Information Technology Spending; 
Do Some Work Offshore?

- Government in USA spends more on information technology than industry does.

- General Motors does IT application development offshore.

- India has been big on software development. China wants to do more of it.

- The situation in Mexico (do work for manufacturing):
  - And aerospace supplier turn to Mexico
  - Plus global shift to low-cost manufacturing

- This bundle has 15 items and 26 pages.

ONE RELATED BUNDLE OF PAPERS:

- Outsourcing Packet, 27 p, Sep 2000, RJ0037

Roy Jenne
21 Mar 2002
Information Technology Spending; Do Some Work Offshore

Roy Jenne
Mar 15, 2002

We will give some information about information tech spending in the US. To develop software, more US firms are contracting program development with overseas firms. It costs to outsource, too. Where will this all balance out?

There are 15 items below and 24 pages plus 2 pages in front.

Some of the titles of pages here follow:

1. Government leads tech spending in US. Also, IT budgets as a percentage of revenue are given (Jan 02, 1 p)

2. GM drives application development offshore (Jan 02, 1 p)

3. Software firm battles market's commodities trend (Jan 02, 1 p)

4. China's secret weapon: Smart, cheap labor for high-tech goods (Mar 02, 1 p)

5. Chinese race to supplant India in software (Jan 02, 2 p)

6. Mexico's border region, opportunity lost (Feb 16, 02, 1 p)

7. Will bugs eat up the US lead in software? (Dec 99, 1 p)

8. Some sanity returns to IT hiring (Jan 02, 1 p)

9. India's IT Industry (Sep 01, 7 p)

10. Aerospace suppliers gravitate to Mexico (Jan 02, 1 p)

11. Global shift as manufacturing goes low-cost

12. Tech outsourcing firms see profits dwindle (Dec 01, 1 p)

13. Staples CIO wants IT to resist innovation frenzy (Nov 01, 1 p)

14. Dot-Commers are fleeing Silicon Valley (May 01, 1 p)

15. Analysts say retailers will keep up IT spending in 02 (Jan 02, 1 p)

16. East Asian economics falling (again), Jul 7, 2001, 1 p
Government Leads Tech Spending

Government agencies spend more money on information technology than any industry. They’re expected to budget $113 billion for tech goods and services this year. Professional services firms will spend the next highest amount, budgeting $91 billion.

Source: Giga Information Group (gigaweb.com)

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**Industries with highest estimated IT budgets in 2002**

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<td>Professional services</td>
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<td>Retail and distribution</td>
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<td>Nonbank financial firms</td>
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**Industries with highest estimated IT budgets as a percentage of revenue in 2002**

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**Industries with lowest estimated IT budgets in 2002**

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**Industries with lowest estimated IT budgets as a percentage of revenue in 2002**

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<td>Metals and natural resources</td>
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<tr>
<td>Energy</td>
<td>0.5%</td>
</tr>
</tbody>
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**Argentine bank loss views upped**

Moody’s says Argentine banks are insolvent and face $54 bil in losses after the government devalued the peso and stopped most financial transactions. That’s more than double prior loss outlooks. Moody’s said the Argentine financial system could be bankrupt soon.

**Japan sees slow growth in future**

Japan’s economy will be flat next fiscal year and grow no more than 1.6% a year for the next four years, the government said. It said Japan’s economy will likely shrink 0.9% for this year ending in March. Japan is in its third recession in a decade.

**Russian growth slowed last year**

Industrial output grew 4.9% in '01. While welcome after the protracted slump of the '90s, that was well below 2000's 9%. Tax revenues were 8% above target. But outside the big cities, hardship is the norm.

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**Dim Economy Trims Trade Deficit**

The deficit fell 4.8% in Nov. to $27.9 bil from Oct. and 15.4% year over year. Exports fell 14.4% year over year, while imports dropped 13.6%. That’s the fourth straight double-digit year-over-year decline for both. Lower oil prices pushed imports down, even as auto and other goods imports rose. The gap should widen as the U.S. recovers. See Vital Signs on A2.

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**Why Intel's Cutting '02 Spending**

The chipmaker spent heavily last year despite the slump in chip sales as it sought to maintain its lead over rival Advanced Micro Devices. Now, it plans to slash its '02 capital spending for new plants and equipment budget to $5 bil from the record $7.3 bil in 2001. AMD, meanwhile, will boost its spending 20%. More on this page
GM Drives Application Development Offshore

Automaker uses programmers in India for the first time to speed up Web project

BY LEE COPELAND

GENERAL MOTORS Corp. last week launched its latest Web-based application for car owners, marking the first time it has relied on an offshore organization for a big application development project.

In doing so, the automaker joined a growing list of companies turning to offshore development as a means to quickly complete complex projects. GM credits this approach with building the application in six months and at substantial cost savings over using U.S.-based consultants, said Stu Dressler, global program manager of Owner Center at GM.

Owner Center is a Java-based Web application that allows registered GM vehicle owners to track warranty, recall and service information online. It was built with BEA Systems Inc.'s WebLogic application server, Art Technology Group Inc.'s personalization server and a Web server from iPlanet E-Commerce Solutions, an alliance of Sun Microsystems Inc. and AOL Time Warner Inc.

Teaneck, NJ-based Cognizant Technology Solutions Corp. led the project for GM. Two to four project leaders working at GM's Detroit headquarters managed a team of about 25 developers in Bangalore, India, Dressler said.

Many companies outsource IT services to manage costs during economic downturns. But the complexities of these relationships, particularly with offshore vendors, require strong project management on the user's part, said Mike Dodd, an analyst at Giga Information Group Inc. in Cambridge, Mass.

"When done properly, [offshore development] can achieve cost-cutting goals, but it's not a silver bullet," he said. "It's like a marriage: If you rush in with haste, it won't work."

Caterpillar Financial Services Corp. has also tackled that challenge. The Nashville-based financial wing of Caterpillar Inc. launched a Web-based financial system at year's end — a multimillion-dollar project that took three years to build and utilized offshore developers in India, with project leaders in Chicago, said Tom DePauw, manager of IT at Caterpillar Financial.

To manage the development process and ensure that Caterpillar could maintain the application, DePauw hired application architects and trained employees already on staff in enterprise Java and project management skills. "We grew our support team internally to match the project," he said.

Having an on-site liaison to manage offshore development projects is another key component of success. Chicago-based ThoughtWorks Inc. played that role for Caterpillar Financial, and Cognizant Technology served as the liaison for GM.

That kind of link between U.S. and offshore developers is critical, said Evelyn Follit, CIO at RadioShack Corp. in Fort Worth, Texas.

The electronics retailer is developing new applications using India-based developers managed through Cognizant. Follit said an on-site liaison can bring in additional cost savings by ensuring that code is reliable and meets quality benchmarks.

Quick Link

Ford Motor Co. is going in a different direction: bringing IT jobs in-house. Visit: www.computerworld.com/q/20540
Software Firm Battles Market’s Commodities Trend

BY ALAN R. ELLIOTT
FOR INVESTOR’S BUSINESS DAILY

It’s not exactly breaking news that the ear-splitting days of the high-tech boom have faded. Technology now forges ahead through quieter channels.

One such channel is diverging in India’s vast software engineering sector, which once boasted an estimated 3,000 firms. Many of those companies feed over-the-wire programming services to U.S. and European companies.

Budget cutbacks last year folded and spindled many smaller operators. But the largest, including Wipro Ltd., turned in strong results.

Today, those firms are struggling against global market forces on two fronts. They’re working hard to sell more high-value services. And they’re holding fast against eroding contract rates for their engineers.

If the group succeeds, it could grab a large share of the future market for outsourced, high-end software design. The problem is, the computer code they write might end up being another of India’s exported commodities.

“What we call ‘offshore’ today is going to look significantly different in a couple of years,” said Stephen Lane, research director with Boston-based Aberdeen Group. “In many respects, it is going to look like manufacturing in any industry.”

The threat is that software programming will become a high-volume, thin-margin business. That’s a definite step down for what’s now seen as an industry of highly skilled, well-paid engineers.

Avoiding that slide means convincing clients to outsource higher-value consulting, engineering and design services. To that end, Wipro added nine salespeople during the fiscal third quarter ended in December.

The firm also landed 27 new clients during the quarter, including 18 in the U.S. and two in Europe. It also cleared earnings estimates for the quarter. Wipro earned 20 cents a share, up 18% from the prior year. Revenue climbed 7% to $179 million.

The company’s information technology services segment, aimed at the U.S. and Europe, grew sales 25% to $126 million. That made up 70% of the company’s total.

But Wipro Chairman Azim Premji cut short any sigh of relief. He predicts information technology services revenue for the fiscal fourth quarter, which ends in March, will decline 5% to $120 million.

The real thorn in the firm’s side is a falloff among telecom equipment clients. Revenue from those clients dropped 23% in the fiscal third quarter. Adding to the uncertainty was a 2% decline in Wipro’s North American IT service revenue.

But revenue in Europe grew 14%, largely due to the $19 million it got from an outsourcing contract with Lattice Group PLC.

That contract was signed in July. Wipro also signed up another $11.3 million in new-client business this fiscal year. The question: How much new revenue comes from commodity-level programming?

In a Jan. 18 conference call, Wipro Chief Executive Vivek Paul said 53% of company IT revenue last quarter was from “higher value-added services.” They included new initiatives such as data warehousing, global support and research and development.

The measure of future success will be Wipro’s ability to win over new clients for more complex levels of work — without losing its recurring bread-and-butter customers.

“The game for them really is to expand the scope of services, penetrate these (new) customers and drive higher volume growth from existing customers,” said Prakash Parthasarathy, analyst with Banc of America.

It’s no small task. And companies cutting costs through outsourcing options might not take the value-added bait. That’s where it becomes a make-or-break game for Wipro and its rivals.

“I think the numbers show their continued strength is in areas where they’ve always excelled: in serving (large) companies, in taking a lot of the day-to-day activities off the hands of the internal (operations),” Lane said.

