Hindustan Times

US engineering jobs continue to be outsourced to India

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US engineering jobs are being "offshored" to countries like India and China, a trend that is "gaining momentum", says a study just out.

But it says that it is still "not clear" whether this would erode US competitiveness or provide long-term benefits to the West.

"What is clear is that there is insufficient independent research on this study," says the study by the Durham, NC-based Duke University's Pratt School of Engineering Research. The study is titled "Industry Trends in Engineering Offshoring".

Significantly, this study challenges the often-accepted view that China and India "graduate 12 times the number of engineers as the US".

"Until recently, the most commonly cited statistics were that the US graduates 70,000 engineers a year versus 600,000 in China and 350,000 in India," said the study.

It said that a more realistic comparison of total bachelors and sub-baccalaureate engineering, computer science and information technologies for 2004 was 222,335 (in the US), 644,106 (in China) and 215,000 (in India).

Duke University's executive in residence Vivek Wadhwa, who conducted the study with two others, said a recent offshoring conference in the US found civil engineering "under threat" and some pessimistic views of the telecom industry - where most research and development has started going overseas.

"Some of the findings fly straight in the face of recent reports about India being in trouble," said Wadhwa.

This study interviewed 78 senior executives of major US firms. It surprisingly found that 75 per cent of US firms surveyed say that India has an adequate to large supply of entry level engineers - even more than in the US and China.

What was also surprising, he said, was that 57 per cent of companies hire graduates with two-three year diplomas either directly or after they have received additional training.

This, said Wadhwa, may explain why despite the low four-year engineering degree and poor quality of engineering education in India, outsourcing is gaining momentum -- companies are recruiting raw talent and providing training.

"This also shows another big flaw in the current debate which is focused on four-year degrees," he added.

Vivek Wadhwa said: "This means that despite what you read on the front page of the *New York Times*, the outsourcing trend is continuing and perhaps gaining momentum."

"Indians have a resilience that is astounding. India has major issues with the quantity and quality of its engineering graduates. Yet companies doing business in India say that they find an adequate to large supply of engineering graduates in India -- more than in US and China," he added.

Wadhwa found this "particularly surprising" as the Chinese government reported that it graduated over 350,000 engineers with bachelor's degrees in 2004 -- over twice what India did.

After visiting Delhi and Bangalore and meeting business executives and academics, Wadhwa said he believed the private sector is making up for the deficiencies of the education system.

"Companies like NIIT are taking engineers with poor education and polishing their skills to the point that they become employable. Companies (in the US) are hiring based on skill and competence - not just four year degree," he said.

Wadhwa said: "Companies also confirmed that the reason they are outsourcing isn't a shortage of engineers in the US -- there are many other factors with cost being the no.1 reason.... the results are very positive for India."

He mentioned in another comment that visitors from the US who visited a number of new private schools across India had been "blown away" with the quality of education and infrastructure.

This study was presented at the US National Academy of Engineering in the past week.

Giving a hint about the economic reason for outsourcing in engineering, Wadhwa commented: "There is no general shortage of engineers in the US. We asked questions about job acceptance rates, hiring bonuses and time to hire, to validate this."

He said, this and an earlier study contradicted "the media hype about a US (engineering) shortage". There have been calls by political and business leaders to double the number of US engineering graduates to compete with India and China.

It also noted that jobs traditionally done in the US "are going to India, China and Mexico". Wide variety of jobs are being offshored including analysis, design, development, testing, maintenance and support.

But work done in the US is either more technical or equal to what's done abroad. Some 37 per cent surveyed said US engineers are more productive and 24 percent said as productive as offshore engineers. None per cent said overseas employees were more productive.

Companies expect the offshoring trend to continue and expect a wide variety of jobs to go overseas. Only 5 per cent indicated a stabilisation or contraction of offshore operations.

But some types of jobs are unlikely to be offshored: research, conceptual design, IP work, deep technical, communication or business support, customer interactions, project management, marketing, finance, architect level design, network design, management staff, business analysis, and jobs requiring US security clearances.