



# DESIGNS ON GROWTH

Indian IT services firms and a slew of specialist companies are boosting engineering services capabilities through partnerships and acquisitions. As global engineering heads send more complex design work to India, this sector is on the cusp of explosive growth

In early March KPIT Cummins Infosystems (KPIT), announced a small but important acquisition—one that would give the firm a larger portfolio of engineering services capabilities to go to market with. While an IT services firm, KPIT is looking to boost revenues from engineering services and semiconductor design work.

For Ravi Pandit, chairman and group chief executive of KPIT Cummins, the timing is perfect. As more global heads of engineering follow their CIO brethren and farm out engineering design work, firms such as KPIT stand to benefit. KPIT, a Pune, India-based firm of some 2,000 engineers acquired C G Smith Software, a Bangalore-based vendor of auto-electronics technology and design.

The combined entity has a formidable array of services to offer customers, typically tier-1 and 2 suppliers to the big car makers in the US, Europe and Japan, says Pandit.

## LOT OF ACTION

The auto sector has been exploiting Indian engineering capabilities for over a decade at least, but only in the last two years has there been a surge in outsourcing contracts in engineering—from just detailing out CAD designs, to full design and testing of prototypes of various components.

Munirathnam Javaji, head of engineering services at Mumbai-based Geometric Software, says, “In addition to 2D and 3D detailing, activities such as computer aided engineering and analysis (such as static, dynamic and thermal) are being outsourced to India.”

Prashanth Chunduri, head of marketing and human resource at Neilsoft, says, “Newer activities being carried out in India are noise and vibration analysis, creation of physical prototypes, and their lab testing.”

Vikas Sehgal, principal, at research firm Booz Allen Hamilton, says “The current trend in the global engineering services outsourcing is to consider China as the world’s workshop and India as its laboratory.” Sehgal’s firm is compiling a global engineering services outsourcing (ESO) report, commissioned by India’s IT services lobby group, the National Association for Software and Services Companies (Nasscom).

The first generation of outsourcing was mostly CAD related work at the low end—a design would be done in the US

and some detailing of the design or conversion into a different format would happen in India. Now, there are engineers who are sitting in India and designing power trains, for instance, says Shyam Shentar.

Shentar’s firm, Mumbai-based Avendus Consulting, brokered the KPIT-C G Smith deal. Eight months ago Avendus successfully brokered a US acquisition by Eicher Motors. “They have an engineering subsidiary, which made a niche acquisition,” he explains.

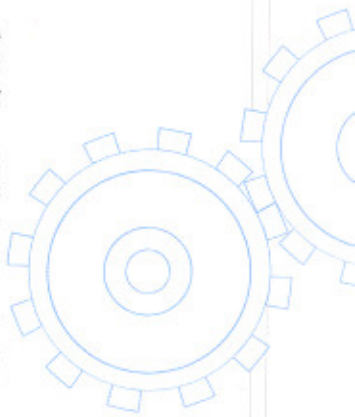
In July 2005, Eicher Motors paid some \$2.5 million for Design Intent Engineering (DIE), a 60-man firm in Detroit. DIE came with important customers including original equipment makers and tier-1 suppliers.

Siddharta Lal, chief operating officer of Eicher Group says “We are possibly looking at other acquisitions in Europe and the US,” in a statement.

Similarly Indian auto and tractor maker Mahindra is looking at acquisitions in the US, Shentar says. “Most of these manufacturing concerns themselves have engineering divisions and are looking at overseas buys to add expertise,” he says.

Then there are firms such as Quantech Global Services Inc.—“An American firm that is doing a lot of work in India—and QuEST, which services GE, Smiths Aerospace, Pratt and Whitney and Rolls Royce, from a center in Bangalore, he says.

Even as the manufacturing firms add design competencies, the bigger Indian IT firms too, such as TCS are looking at aggressively growing their engineering services capability, he says.



## Outsourced Engineering Services Portfolio

Product Engineering		Process Engineering	Plant Operation	Enterprise Asset Management
Mechanical	Electronics	Plant Design Process Engineering	Plant Automation	Monitoring Maintenance
<ul style="list-style-type: none"> <li>• Concept Development</li> <li>• Preliminary Design</li> <li>• Detailed Design</li> <li>• Design Validation</li> <li>• Pre-production</li> <li>• Production</li> </ul>	<ul style="list-style-type: none"> <li>• Concept Generation</li> <li>• Engineering Analysis &amp; Design</li> <li>• Deployment</li> <li>• Verification &amp; validation</li> <li>• Prototyping &amp; Production</li> <li>• Sustainance</li> </ul>	<ul style="list-style-type: none"> <li>• Pre-project Activities</li> <li>• Detail design engineering</li> <li>• Procurement Support</li> <li>• Inspection &amp; Expediting</li> <li>• Construction supervision</li> <li>• Commissioning support</li> </ul>	<ul style="list-style-type: none"> <li>• Automation System design</li> <li>• Automation system commissioning</li> <li>• Process optimization</li> <li>• Production control &amp; optimization</li> </ul>	<ul style="list-style-type: none"> <li>• EAM product implementation</li> <li>• EAM product upgrades/support</li> <li>• EAM-ERP system integration</li> <li>• EAM custom solutions</li> <li>• eMRO</li> <li>• EAM analytics</li> </ul>