Wipro does have patience on its side. It wasn’t until 1999 that the Indian government let Indian companies go public on U.S. stock exchanges. Even then, Wipro sat tight until October 2000 — more than a year after Infosys and Satyam — before its initial U.S. offering.

Now it’s applying that same patience to its telecom gear clients. The stalled sector might wait until after the next quarter to kick back into spending mode, but Wipro is keeping an ear to the ground.

“What we heard from our telecom customers was that their own businesses were beginning to see solidify,” Paul said. “But they were not reaching to their wallets to spend more money in (research and development) just yet.”

Analysts polled by First Call see Wipro’s full fiscal year earnings rising 32% to 79 cents a share, then reaching 93 cents in fiscal 2003.
Talent Pool
China's Secret Weapon:
Smart, Cheap Labor
For High-Tech Goods

Beyond Toys and Garments,
Country Raises the Bar
Again in Manufacturing

View From Mr. Li's Balcony

By PETER WONACOTT,
Staff Reporter of THE WALL STREET JOURNAL

ZHUHAI, China—Six years ago, Li Guangxiang was a starting engineer at a
chemical factory in Hunan province. He usually finished his day's work in a couple
of hours and spent most of his first year sipping tea and reading newspapers. He
daydreamed about being a real engineer with a challenging job. "I couldn't stand
the thought of another 20 years there," says Mr. Li, now 30, pushing the wire
frames of his glasses up on his round face.

Without telling his parents, he quit and found work 40 miles away in Shenzhen.
For a beginning engi-
neer, pay was
low—about $240 a
month—and demands
high. Mr. Li shuffled
through three jobs,
and even was fired
from a Chinese brush
factory; he says it
was for "inexperi-
ence." But after gaining
experience, he got
a job at a computer-
parts plant outside
nearby Zhuhai that
was later bought by the big contract man-
facturer Flextronics International Inc.

Since he came to the computer-parts
plant, Mr. Li has seen his annual salary
more than triple, but still to only about
$10,000. As a senior engineer and an assistant
manager at the plant, he supervises
five production lines manned by women
wearing red kerchiefs, white lab coats and
sleeve protectors. Last year, he persuaded
his younger brother to come here to Zhu-
hai and start working his way up in elec-
tronics.

All over the factories along this stretch
of China's southeastern coast, the same ex-
traordinary scenario is unfolding: workers
move into more and more sophisticated
jobs, while their pay stays relatively low.
It's not what happens in most other developing
countries, where pay jumps as workers
get smarter—driving employers away to na-
tions with cheaper labor. But China's popu-
lation is so vast that it can stay smart and
cheap—a formula that's making it a new su-
perpower in high-tech manufacturing.

It's also key to China's challenge to mod-
ernize and still keep social unrest at a mini-
mum, as worker protests become more common
at creaky state-run industries. Bejing's moves toward a free-market econ-
omy produced years of double-digit growth and an increasingly mobile, ambitious and
better-educated work force. For many, the
opportunities in coastal areas favored by
foreign investors and bolstered by eco-

March 14, 2002

The result: Other countries increasingly are ceding high-tech industries to
China as well as low-tech ones. That spells trouble for impoverished garment

producers in Pakistan and for software
developers in Japan. Foreign direct in-
vestment in China last year totaled $46.8
billion, according to the United Nations
Conference on Trade and Development.
That was a 15% gain from 2000, the high-
est FDI total the country has seen yet and
the most received among developing
countries in 2001. The comparable figures
decreased last year for South Korea, the
Philippines and Malaysia. Taiwan stayed
about the same, and Indonesia saw some
divestment.

- etc -
Chinese Race to Supplant India in Software

By SARITHA RAI

BANGALORE, India, Jan. 4 — In the battle between India and China over the software business, India holds the edge. But if the recent invasion of Chinese trade and information technology delegations to Bangalore, India's software capital, is any indication, China is hoping to change that.

A few weeks ago, a delegation of officials from the Chinese Ministry of Higher Education was here at Infosys Technologies, India's best-known technology company, on something of a reconnaissance mission.

The Chinese, it appeared, could not stop asking questions. How are employees trained in the latest technologies? How do programmers anticipate the needs of the market? How does the company keep its attrition rate under 10 percent? What kind of cuisine at the cafeterias? How many employees use the gym on an average day?

"We are here to learn," said Wang Ya jie, the deputy director general of the Office of the Academic Degrees Committee, who led the delegation.

The visitor routine at Infosys is well rehearsed, and dozens of foreign business groups come each week. Delegations get a presentation about Infosys or a question session with an executive. To round off, there is a golf buggy tour of the campus that leaves most visitors in awe; Infosys says it has the second-largest technology campus, after Microsoft's.

Until early last year, Chinese visitors were rare, but in the last month alone, five Chinese delegations have stopped by.

The Chinese groups from universities and software parks are focused on one goal: they would like to supplant India as the world's second-largest producer of software, after the United States.

"The Chinese are very clever, just as the

Continued on Page B3
Chinese Are Racing to Supplant India as Software Powerhouse

Continued From First Business Page

"Indians are," said a member of one delegation, Kang Jianchu, an assistant professor at the Beijing University of Aeronautics and Astronautics. "So what else is the difference? We are here to find out."

The Chinese realize that part of India's advantage comes from its schools and universities. So, besides the stop at Infosys, this Chinese group's two-day itinerary was packed with trips to the city's premier technology schools, the Indian Institute of Science and the Indian Institute of Information Technology.

After all, the Chinese have engineering and technology schools that they consider just as good as, if not better than, those in India. More than 200 universities have computer science departments, according to the four professors in the Chinese delegation, and 33 universities in China now have specialized schools teaching software development.

"The most important difference," said Shen Weiping, vice president of Jiaotong University in Shanghai, "is that professors in India teach computers in English and professors in China teach computers in Chinese."

Until now, English has been taught as a subject in China, but other subjects have not been taught in English, limiting practical use of the classroom learning. English skills are critical for the Chinese if they intend to build the customer relationships needed to increase exports to English-speaking countries.

In the fiscal year that ended on March 31, 2001, India exported software to more than 100 countries, but a significant 60 percent of its software exports went to the United States alone.

The Chinese delegations that visit India's software companies ask a lot of questions. At Infosys Technologies, for example, the group wanted to know: How many employees use the gym on an average day?

China outstrips India in almost every sphere of development except software. It attracts a bigger chunk of foreign investment, and its share of world exports, whether textiles or toys, is far bigger.

In information technology, however, India takes pride in outdoing its rival. In 2000-01, India's software exports totaled $6.2 billion. Nasscom, India's software industry trade body, projects that India will reach $8.5 billion in exports by the end of this year. China's software exports were only $130 million in 1999 and have yet to reach $1 billion.

A sense of urgency came through in the Chinese visit. The visitors repeatedly asked officials of the Indian companies, "What kind of model did India follow to reach this level in information technology?"

Although they say they gain information from the Chinese as well as give it, officials of the Indian companies, understandably, are not entirely open with their answers.

Arjun Bellappa, a government official who facilitates visits by foreign delegations, said, "The Chinese are very eager to know the business model, and Indian companies are expectedly very reserved." For example, this particular delegation, despite several requests, was not permitted to visit Bangalore's other well-known software company, Wipro Technologies.

With the Chinese going about learning in their quiet way, Indian technology companies are already looking over their shoulders. They fear that if the language gap is bridged, the Chinese will begin bidding for the same slice of the pie as the Indian companies, snapping away projects and foreign currency earnings.

The world's two most populous countries, with more than a billion people each, will fight this war with programmers, which they both churn out in the thousands.

Indian labor is cheap, but Chinese labor is cheaper. Programming produced by Chinese costs about 20 percent less than that produced by equally qualified Indians, and some see this as eventually giving China a big advantage. At the same time, companies like Infosys and Wipro are looking for ways to use Chinese talent for their own software development efforts.

Kiran Karnik, president of Nasscom, said China would take several years to catch up with India. "However, we can't afford to be complacent," he said.

China, meanwhile, is being aggressive. One of its largest software companies, Huawei Technologies, has a center in Bangalore that employs 536 people and is Huawei's biggest unit outside China.

At the unit, 180 Chinese work alongside Indian programmers, soaking in the work culture and ethics. "They are learning how Indian programmers work together, how well they coordinate," said Ms. Kang, the assistant professor from Beijing.

Crisscrossing the 50-acre Infosys campus in a golf cart, the delegation was asked how long it would take China to overtake India as software powerhouse. "In the next 5 to 10 years, we hope to do that," Mr. Weiping said with quiet calculation.
Argentina's crisis

**Loaded dice**

BUENOS AIRES
The peso has not crashed—yet

"Those who bet on the dollar will lose." Thus Eduardo Duhalde, Argentina's president, last weekend, as he floated the currency for the first time since 1991. Mr Duhalde could be pleased with the initial outcome. Despite predictions of an immediate collapse, by mid-week the peso stood fairly firm, at around 1.90 to the dollar—though that is 47% less than it was worth before Argentina's fixed exchange rate collapsed last month.

But demand for dollars is artificially restricted. Bank savings are still frozen, although the government this week loosened controls on current accounts, releasing about 3 billion pesos. Banks are not selling dollars, except in rural branches. Police rounded up dozens of street money-changers in Buenos Aires. So the only way for Argentines to buy greenbacks is to brave lengthy queues and identity checks at exchange houses. Meanwhile, importers and businesses with foreign debts are still unable to transfer funds abroad.

With these restrictions, and reserves of $4.4 billion, the government can choose the exchange rate it likes. The test will come when it loosens the controls. By then, it hopes to have backing from the IMF. Jorge Remes Lenicov, the economy minister, visited Washington on February 12th, to start what are likely to be lengthy talks. Agreement may depend not just on passing an austere budget, but on a commitment to fiscal reforms. Until the currency has stronger foundations, many Argentines might bet against Mr Duhalde rather than the dollar—when they are allowed to.

