the Boeing 777 under a contract signed last year. ☛

*With Neelam Mathews in New Delhi.*