Source: Nasscom

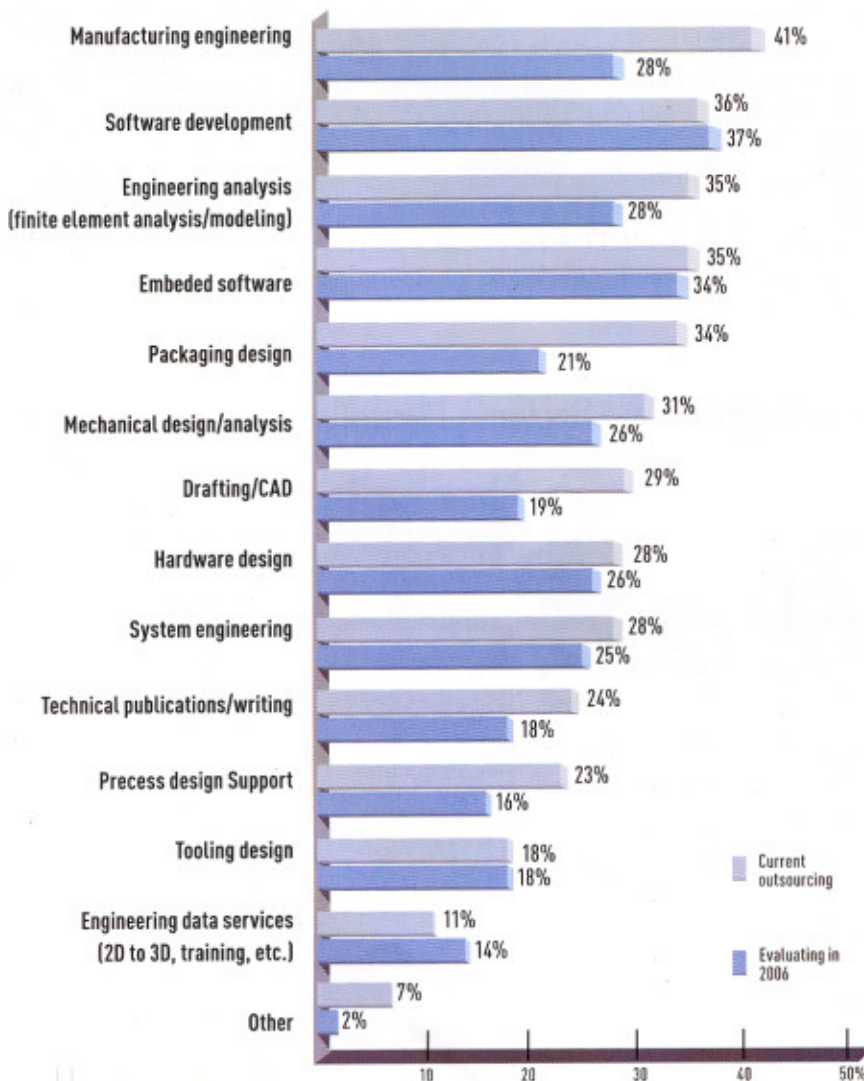
## PROJECT MANAGEMENT AND INNOVATION

When digitization made it easier to parcel out work, IT firms with their strong process management skills recognized engineering services as an area of growth.

In its report 'Nasscom Strategic Review 2006,' the IT body says, "The development of common enterprise management applications and technology platforms is driving information integration," of work.

The project management capabilities came into play when clients ask the providers to handle more complex tasks. In some cases, they are pleasantly surprised by the degree of innovation the Indian firm can bring to project—Wipro's 'extended engineering' is an example.

### Product Development and Introduction Activities Most Likely to be Outsourced



Source: AMR Research 2005

One Wipro project was to develop a human-machine interface for IxFin Magnetti Marelli. This company is the second largest European automotive supplier of what are called 'instrument cluster' products the instruments and related electronics located around the dashboard, including the entertainment system, air conditioning and the like.