The money they trust

Mexico's border region

**Opportunity lost**

CIUDAD JUAREZ
America's problems have exposed deep weaknesses across the frontier

IT SITS in an inhospitable desert a stone's throw from America—freezing in winter, boiling in summer and parched all year round. Until recently, Ciudad Juarez was also the dynamo of Mexico's export economy and a magnet for migrants seeking a better life. Now, battered by America's recession and a post-September 11th clampdown on the border, Juarez has lost about 60,000 factory jobs in the past year. Former assembly-line workers try to scrape by, some as busybodies or pushers. And the city's streets are awash in cocaine that cannot be sent to the United States.

Mexico's 2,000-mile (3,200 km) northern border is its most dynamic region, brimming with plants assembling everything from televisions to car parts for shipment north. Only a year ago, President Vincente Fox pointed to the huge flow of goods and people back and forth (300m people cross every year) as the start of European Union-style Union of North America. The border success, with Mexican hands making products designed by American brains, would become a model for the rest of the country, he said.

But that model now looks a little frail. The recession that started in the region's assembly plants has spread south. With exports falling, the Mexican economy shrank by 1.6% in the third quarter of last year, with the loss of more than 380,000 jobs in the formal sector.

The story of Mexico's border, critics say, is one of lost opportunity. During the second half of the 1990s, as free trade with the United States blossomed, employment in border cities grew at a double-digit clip. The new factories drew workers from agricultural states such as Veracruz, Durango and Chiapas, where drought, failed reforms and cheap (often subsidised) imports from America devastated farms. A factory wage of $65 or so a week was more than could be earned on the farm. Border industry turned Mexico into an export powerhouse which, at the peak in 2000, had a $20 billion trade surplus with the United States.

Yet little of that wealth has ever been seen outside the factory gates. In Juarez, a city of 1.3m people, the only local tax is a property levy of just pennies per square metre. As the city swelled, its outskirts became sprawling slums. Now 175,000 residents have no running water, 140,000 lack sewerage and only half the city's 1,200 miles (1,920 kms) of roads are paved. And little money has gone into training a better workforce. On the city's west side, where 500,000 people live in some of Mexico's most squalid slums, the only two high schools have a drop-out rate of 95%.

Only a year ago, workers were so scarce that plants on the border were competing to offer salary bonuses, day care, in-house doctors and company basketball courts. Now the unemployed line up at 3am for the few jobs on offer, and most go away empty-handed. Wages in Juarez, although still among the highest in the country, have begun to fall.

Pessimists fear that some of the work will not return, even when the American economy recovers. While the average labour cost for assembly plants in Mexico is now around $2 an hour, China's figure is 22 cents. Although plants in Mexico are more sophisticated, the country has failed to develop a network of local suppliers that would make it hard for manufacturers to leave as the Chinese catch up. "In terms of training, technology and transport, we didn't prepare when we had the chance," says Luis Gutierrez, an economist at Juarez's Autonomous University.

Local leaders say they must improve the skills of the workforce and make more sophisticated products. They are looking at tourism, too. Appropriately enough, there is talk of a new museum of immigration in Juarez. But Juarez is no Bilbao, a former steel city in Spain whose success in reinventing itself with tourism and high-tech services is seen as a model.

Juarez is internationally famous as the home of Mexico's largest drug cartel. Drug abuse—of heroin as well as cocaine—is spreading quickly from the city's hundreds of gangs into the middle class. Mexico's best hope is that Americans' fear of terrorism means that cities like Juarez, to which managers can commute from the United States, come to seem less risky than distant China. By one estimate, employment in Juarez may grow by as much as 3% this year. But the border's boom may finally be over. A region that had no shortage of problems during the good times must brace itself as things turn bad.
Software makers are lobbying for protection against legal action into the commercial software market. Meanwhile, software companies have shown little inclination to grapple with the factors that drag quality down. Indeed, the drift may be in the opposite direction. For months, software publishers have quietly been lobbying for legislation known as the Uniform Computer Information Transactions Act, or UCITA. Its impact would be to strip from consumers the means to take legal action when software failed to meet reasonable expectations for quality. "In the service of protecting the worst of the publishers, UCITA will change the economics of defective products for the field as a whole," says Cem Kaner, a Silicon Valley-based attorney specializing in software quality.

Certainly, the pressures that lead to poor software quality are likely to persist. And users bear part of the responsibility. "The customer wants new features," says Intuit’s Scott Cook. Bugs, he says, "are the dark side of rapid innovation and entrepreneurship." The last thing the software industry needs, however, is a blame game. It must find the fixes that will bring software back into the light.

By Neil Gross, Marcia Stepanek, and Otis Port in New York, with John Carey in Washington and bureau reports

WILL BUGS EAT UP THE U.S. LEAD IN SOFTWARE?

If U.S. software companies don’t get with it in terms of quality, they could kiss big chunks of business good-bye. Both India and Brazil are mounting intensive campaigns to nurture a world-class software industry. Their competitive advantage will be quality—the virtual extermination of software bugs that infest most U.S.-made packaged software. And their mentors in this quest will be U.S. quality gurus whose voices, mysteriously, are still not widely heeded in their own country.

Already, of the world’s 12 software houses that have earned the highest rating from the Software Engineering Institute (SEI) at Carnegie Mellon University, seven are in India. That’s largely because Indian programmers are snapping up new methodologies shunned by America’s cowboy programmers.

The software scene today is uncomfortably familiar to anyone who followed earlier crises in hardware manufacturing. For decades, quality gurus W. Edwards Deming and J. M. Juran had urged manufacturers to change. The message was: Design in quality at the beginning of the development process, instead of "testing in" pseudo-quality at the end of the production line.

NOT CHEAP. The quality call to arms mainly fell on deaf ears in the U.S.—but not in Japan. By the 1970s and '80s, Japan was grabbing market share with better, cheaper products. They used Deming’s and Juran’s ideas to slash the cost of good quality to as little as 5% of total production costs.

In U.S. factories back then, the cost of quality was 10 times as high: 50%. In software, it still is.

Watts S. Humphrey knows about the high cost of “testing in” quality. Now 72, he spent 27 years at IBM heading up software production and then quality assurance. “We had two acres of computers just running tests,” he recalls, cringing at the thought of all that nonproductive cost. After retiring from IBM in 1986, Humphrey joined the then-fledgling SEI as a fellow. He has since emerged as the Deming of software.

In 1987, he unveiled a system for assessing and improving software quality. Called the capability maturity model (CMM), it has proved its value time and again. For example, in 1990 the cost of quality at Raytheon Electronics Systems was almost 60% of total software-production costs. It fell to 15% in 1996, thanks to CMM, and has since dipped below 10%.

HUMDRUM. Humphrey has devised two new tools for individual programmers and software teams. They include guidelines for such things as rigorous time management and compiling records of the lessons learned from each project.

That may sound humdrum, but the software tools deliver results. The first user was Advanced Information Services Corp. (AIS), a small contract-software house in Chennai, India, and Peoria, Ill. When managers adopted Humphrey’s new process methods in 1996, profits doubled, and defects nosedived 98%, to a mere 0.05 bugs per 1,000 lines of code.

Like Deming and Juran, Humphrey seems to be winning more plaudits overseas than at home. The Indian government and several companies, including AIS, have just founded the Watts Humphrey Software Quality Institute at the Software Technology Park in Chennai. In hardware, U.S. manufacturers eventually grasped the quality imperative and rejoined the ranks of the world’s most admired manufacturers. Let’s hope U.S. software makers don’t procrastinate over quality as long as their hardware cousins did.

By Otis Port in New York

QUALITY GURU Watts Humphrey, an IBM veteran, has devised new tools to improve software—which have been eagerly adopted by developers in India.

Dec 6, 1999
Some Sanity Returns to IT Hiring

Old Economy companies that offer regular paychecks look good again.
By Pimm Fox

REACHING THE END of a job interview, the human resources manager asked a young engineer who was fresh out of MIT, "What starting salary were you thinking about?"

The engineer said, "In the neighborhood of $125,000 a year, depending on the benefits package."

The interviewer said, "Well, what would you say to a package of five weeks’ vacation, 14 paid holidays, full medical and dental coverage, a company-matching retirement fund of up to 50% of salary, and a company car leased every two years — say, a red Corvette?"

The engineer sat up straight and said, "Wow! Are you kidding?"

The interviewer replied, "Yeah, but you started it."

This apocryphal scenario accurately describes the upheaval in IT recruiting. The hockey stick of big bennies and stock options has given way to hard-core power plays. As layoffs at once high-flying and seemingly invincible IT vendors such as Cisco Systems Inc. and Sun Microsystems Inc. and hundreds of Internet bombs push IT talent and experience onto the market, the law of supply and demand appears to finally be taking hold.

This means greater availability of experienced IT workers, salaries that are more in line with traditional corporate compensation, more leverage for hiring managers and all the fancy Aaron chairs you might want — at fire-sale prices.

According to Ravi Aron, assistant professor of operations and information management at the University of Pennsylvania’s Wharton School in Philadelphia, the tech bubble of stock market valuations created an artificial inflation of value when it came to hiring IT talent. "If you consider IT as a scarce resource to be allocated, it responds to market prices," says Aron, "and you had a situation in which the artificial market cap of companies was used to drive up the salaries and compensation of IT personnel."

The acute shortage of qualified IT professionals even drove Congress to increase the availability of H-1B visas. "Of course," Aron says, "you would rather work for a company that promised you lots of money in the sexy Internet sector than working at some place like a Boeing."

But the economics were flawed, like purchasing gold with tulips. So now, IT job applicants are asking questions such as: What's the salary? Is this company going to be around next year? Does it have real customers?

Companies are now able to hire IT workers whose maturity and understanding of technology value are more closely aligned with more prosaic areas of the enterprise, such as middleware and legacy system integration.

Happily, the technology expertise needed to link internal, back-end systems isn't that dissimilar from that needed to develop and integrate flashier front-end, Web-enabled ones.

"The big difference is in more complex project design and management," says Aron.

That's the type of IT designed to bring value to a company by cutting costs and improving efficiencies. And so what if it isn't part of the New Economy? It's more satisfying and rewarding to be part of the permanent economy — and the pay is better.
India's IT Industry: Dream Run

The overall global economic slowdown notwithstanding, the Indian IT software and services industry is maintaining a steady pace of growth and keeping its place as the spearhead of India's export attack.

Like old wine, the Indian IT software and services industry has matured, become more refined and moved up the value chain in terms of solutions offered to customers. The customers, from all parts of the globe, have meanwhile continued to flock to India's corporates for help with their software needs. Major corporations are continuing to rely on Indian software companies for both legacy and new technology solutions.

The wide span of the country's expertise across myriad technologies and platforms has provided the Indian software engine with awesome power to deal with any kind of IT requirement. The enormous base of skilled manpower — India's PhDs and computer science graduates — is the envy of virtually every country, and in fact a major draw for global customers.

What is it then that has enabled Indian software companies to make the global market their playing ground? Phiroz Vandrevala, Chairman, NASSCOM analyzes the growth of the Indian software industry along with its implications for the global market.
The year 2000-01 was yet another winner for the Indian software and services majors who continued to hold fort in the world markets. The industry grew at a heady 55 percent, proving skeptics wrong and convincing them that there was much more depth to the software industry than expected.

Despite the prevailing global economic downturn, the Indian software and services industry is convinced it will be able to achieve the ambitious targets it has set for itself. The NASSCOM-McKinsey Study 1999 which has furnished a goal of $50 billion of software exports by 2008 has not been revised or scaled down by Indian software majors.

Further cause for cheer has come from international business intelligence and advisory leader Gartner Inc., which recently declared through a study that despite layoffs and cutbacks among numerous IT vendors, many organizations are increasing their IT budgets in 2001. The survey, covering over 589 organizations worldwide, has shown that 56 percent of respondents plan to spend more on IT in 2001 than they did in 2000.

Software Industry Thrives

It has emerged that although companies have cut back on their hardware purchases, they continue to spend on services and personnel. This study brings cheer and hope to the Indian software industry, which is more than geared up to continue its dream run. India is also upbeat about its software export prospects because of some of the key developments that have taken place during 2000-01. The statistics speak for themselves:

- In 2000-01 the Indian software and services industry grossed an annual revenue of $8.26 billion. The industry registered an overall growth of 55 percent during 2000-01, up from $5.7 billion in 1999-2000. Software exports grossed a total of US$6.2 billion in this period.
- Software and services exports accounted for a very healthy 14 percent of India's total exports of US$44 billion during 2000-01.
- One out of every four global giants outsourced their "mission critical software requirements" to India.

- Not only has there been an exponential growth, but the industry has also moved up the value chain. India's software saga, which began with staffing, moved its way up to software development, then integration, and now centers around top-of-the-line business consulting projects.
- Contrary to popular belief, over the last few months, many US companies showed increased interest in the Indian software industry. Global majors such as DuPont and Deutsche Bank announced an increase in their outsourcing projects.
- Quality remained a hallmark of the Indian software industry, with more and more companies gaining SEI CMM (Software Engineering Institute Capability Maturity Model) Level 5 certifications.
- India's English-speaking scientific manpower, in terms of numerical strength alone, ranks second only to the United States.

High Growth

Bolstered with such a significant, technically sound resource base, the software industry has grown unimpeded. With a compounded annual growth rate of more than 50% between 1992 and 2001, the Indian software sector has expanded almost twice as quickly as the world-leading U.S. software industry did during the same period, although from a smaller base.

India's software industry statistics illustrate the massive strides achieved by this sector and the opportunities the future holds. According to NASSCOM's estimates for the fiscal year 2000-01, the country's software industry is worth $8.26 billion, up from $100 million ten years ago. A study conducted by renowned consultancy firm McKinsey and Co., for NASSCOM, has proven why India is becoming the off-shore software development outsourcer's destination of choice. According to the NASSCOM-McKinsey study, the Indian software industry is expected to gross US$50 billion in exports in 2008! This is based on an average growth rate of 35 percent per year. The industry is well placed to achieve this target.

India's Silicon Valley

While the industry has been growing at above average growth rates, software development activity is not confined to a few cities in India. Software development hotspots, such as Bangalore, Hyderabad, Mumbai, Pune, Chennai, Calcutta, Delhi-Noida-Gurgaon belt, Vadodara, Bhubaneswar, Ahmedabad, Goa, Chandigarh, Trivandrum
Why Bangalore is smiling... and why you should be too!

{Or how to actually benefit from the slowdown by outsourcing from Bangalore!}

Seventy per cent! That's the level of savings when you outsource from Bangalore. Add to this the fact that the deliveries are of world-class quality. An irresistible combination. And the key reason why global names in IT have been incessantly moving into Bangalore (with 100% foreign equity) - one every week, over the last one year!

So how has Bangalore got this way? Why is Bangalore being increasingly sought after globally for outsourcing. And what does it offer?

Software & Technology Services

Bangalore has world-standard service providers offering the entire gamut of software and technology services with 925 software companies, that employ more than 80,000 IT professionals. To name a few: Tata Consultancy Services (TCS), the world's 6th fastest growing consulting company. Infosys (with a net profit of $134.5 million in FY 2000-01) has the single largest facility in the world among software service companies. Wipro, the 1st CMM Level 5 company in software services with 20 development centers and over 200 technology customers across the globe. Kshema Technologies, one of the fastest growing business consulting and software services company in India.

Bangalore's high-end Technology Wave

More than 50% of the world's SEI CMM Level 5 companies are located in Bangalore. The high-end technology companies in Bangalore have proven their expertise in the complex areas of WAP, VOIP, Bluetooth, QNX, pSOS, CRM, GUI, CAN, Multimedia over IP, ATM Switches & SDH, etc. The city has 46 IC Design companies, 166 Systems Software companies and 108 Communications Software companies. Over 40% of Bangalore's software exports are in these high-end technology areas. There are more than 200 patents filed by companies based in Bangalore.

Bangalore: A to Z in IT enabled services

Bangalore has reputed names that offer all major IT enabled or 'teleworking' services: Knowledge Based Services, Medical Transcription, Insurance Claims Processing, Revenue Accounting, Back Office Operations & Ancillary Operations, Legal Databases, Digital Content Development & Animation, On-line Education, Data Digitization & GIS, HR Services, Web Services, Support Centers, Engineering & Design and Remote Maintenance.

People Power: Highly-qualified low-cost resource base

The State has 82 engineering colleges with 30,000 engineering students graduating every year, 14,000 of whom are from IT related streams! And Bangalore, in particular, has the highest number of engineering colleges to a city in the world - 21 in number! Bangalore has over 80,000 skilled IT professionals and a huge workforce (with an unmatched fluency in the English language) employed in various IT enabled services.

The Indian Institute of Science (IISc.), Bangalore, is ranked the 18th best university in the world with various professional courses in IT and Biotech. Bangalore's Indian Institute of Management (IIM) & Indian Institute of Technology (IIT) are premier institutions offering world-class management and technology programs. The National Law School runs a number of programs on IPR and is considered one of India's finest.

Indian Institute of Information Technology - Bangalore (iiit-b)

The Government of Karnataka has set up a premier institution - Indian Institute of Information Technology (iiit-b) - with support from the likes of Infosys, Compaq, ICICI, Microsoft, IBM, Sun Microsystems, iFlex, Digital, etc. With over 90 IT companies and more than 4,000 engineers working round-the-clock on campus, it delivers the best of IT academics & industry.

Sep 17, 2001 Business Week
Bangalore was GE’s choice for their biggest development center outside the US— the Jack Welch Technology Center. Presently a base for 600 Ph.Ds / Scientists, (300 of whom have been relocated from outside India) GE will add 1,200 more to this team by December this year!

Connectivity: World-class Telecom gateways!

Bangalore offers the highest bandwidth in the country. International gateways are operated by Videsh Sanchar Nigam Limited (VSNL) and Software Technology Parks of India (STPI). The State’s free Right-of-Way Policy has attracted a number of Indian blue-chip private players (with Last Mile Access) like Reliance, Bharti, BPL, Zee, Spectrum, etc.

By September 2001, Network 21 a joint venture of Singapore Telecom and Bharti Global, will lay submarine cables with a bandwidth capacity of 8.4 TB linking Singapore to India with a POP in Bangalore. The city is again linked to Mumbai with a FLAG submarine cable of 10GB. STPI—Bangalore with its world-class telecom infrastructure delivers bandwidth connectivity within 48 hours. It houses one of the nine Nortel Network Operation Centers in the world. STPI runs the largest network in Bangalore, connecting 189 IT parks (with hundreds of companies) and has MOUs with international carriers like British Telecom, Japan Telecom, Singapore Telecom, AT&T, Telstra, etc. Its clientele has grown from a mere 13 in 1992 to over 900 companies today!

Bangalore’s high-end infrastructural strength: IT Parks

In the past one year there has been a 300% growth of commercial property for IT companies in Bangalore, with scores of companies setting-up shop in the city. In spite of such demand, world-standard office space can still be leased at around $0.26 - $1.0 per sq. ft per month. The 1.8 million sq.ft. International Tech Park Ltd. in Bangalore was set up as a joint venture of the Government of Karnataka.

Government of Singapore and the House of TATAs. Bangalore’s Electronic City is an industrial area with over 100 electronics industries like Infosys, Wipro, Siemens, Motorola, ITI, etc.

NASDAQ The world’s biggest stock exchange with a turnover of over $20 trillion opened its third international office this year - in Bangalore!

Bangalore’s Incubation & VC Funding aids

Bangalore’s STPI plays a key role in delivering incubation support. The city is home to over 70 reputed Venture Capital Firms like Citibank, Deutsche Bank, eVentures, e4 Labs, GE Capital, Global Tech Ventures, ICICI Venture, Indus Venture, ICF Ventures, KITVEN, UTI Venture Funds, Walden, Warburg Pincus, West Bridge Capital, etc. Today, Bangalore has a $140 million funding backed by Goldman and Sachs. VC funding in the city will touch $5 billion in the next three years. Total investments in Bangalore touched $1.6 billion in 2000.