IxFin Magnetti Marelli were looking to position themselves as the technology leader in their market offering their customers (automotive manufacturers) a "fully integrated 'infotainment system,'" says A. Vasudevan, vice president of VLSI & system design at Wipro.

The infotainment system was to have an in-car multimedia system with GPS navigation, telephone connections, links with service centers for breakdown and emergency calls, and voice recognition controls for the air conditioning and other functions. The challenge was that IxFin Magnetti Marelli had no previous experience of offshore projects. "Extensive communication helped us learn what was required, and our team quickly developed a new infotainment system in time for the launch of a new model from Fiat," says Vasudevan.

Another hurdle that is less of a challenge now was that initially clients saw Wipro only as a technical specialist and ran projects mostly following their own 'new product development' processes. "Increasingly, clients are recognizing our process expertise and are open to letting us speed up their processes, says Vasudevan. What's Wipro's secret sauce? Effective reuse and automation," he says.

## INCREASING INTEREST

Research firm AMR Research, found in a survey last year, 29 per cent of the respondents had outsourced parts of their new product development, and another 41 per cent reported that they were considering outsourcing options in the next 12 to 14 months.

AMR's survey also found that 57 per cent of the respondents listed manufacturing cost savings as benefits of engineering services. Other benefits included faster time-to-market (45 per cent) and better quality (33 per cent). Among the respondents that considered engineering core to their business, 38 per cent outsourced some engineering services, the survey found.

Auto makers such as GM, Toyota and BMW, and suppliers such as Cummins, Johnson Controls, and Robert Bosch do considerable engineering design work from India either through captive centers or with third party service providers. Often they use both routes.



## COMPETITIVE ADVANTAGE

### Harichandan Arakali

Over the last 20 months, Rolls-Royce has been running pilot programs with Quality Engineering Software Technologies (QuEST) a US-based firm with the bulk of its operations in Bangalore, India. Rolls-Royce India's managing director Tim Jones and Mike Bradley, who specially volunteered to head Rolls-Royce Operations India Private Limited—which manages work sub contracted to firms in India—talk about why the multinational aircraft engine and turbines maker has taken the offshoring plunge in engineering services

#### Q. What is the opportunity here?

It is such a competitively advantageous area...we see this growing well beyond the pilot scheme. There isn't a timeframe for

that and indeed there aren't limitations on the scope of it either.

The initial engagement with QuEST is for five years—it's a variable opportunity and there is demand from all sides. We have four lines of business—defense, civil aircraft engines, marine, and energy, and there is demand from all of these.

#### Q. What has been outsourced to QuEST?

We are outsourcing work from across the design process, at the component level. For example, we have done some standardization of a jet pipe in the Adour engine, which is in the Jaguar and the Hawk aircraft.

There are different marks of the Adour in operation in different parts of the world and they are all slightly different from each other. To reduce costs and simplify the manufacturing processes of these different

variants of the engine, we can standardize the design. The standardized jet pipe for instance can be used across the variants.

#### Q. Have you offshored such work before?

This is new work. We've not really sub-contracted into India or any other low-cost location before. That's why we set up the pilots. This is work we are re-directing from a sub-contract network we have in the UK and Europe.

#### Q. What next for this engagement?

We've currently got a 100 staff at QuEST working on Rolls-Royce tasks. We expect to double that by the end of 2006.

Further growth will be influenced by a number of factors, one of which is India's ability to provide capable and competent engineers that can meet the Rolls-Royce standards.

Nasscom estimates that the total value of engineering and R&D services exported from India grew to \$2.2 billion in the year ending March 2005, from \$1.7 billion in the previous year. This financial year, it is projected to reach \$2.8 billion, Nasscom says.

The industry lobby defines engineering and R&D services to include activities such as the design and development of semiconductors, embedded systems, design services for the manufacture of automotive and aircraft components, consumer durables, industrial products and machinery, and developing building systems.

The contract sizes tend to vary widely. The deals in the telecom products space may be as long as five months but in aerospace they may go up to 50, says Thuraiur S Krishnamurthy, head of a design center dedicated to consumer and industrial design of GE products, at Hyderabad headquartered IT services firm Satyam.

Munirathnam Javaji, head of engineering services at Geometric Software in Mumbai, adds "These engagements also vary from eight to 60-people contracts, and can range from \$300,000 to \$1.5 million."

Dominique Raviart, a senior analyst in France with analyst firm Ovum Research, says "For now the deals are still small, sometimes as small as \$500,000. But there are plenty of them. The trend now is that firms are trying to grow those contracts. Ultimately, we could see contracts reach a size as big as \$20 million." ■

—With reporting by **Nagesh Joshi** in Mumbai

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