Bangalore’s remarkable Software Export Record - An all-time high of $1.6 billion (nearly 40% of India’s software exports) in FY 2000-01, a 73% jump over the previous year. Projected software exports for FY 2001-02: $2.4 billion & FY 2002-03: $3.5 billion.

‘Single window’ Policy for IT:
The Government of Karnataka

The Government gives incentives like tax reliefs, concessions for creating employment, relaxed floor area regulations, beneficial power tariffs, concessions in stamp duty, simpler labor laws, etc. It also offers special incentives for major projects with an investment of over $22 million or a work force of over 1000. Also, Bangalore will become a ‘Zero Piracy Territory’. (Log on to www.bangaloreit.com)

The state’s progressive Milennium Biotech Policy details the opportunities in ‘Bioinformatics’ - an area of synergy between IT and Biotech. The BangaloreBio.COM 2001 (April 15th - 17th) held in Bangalore was a huge success. (Log on to www.bangalorebio.com)

Asia’s biggest IT event:
Bangalore IT.COM 2001

Bangalore will host Bangalore IT.COM 2001 Conference & Tradeshow (1 to 5 Nov.) - for the fourth consecutive year. 500 IT & Telecom giants from across the world, with over 75,000 business visitors, plus corporate buyers, decision makers, visionaries and technology gurus will converge in Bangalore from key international markets. From across the US, Europe, India and South-east Asia. This mega-event will feature four intensive, world-standard Conferences with the most industry-relevant themes. For the first time, the event this year will have a ‘global buyer-seller meet’— a forum for generating all business leads, structured networking & prefixed meetings with international and domestic companies looking at outsourcing partners. Lufthansa, the official carriers for the event, will have direct flights connecting Frankfurt to Bangalore from September this year.

Bangalore: The city that has it all!

Bangalore has ‘total’ appeal. Loads of atmosphere, a truly cosmopolitan cocktail of different people, cultures and languages. A pool of professional talent that spells a dynamic work culture. A sizeable, well-settled expatriate population. It has its own crowd of health clubs and parks, pubs and shopping malls, several international hotels, car rental agencies, 24-hour radio taxi services, cafes, fast food joints, bistros, and restaurants serving a multitude of cuisines. It has five sprawling Golf Courses. There are a number of tourist spots not far from the city, including wildlife sanctuaries and resorts which are perfect for weekend getaways. Finally, what will round of your experience is the climate, never too hot nor cold for you to complain.

For more details contact us at the
DEPARTMENT OF INFORMATION TECHNOLOGY
Government of Karnataka, India.
Tel: 91-80-2262466 / 91-80-2262450
e-mail: itsec@bangaloreit.com
Bangalore Beckons...

At least one IT company, with 100% foreign equity, moves into Bangalore every week!

You can outsource top-notch quality work at 70% lower cost from Bangalore.

Bangalore has the highest number of Engineering Colleges to a city in the world!

Bangalore has the most preferred destination for investment in Customer Interaction & Financial Sector Back Office Processing.

The UN has ranked Bangalore the 4th in the world as a 'Global hub of technological innovation'.

A year-old Bangalore based CRM firm has achieved the highest rating in COPC (USA) baseline assessment.

Bangalore has over 80,000 fully skilled IT Professionals.

For the 4th consecutive year, Bangalore plays host to Asia's biggest IT event - the Bangalore ITCOM 2001 Conference & Tradeshow.

Bangalore's home to 925 cutting-edge Software companies, over 50% of the world's SEI CMM Level 5 companies & 70 Venture Capital Firms.

In a survey of 144 international cities this year, consultants William Mercer rated Bangalore the world's most economical city to live in.

GE's Jack Welch Technology Center at Bangalore - their biggest outside the US and a base for 600 Ph.Ds/Scientists - will raise their numbers by another 1,200 by December this year!

Bangalore will be Zero Piracy Territory by January 2002!

For more information, contact the
DEPARTMENT OF INFORMATION TECHNOLOGY
Government of Karnataka
Tel: 91-80-2262466 / 91-80-2262450
e-mail: itsec@bangloreit.com

Sep 17, 2001
Software Export as a percentage of India’s Total Export

Source: NASSCOM

are all developing quickly. They boast state-of-the-art software facilities and the presence of a large number of overseas vendors. A large part of India’s success in the software sector is due to the crucial role played by the State of Karnataka in promoting and providing a boost to IT. Karnataka has emerged as the computer capital and center of high-tech industries, especially software. Bangalore has for long been known as India’s answer to Silicon Valley, and this is the city where most large software companies have set up shop and operate out of state-of-the-art facilities. The Government of Karnataka has also been extremely positive about the software and services marketplace and has helped create the relevant telecom and policy infrastructure conducive to the growth of this sector.

The dynamic industrial policy declared in 1996, with comprehensive packages of incentives and concessions, has ensured a productive ground for various industries. The hardware and software industries have now brought about a revolution of sorts under these schemes. Various institutions and computer training centers have contributed to the large number of trained and talented professionals.

The City of Bangalore has positioned itself to help market the software industry. This is also why Bangalore has been playing host to international-class conferences, workshops and exhibitions devoted to the software cause.

In fact, the “Technopolis” of India will be holding one of the largest IT events this year, for the fourth consecutive time — Bangalore IT.COM 2001, Conference and Tradeshow.

Under one sprawling banner, over a short but intensive span of five days, Bangalore will see over 500 IT and Telecom giants from all over the world. There will be over 75,000 business visitors, plus corporate buyers, decision makers, visionaries and technology gurus converging from key international markets across the U.S., Europe, India and Southeast Asia. This year’s Bangalore IT.COM will also feature a unique “Global Buyer-Seller Meet,” a forum for generating business leads, structured networking and pre-fixed meetings for international and domestic outsourcing partners.

In addition, the visitors can experience Bangalore’s hi-tech climate. The city has the highest number of engineering colleges in the world, almost 50 percent of the world’s SEI CMM Level 5 companies, COPC/ISO recognized Customer Interaction Centers, and over 103 R&D Institutions. It is, in fact, home to GE’s biggest R&D Center outside the U.S.—the Jack Welch Technology Center, which hires over 200 PhDs/scientists every month! To top it all, Bangalore has just been ranked the fourth best “Global hub of technological innovation” by none other than the United Nations.

E-commerce, remote processing: Taking the front seat

India’s strengths in the software market also lie in its pursuit of new opportunities. In fact, two key segments that are expected to open up over the next few years for India are e-commerce and remote processing. Opportunities in e-commerce software solutions are emerging as a major area of growth in the Indian IT software and services industry. A recent study undertaken by The Boston Consulting Group for NASSCOM clearly stated that India can earn revenues of US$9 billion from e-business solutions by 2005.

IT-Enabled Services, or “Remote Processing,” has emerged as the next major driver of the technology services industry. With competitive telecommunication costs, well-developed infrastructure and a huge pool of English-speaking and computer-literate graduate manpower, India rates higher than many other countries as a hub for IT-enabled services. Call centers and business process outsourcing is emerging as the next wave of growth in India. The McKinsey study indicated that India will earn $18 billion in revenues through these services and create additional employment of one million jobs. Already companies like GE Caps, British Airways, Swissair, American Express and British Telecom are using Indian companies for these services.

The IT-Enabled Services segment currently employs around 70,000 people and accounts for 10.6 percent of the total IT software and services industry revenues.

Quality: the magic mantra

Outsourcing software requirements depends mostly on quality of services, and quality has continued to remain a prime edge for Indian software companies. According to the NASSCOM survey, the Indian software industry continued to win recognition for its quality in software development over the last year. Out of the top 400 companies, more than 250 have already acquired ISO 9000 certifications. However, it is in the SEI CMM (Software Engineering Institution Capability Maturity Model) Level 5 segment that the real accolades have come India’s way.

Out of the 54 companies in the world that acquired SEI CMM Level 5 certification, 27 companies are located in India.

Large Pool of Professionals

Today, India’s strong base of skilled software manpower is a beacon for software customers. The advantages offered by this significant pool can never be overstressed. As of March 2001, India had over 410,000 working software
Infrastructure: the strengthening link

In addition to a strong telecom infrastructure, the Indian software industry is supported actively by the country’s hotel sector, which has brought in more conveniences and benefits for the business traveler. The leading hotels such as the Taj Group not only serve as venues for global-level software exhibitions and conferences, they also create a place where the Indian software and services sector can interact, and conduct business with its foreign counterparts. A key advantage of the Taj Group of Hotels is the virtually unmatched reach and access they provide business visitors. The Taj Group boasts a base of over fifty hotels in 36 destinations. “Think software, think the Taj Group” seems to be the motto, with Taj hotels forming a key infrastructural backdrop in all the high-tech, “software-oriented” cities of India.

The Group’s emphasis on creating an environment that’s in tune with Internet age travel, that’s professional, and geared for business interactions have made it a hot favorite with executives both from India and overseas. Guests with the Taj hotels find themselves in a world-class venue, where connectivity with the rest of the world is at their finger tips, and where there is the right kind of ambience to conduct hard core business and conclude key deals. Ultra-modern business center facilities are also a major draw for the discerning traveler. The Taj Hotels are being used today by software companies to meet prospective clients, fund managers, venture capitalists and colleagues.

India is positioned for cross border IT services

Out of a total of 122,000 engineers trained each year, almost 75,000 new software engineers are ready to join the industry on an annual basis. Others migrate overseas or join end-user organizations. Educational universities, as well as the prestigious Indian Institutes of Technology (IITs), are the principal sources of newly-qualified personnel. In addition, thousands of other technical personnel are trained by private sector institutes.

The demand for Indian skilled manpower is also on the rise among countries outside of the U.S. According to Stepstone, the largest career portal in Europe, major opportunities are emerging for Indian talent from within the European Union. By 2003, in fact, Stepstone says there will be around 1.6 million unfilled jobs in the EU. Germany alone accounts for about half of the vacancies—400,000. France has recently announced over 100,000 openings in the public sector alone. Austria has over 30,000 vacancies, and Norway is offering over 30,000 jobs. Since most of the European companies are looking to leverage India’s skills in the IT sector, Indian companies are increasingly expanding their presence in Europe. In the year 2000-01, Europe accounted for over 24 percent of India’s software export destination.

Positive outlook

India’s software and services industry has and will continue to remain in the driver’s seat of the country’s IT sector. India’s success in the software arena is attributed to the software industry’s knowledge and expertise in cutting edge technologies and skilled manpower base. Both these strengths are likely to contribute towards the industry’s future growth. In fact, India’s prowess in emerging technologies is also helping the software and services industry obtain new customers, even in the face of a debilitating U.S. economy slowdown. There is only one way that the Indian software industry is headed and that is up. The coming years will only reiterate this trend.
## Aerospace Suppliers Gravitate to Mexico

**By Joel Millman**

**Staff Reporter, The Wall Street Journal**

MEXICALI, Mexico—The formidable Mexican low-cost labor force has advanced swiftly up the value chain of U.S. industry, from sorting supermarket coupons to sewing blue jeans to assembling auto engines.

The next link: aircraft components.

The U.S. aerospace industry is looking to Mexico to keep costs down and stay competitive with global rivals. Like the auto makers that turned the cities of Tolucu, Hermosillo and Saltillo into Little Detroit in the 1990s, aerospace companies Boeing Corp., General Dynamics Co., Honeywell International Inc. and General Electric Co.’s GE Aircraft Engines are beginning to make Mexico a base for both parts manufacture and assembly.

The production of aircraft components in the U.S., a $35 billion business even in a recession year, is ripe for a move to Mexico. Mexican exports of aircraft parts barely topped $200 million last year, which leaves a huge chunk of the components work being done in the U.S. just waiting to be prodded south.

The effort is well under way. Next week, Honeywell is taking 25 top suppliers to the Mexican city of Monterrey for a conference on relocating to Mexico. GE Aircraft Engines in 1999 hosted a similar gathering in Cincinnati. Pratt & Whitney, a division of United Technologies Corp., conducted a tour of Mexican industrial parks for its suppliers last year.

With big customers pressing suppliers to cut prices, saying no to a move offshore is not much of an option. "Anyone who's not working outside the U.S. is just not going to get business" from the big aerospace companies, says Bill DiCicco, president of Harco Laboratories Inc. of Branford, Conn., which recently opened a wiring plant in Guaymas, Mexico. That argument persuaded another GE supplier, Smith West Inc., to move from Tempe, Ariz., to the same Guaymas industrial park. "You can only cut costs so much with new machinery," President John Mohnarch says. "Pretty soon you need to lower labor costs, too."

Low-cost Mexican workers now make most of the bathroom parts ordered by Boeing and its European rival Airbus Industrie for their commercial jets, as well as most of the galleys flight attendants use for heating in-flight meals. They stitch the rivers of fiberglass quilts—one Boeing 767 uses about 10,000 square yards of the stuff—required to insulate a jet's interior from the cold aluminum of the fuselage. They cast metal turbine blades and weave miles of electric cable to connect attendant call buttons, audio controls and overhead fans.

"Aerospace is now our second-biggest industry. Only electronics assembly is bigger," says Fernando Arango of Mexico’s economic development commission. Mr. Arango estimates that 10,000 local residents own the livelihood to the U.S. aircraft industry.

Many are like 28-year-old Pedro Chavez, who left a job making electronic circuit boards to join Transair International SA, a newly opened unit of Holland's Driessen Aircraft Interior Systems Inc., the world's biggest producer of aircraft galleys and food-service trolleys. Yielding a power drill as he darts in and out of a honeycomb of fire-resistant panels, Mr. Chavez can wire all the outlets for a Boeing galley in less than 15 minutes.

"It’s a better work environment," he says of his new job. "You're not always standing in one spot."

Bart Jongkind, the factory manager, says workers like Mr. Chavez are what brought Driessen to Mexico. Building a galley is like building a miniature house, Mr. Jongkind explains, pointing to the exhaust fans; electrical conduits and stainless-steel plumbing the workers install. "Most people here build their own houses, so they know this job," Mr. Jongkind says. "You can find such trained people in the U.S., but they're very expensive."

Driessen pays its Mexican workers less than $20 a day, a fraction of what the company pays its mostly immigrant work force in nearby Vista, Calif.

Driessen would rather do all the work in Mexico, but under current Federal Aviation Administration rules, no manufacturer in Mexico is permitted to

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### In Guaymas

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*Pending Source: the companies

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<td>Electric relays</td>
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### In Mexicali

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<th>WHAT THEY MAKE</th>
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<td>Honeywell</td>
<td>Electric power generators</td>
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<td>Aircraft interiors</td>
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**Prepared for Takeoff**

From a few assembly plants along the border 10 years ago, Mexico's budding aerospace industry has only begun to bloom. Here are some of the emerging hot spots,
Global Shift As Manufacturing Goes Low-Cost

Some firms that bought or built plants in healthier times are struggling these days

BY JED GRAHAM
INVESTOR'S BUSINESS DAILY

JDS Uniphase Corp. helped define the boundaries of the tech wreck.

It went from making the largest-ever tech hardware acquisition to the first-ever $50 billion write-off.

Now the fiber-optic firm’s aptly named Global Realignment Program is marking another trend: the shift in production from North America and Western Europe to China and other low-cost regions.

Companies like JDS, which geared up for a sustained boom, have little choice but to close plants and cut jobs, analysts say. And most of those cuts are coming in high-wage areas like the U.S.

“‘It’s a troubling trend,” said Randall Sherman, president of New Venture Research Corp., a Nevada City, Calif.-based consultant on electronics manufacturing. “With so much surplus capacity now, there’s a definite move to shut down higher-cost domestic facilities and shift assemblies offshore.”

In filings with the Securities and Exchange Commission, JDS said it’s shutting one-third of its 6 million square feet of plant capacity while “moving the manufacturing of many of our established products to our facility in Shenzhen (in China).” The company’s also cut its workforce from 29,000 to 11,000.

Growing Demand

Many tech firms that built or bought manufacturing plants in healthier times are struggling amid weak demand and falling prices. That’s accelerated the well-established trend of shifting production to low-cost regions.

The trend is apparent among electronic manufacturing services (EMS) firms, which handle production for tech’s biggest names, including Cisco Systems Inc., Hewlett-Packard Co., L.M. Ericsson AB and Nortel Networks Corp.

Such EMS firms account for about $100 billion in sales. That’s 15% of the global electronics market.

Demand for their services is growing as struggling tech firms look to shed their capital-intensive manufacturing plants. But even EMS firms are feeling the pain. There’s not enough business to go around, and the industry’s running at about 50% of capacity.

“‘Their cost model is one that works well if their factories are full,” Sherman said. “When they’re not full, they bleed badly and quickly.”

Even Mexico’s Too Pricey

To stay afloat, EMS firms have had to do some drastic cutting. Many of the cuts have come in the U.S.

“They tend to shift those high-volume, low-cost assemblies offshore into facilities set up for mass production,” Sherman said. “The assemblies that stay are for highly complex products that require a great deal of engineering.”

Even the low-cost factories in Mexico have lost some production to the Far East, Sherman says.

“There is a positive cost differential to move it to China,” he said. While a worker in Mexico may earn just $3 an hour, that’s still two or three times as much as a worker in China, Sherman says.

Efficiency is key at Celestica Corp., Soleclectron Corp. and Flextronics International Ltd., three of the biggest EMS firms. To provide an estimated 15% savings to tech hardware firms, they have to make every dollar count. Their after-tax profit margins are under 5% even in good times. And these aren’t good times.

Toronto-based Celestica is cutting capacity in 18 high-cost locations to shift its geographic balance, wrote Merrill Lynch analyst Jerry Labowitz in a recent report.

Its goal this year is to have 55% of its operations in low-cost areas, he notes. That’s up from 19% last year.

It bought two Midwest plants from Lucent Technologies Inc. last year as part of an outsourcing pact. Celestica is still using the plants to produce Lucent products. But it’s expected to shift a big chunk of the work offshore, says Lehman Bros. analyst Louis Miscioscia.

In Soleclectron’s latest quarter, sales from international sites made up 64.6% of the total. That’s up from 41% in fiscal 2000. Like others, it transferred projects from U.S. sites to Asian facilities.

“It’s just an acceleration of a trend that’s been going on and has been in our business plan,” said Soleclectron spokesman Kevin Whalen.

The aim is to move the manufacturing of mature, high-volume technology products to the lowest-cost areas, he says. But cheap labor isn’t Asia’s only lure. It’s increasingly valuable as a market for Soleclectron’s customers, Whalen says.

Manufacturers once shifted mainly commodity products to cheaper regions. Now they’re building more sophisticated gear there as well.

“We’re tending to see products that have more complexity to them gravitating to lower-cost areas,” Whalen said.

That’s particularly the case for products with short life cycles. “With pressure on customers to recoup their investment quickly, and because the end markets have dried up, that raises the focus on ‘How do we do this most efficiently and cost-effectively?’” Whalen said.

Consolidation

Flextronics is also shifting to low-cost regions. About 70% of production now is in high-cost places such as the U.S., says Jim Sacherman, the company’s chief marketing officer.

The goal is a 50-50 split between high- and low-cost production. “And it may shift further,” he said.

Flextronics is shutting down 4 million square feet of space as it consolidates its operations in eight manufacturing hubs — one in Dallas and the other seven in low-cost areas. Still, it retains other sites for more complex projects, such as one in North Carolina for optical gear.

“A year ago, customers were saying, ‘I need it now. I’m willing to pay a little more,’” Sacherman said. Now they don’t mind waiting to get a better price. That could change when the economy picks up and customers again demand speedy delivery, he says. “That can be cyclical,” Sacherman said.
Technology Outsourcing Firms Have Seen Profits Dwindle
Analysts Say Model Still Works, Expect Companies to Return to Health as Tech Picks Up

BY SCOTT THURM
Staff Reporter of THE WALL STREET JOURNAL

In the 1980s, a new breed of niche high-tech companies grew by taking over the manufacturing operations of giants such as Hewlett-Packard Co. and Cisco Systems Inc. But the recent results of some of these contract electronics manufacturers inspire a new question: Who would want to be in this business?

Last Tuesday, former industry kingpin Sonata Corp., Milpitas, Calif., reported a fiscal first-quarter loss, offered a gloomy sales outlook and saw its credit rating slashed to junk status. On Thursday, Jabil Circuit Inc., St. Petersburg, Fla., reported an 82% decline in quarterly profit and lowered its fiscal-year revenue forecast by $1 billion. The three other top-tier contract manufacturers—Flextronics International Ltd., Sanmina-SCI Corp. and Celestica Inc.—all reported losses for their most recent quarters.

Despite the rash of bad news, analysts, investors and executives insist that the outsourcing model still works, and say most of the contract manufacturers will return to financial health once business improves at their name-brand customers.

Even the latest results may not be as weak as they first appear. Both Flextronics, which is based in Singapore but operated from San Jose, Calif., and Celestica, Toronto, recently said they expect to meet fourth-quarter financial forecasts. And Jabil did ek out a small profit in the quarter ended Nov. 30 while maintaining a healthy balance sheet.

"They're still making money, and a lot of their customers aren't and a lot of their suppliers aren't," says James Savage, an analyst at Thomas Weisel Partners. "I think the model is intact. I just think the business stinks."

Troubled Sector

Outsourcing companies feel the pain of their tech clients

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<tr>
<th>COMPANY</th>
<th>HEADQUARTERS</th>
<th>FRIDAY'S CLOSE</th>
<th>PERCENT CHANGE FROM 52-WEEK HIGH</th>
<th>52-WEEK HIGH</th>
<th>52-WEEK LOW</th>
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<tr>
<td>Solectron</td>
<td>Milpitas, Calif.</td>
<td>$10.25</td>
<td>-76.6%</td>
<td>$41.95</td>
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<td>Flextronics*</td>
<td>Singapore</td>
<td>23.76</td>
<td>-40.8%</td>
<td>40.13</td>
<td>12.38</td>
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<td>Jabil Circuit</td>
<td>St. Petersburg, Fla.</td>
<td>21.68</td>
<td>-47.1%</td>
<td>40.99</td>
<td>14.00</td>
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<td>Celestica</td>
<td>Toronto</td>
<td>40.12</td>
<td>-47.5%</td>
<td>76.40</td>
<td>20.69</td>
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<tr>
<td>Sanmina-SCI</td>
<td>San Jose, Calif.</td>
<td>20.05</td>
<td>-63.4%</td>
<td>54.75</td>
<td>11.64</td>
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*ADP price

To be sure, the electronics-outsourcing business is tough even in the best of times, promising operating profit of roughly 5%, compared with 20% or more for brand-name firms. But executives say that is a fair deal. "You don't need a lot of margin in this business," because research and marketing costs are minimal, says Flextronics Chief Executive Michael Marks.

The industry took root 20 years ago as small shops began employing legions of workers to assemble electronic parts by hand. Fueled by the tech boom and a wave of consolidation, a handful of global giants emerged in the 1990s to manage suppliers, assemble parts, build final products and, increasingly, ship them directly to end users. Cisco, for example, boasts that the majority of its computer-networking gear never enters a Cisco factory. In a dramatic demonstration of the outsourcing trend, Telefonica A.B. Ericsson of Sweden in January turned over manufacturing of all of its cellphones to Flextronics.

Along the way, companies once derided as high-tech sweatshops attracted attention on Wall Street. Solectron shares soared more than 200-fold from its 1989 initial public offering through late 2000.

Contract manufacturers are more efficient than brand-name firms because they can buy parts in bigger quantities and shift production quickly among customers and factories to keep assembly lines operating more of the time. The diversification is supposed to shield the outsourcers, and their investors, from the often-volatile high-tech product cycle.

That strategy failed this year for two reasons: First, because nearly every tech sector—from personal computers to cellphones to networking equipment—turned south at the same time. Second, because contract manufacturers in the past two years had moved aggressively into making telecommunications equipment, which has fallen hardest of all.

The result: Industry revenue is projected to fall 2.3% this year, to $103.7 billion, from $106.1 billion in 2000, according to Technology Forecasters Inc. Pamela Gordon, president of the Alameda, Calif., market-research firm, says it will mark the industry's first year of declining sales in at least two decades.

Much of today's pain, analysts say, is the legacy of expanding too rapidly during the tech boom. Last year, Mr. Marks says, all of Flextronics' customers wanted products quickly, to meet demand, with little regard for cost. Now, the larger name-brand firms only care about cutting costs.

So Flextronics and the others are closing factories in North America and shifting production to lower-wage areas of Latin America, Eastern Europe and Asia. At Flextronics, that has meant 22,000 layoffs. Solectron has laid off 25,000 workers this year, closed 490 production lines and idled more than four million square feet of factories.

"It's easy to get drunk on the revenue opportunities that are out there," says Richard Lane, a senior vice president of corporate finance for Moody's Investors Service. Mr. Lane says expanding into a wider range of businesses has saddled the contract manufacturers with higher costs, leaving them more vulnerable to a downturn.

The firms that have fared best this year, Mr. Lane says, are those, such as Jabil, that were most cautious about expanding last year. Jabil is the only top-tier contract manufacturer whose debt carries an investment-grade rating from Moody's.

Ironically, analysts say that the tech slowdown actually may help the contract manufacturers in the long run, by pushing brand-name firms such as Motorola Inc., Lucent Technologies Inc. and Alcatel SA to additional outsourcing. Technology Forecasters projects that contract manufacturers will double their share of the global electronics food chain to 29% in 2005, from 14% this year.

"It's accelerating," says Alex Blanton, research director for New York money manager Inghals & Snyder, whose two biggest holdings are Solectron and Flextronics. Mr. Blanton says Solectron has won 18 new projects this year, which will ultimately add $4 billion to $5 billion in annual revenue. Brand-name firms are trying to sell "hundreds" of factories to the contract manufacturers, he says.
Staples CIO Warns IT to Resist Innovation ‘Frenzy’

Cites other goals ahead of upgrading

BY MARK HALL
LAS VEGAS

In sharp contrast to the uninhibited hawking of cutting-edge technology on the Comdex show floor, Staples Inc. CIO Brian Light cautioned IT users here to “get back to basics” when considering future technology purchases.

The top IT executive at the $11 billion Framingham, Mass.-based office supply retailer said in a keynote speech that companies should “resist the frenzy of innovation” because it can frustrate strategic IT goals such as usability and return on investment.

Light pointed specifically to Windows XP, one of the most visible new technologies at the conference. He said companies should critically evaluate the costs and timing of upgrading to Microsoft Corp.’s new operating system before making the jump. He noted that Microsoft’s own recommendations for Windows XP call for PCs that have 128MB of memory and 1.5GB of free disk space. In comparison Windows 98, the most common corporate PC client, needs only 24MB of RAM and 205MB of available disk capacity.

Light told Computerworld that Staples is planning to upgrade to Windows XP in 2003, skipping the Windows 2000 client. But even after waiting two years to make the switch, it will still cost Staples “tens of millions of dollars” when it upgrades to XP, he said.

He said the company’s strategy is to link the operating system upgrade to the availability of a key supply chain application, which won’t be ready with its XP client until 2003.

“We want to be a fast follower,” Light said. “You don’t need to be a leader in a new back-end management system.”

Web applications represent the one exception to Light’s warning on innovation. Because the pace of change is so quick in online technology, choosing best-of-breed software is important, he said.

For example, Staples uses outbound e-mail software from Menlo Park, Calif.-based Kana Software Inc. However, Light said, it’s wise “not to make the software cancerous by having it reach too deep into your back-end application.” By using a messaging architecture that lets Web-based software interact on a transaction basis with other applications, users can easily swap the online software for another package, he said.

The company’s Staples.com unit has been growing rapidly since it began taking orders online in 1999. The business is on target to double its growth to $1 billion this year.

Staples’ in-store kiosks have contributed to the success of its Web business, Light said. They’re also a good example of integrating advanced Web technology with established point-of-sale systems, thus helping expand sales while holding down back-end system management costs, he added.

What is the CIO of Staples Trying To Say Here?

- He wants IT to get back to basics.
- The IT work needs to have a real payback and it needs to support real business goals.
- A big focus on IT for its own sake can frustrate the real goals.
- My comment: In Oct 1999, the head of NASA Earth Sciences (Ghasem Asrar) had been frustrated with data system problems and high data system costs. He said he wanted a “meat and potatoes” data system. I think that this is similar to what the CIO of Staples was saying in the above piece.

Roy Jenne
Jan 2002
CALIFORNIA, HERE I GO

Dot-commers are fleeing Silicon Valley in droves

Listen closely in the crowded dining room of Silicon Valley's powerbroker haunt II Fornalo, or at the $90- cover nightclub Ruby Skye in San Francisco, and you'll hear the conversations taking a new turn. Instead of describing the latest "total performance delivery integration solution" or pining for the days of Ariba at $152, the talk is reminiscent of when geologists first discovered that the state was slowly sinking into the Pacific Ocean: We better get out of here.

Now that the dot-com crash has vaporized the dreams of instant millions, what was until recently the hottest place in the country has for many become like a stock to be dumped. Call it the Bay Area bailout. Some are leaving because, even with six-figure salaries, they are living like college students, crammed into 500 square feet and not saving a dime. Others can no longer afford their obscene rents or mortgages now that they have been laid off. Then there is the cashout crew, those selling their houses for double what they paid just two years ago and resettling in cheaper climes, such as Palm Springs, Atlanta, Chicago, and Austin, Tex.

SNEERS. Their reasons for fleeing may be different, but nearly all agree that the high-tech revolution, with all of its enormous wealth, has made the place so expensive that even doctors can barely afford to live in San Jose. It's so crowded that if you want to see a movie just to get a parking spot and a seat. The two-hour commutes to travel 25 miles, the $1 million-plus tear-down houses, the crowds, the blackouts, the taxes, the cell phones, the sneers—they just don't seem worth it anymore. "We were living like I worked at Starbucks," says 33-year-old Megan Tobin-Jones, a former $410,000-a-year marketing vice-president at content management company Trapezo Inc., who recently moved to Summit, N.J., with her husband and two kids. "We feel like we got out just in time."

Nowhere, perhaps, is the trend more evident than in the once exploding real estate market, where agents across San Francisco and Silicon Valley say many of their sellers are joining the out-migration. "It's the recurring theme among the sellers I'm representing now," says Dan Bunker of San Francisco's Zephyr Real Estate. "They want to get out before things get worse." Whereas just a year ago you couldn't find a dumpy studio in San Francisco to save your soul, landlords are now doling out signing bonuses to renters by kicking in a month free. Bidding wars for high-end homes in the hills are over, with prices falling 25% off their year-ago high. And rental listings in the Bay Area are at their highest level since 1992, with the corporate rental market down 50%. "It's not like there are any jobs to go to, so people are leaving," says Zoya Smithton, CEO of Bay area rental-unit provider American Marketing Systems Inc.

BLOATED. Even those who have made plenty from options are taking flight. Mark Milinkovich, a 39-year-old former manager at Cisco Systems Inc., recently resigned after seven years to return to his home in Ottawa, Ont. As Cisco grew, he says, its lean, mean cowboy culture was supplanted by a bloated bureaucracy of complacent, vested employees that Milinkovich calls VIPs (vest-in-peoners)—who weren't as much fun to work with as the original crew. He also got tired of living his life on airplanes, all to bank a few more zeroes, and then return home to see the camping equipment he bought for trips with his 8-year-old son languishing unused in the garage. "My son is now 8, and I have yet to take him camping," he says.

For those staying put, there's hope that now that every fortune seeker isn't heading for the Valley, the traffic may ease, the crowds may thin, and housing costs may sober up. "From a regional perspective, we're getting back to a pace that's sustainable," says Doug Henton, president of Palo Alto advisory firm Collaborative Economics. Why, just the other day, an 1,800-sq.-ft. tear-down in Atherton actually sold for under its asking price. The bad news? It was still $8 million.

By Michelle Conlin in New York, with Doug Robson in San Mateo, Calif.
Analysts Say Retailers Will Keep Up IT Spending in '02

Sales slump spawns interest in efficiency

BY CAROL SLIWA
Retailers doing the best job at weathering the economic storm — which resulted in the weakest holiday sales growth in six years — are expected to make the most substantial investments in efficiency-oriented IT systems during the coming year, industry analysts said last week.

Cap Gemini Ernst & Young's retail and consumer division is seeing "an explosion in retail-related IT spending" in North America, said Fred Crawford, an executive vice president at the Paris-based consulting firm. Cap Gemini arranged a teleconference call last week to discuss retail trends.

Most spending is on warehouse and inventory management and financial controls, Crawford said. Surprisingly, the retail industry isn't investing in customer relationship management (CRM) to the same degree as "every other industry segment, including consumer packaged goods," he said, noting that his firm did much more retail CRM work two years ago.

Any investments that retailers make will come despite declining sales growth figures in the industry, as predicted during last week's teleconference by prominent retail analysts.

Sales in chain stores grew just 2.2% during November and December, making the 2001 holiday season the weakest since 1995, said Michael Niemira, an economist at Bank of Tokyo-Mitsubishi Ltd. in New York.

Online Spike

Meanwhile, the online sector saw a spike of about 20%, with $13 billion to $14 billion in holiday sales, said Ken Cassar, a senior analyst at New York-based Jupiter Media Metrix Inc. But "the 20% or so that we're looking at this year is less sunny," considering that growth had been 124% in 1999 and 56% in 2000, he said. Jupiter won't finalize its 2001 holiday numbers for another three to four weeks, Cassar said.

Spending already had been slumping during the 2000 holiday season, when overall retail sales growth for the months of November and December was 2.4%, Niemira said. He added that retailers were feeling recessionary forces well before the government made the official declaration in March.

But Niemira expects the picture to gradually brighten. He predicted that sales growth for the year as a whole will reach 3% to 3.5%, compared with 2.6% in 2001. "It's not going to feel good to every retailer, but it'll feel better than 2001," Niemira predicted.

Those retailers that elect to invest in their e-commerce sites will be "buttoning down core functionality," focusing on merchandising and improving their search engines and general navigation features, according to Cassar.

"There may be some opportunity in merchandising applications, particularly on the analytics side, helping us understand the types of things that people buy, finding cross-selling and potentially upselling potential," Cassar said.

He predicted that sites will also look to speed page downloads, which can take 11 to 15 seconds on an average dial-up modem. "That's not going to be acceptable going forward, and I wouldn't expect the mass market's going to have broadband soon," Cassar said.

Jan 14, 2002 Computer world
East Asian economies

Falling (again)

A new strain of economic contagion is spreading through East Asia

Imagine that you had just recovered from a nasty bout of flu. You return to work, promise your doctor that you will give up smoking and join a gym, and then you fall victim to chicken pox. This is how the former East Asian tigers must feel. In 1997-98 they suffered a bruising financial crisis, and now, after only two years of recovery, many of these economies are facing the prospect of yet another slump. This time the recession virus is being spread not by currency speculators, but by the collapse in America’s information-technology investment.

East Asia’s two biggest export markets are America and Japan. America’s economy has slowed sharply over the past year and Japan’s is already in recession. As a result, exports and production are tumbling. Real GDP fell in Singapore, Taiwan and Thailand in the first quarter and probably again in the second. Singapore’s industrial production fell by 11% in the year to May. South Korea and Hong Kong will be lucky to see GDP growth of 2-3% this year, down from rates of 9% and 10% respectively in 2000. Exports from East Asia, excluding China, have fallen by around 10% over the past year, compared with growth of almost 30% in early 2000. China’s GDP growth is holding up, but even its export growth has slowed from almost 40% to 4% over the past year.

Supply-chain dependencies

The smaller East Asian economies are among the world’s most open, with exports, on average, accounting for about 50% of GDP. Such openness has spurred their growth for several decades, but it also leaves them vulnerable to a global slump. Worse still they are heavily dependent on the production of IT equipment. Morgan Stanley estimates that as much as two-fifths of Asia’s total GDP growth last year came from exports of IT to America. But America’s investment boom has now turned to bust: new orders for computers and electronic products fell by a third in the year to May. One reason why the collapse in investment has so far not pushed America into recession is that it has exported some of that recession to Asia.

America’s economic boom in the late 1990s, combined with Asia’s super-competitive currencies after devaluation, helped the crippled Asian tigers to recover more quickly than expected from their financial crises. However, while exports surged, domestic demand lagged behind. The result is that the Asian economies have become even more dependent upon exports. South Korea’s exports of goods and services jumped from 30% of GDP in 1996 to 45% last year; Thailand’s rose from 39% to 66%. Asia is therefore more exposed to a world slump than ever before. One reason why China’s economy is expected to grow this year by a more robust 8% is that it is less dependent on exports (only 23% of GDP) and much less dependent on IT. In addition, domestic demand looks more robust.

This does not mean that East Asia is heading for another financial crisis. Compared with 1997-98, economies are in much better shape. They now have current-account surpluses instead of huge deficits, and bigger foreign-exchange reserves. With the notable exception of Hong Kong and Malaysia, they have also abandoned the fixed exchange rates that were at the root of their previous meltdown.

During the late 1990s crisis, financial contagion swept through the region as capital fled one economy after another. Today a new strain of contagion is spreading through the global supply chain in IT equipment, as firms in America, Japan and Europe have outsourced their production abroad. East Asia is merely the most extreme case of the increased integration of economies. Global trade volumes grew twice as fast in the 1990s as in the 1980s, so it is hardly surprising that trade now plays a bigger role in the global business cycle. Over the past couple of years America exported its boom, helping East Asia to recover; now it is exporting recession. Growth in the volume of world trade has slowed to around 4% this year from 13% last year—the sharpest deceleration since 1975.

The blame game

Many Asians blame the overseas slump for all their current economic woes. Some will wrongly conclude that further globalisation should therefore be resisted. Actually, in the long run everybody benefits from a globally integrated market when there is diversity of demand and production. But overdependence on one economy brings drawbacks. Because domestic demand lagged, East Asia’s recovery was over-reliant on exports. Asia’s large trade surpluses are popularly seen as a sign of renewed economic vigour. In fact they partly reflect a failure to generate stronger domestic demand as a result of not completing promised structural reforms.

As economies bounced back from the crisis faster than expected, governments concluded that reform could wait. Firms have been slow to sell off assets and reduce debts. Banks have been slow to write off bad loans. Governments have failed to deregulate services, which could have created new jobs to offset the collapse in IT exports. Fragile banking systems and inadequate corporate restructuring continue to cramp domestic expansion. Lower interest rates are less effective in stimulating demand because banks saddled with too many bad loans are reluctant to lend more and debt-laden firms cannot borrow.

Governments are now likely to come under pressure to slow trade liberalisation. Instead they need to do the opposite in order to diversify their trade. If the East Asians became more integrated through trade with each other and with China, they would be less dependent on the United States. The smaller Asians tend to view China as a threat, waiting to steal their markets. Yet China could in future become an important engine for regional growth.

Giving up smoking and having regular exercise do not prevent you from catching chicken pox, but healthier people tend to recover faster. Likewise, deeper reforms would not have prevented the global downturn from hurting Asia, but they would have helped to cushion the economy against an export slump. The risk now is that slower growth will cause politicians to shy further away from tough reforms. It is much harder to quit smoking when you feel a little down.
Old Economy companies that offer regular paychecks look good again.

By Pimm Fox

REACHING THE END of a job interview, the human resources manager asked a young engineer who was fresh out of MIT, “What starting salary were you thinking about?”

The engineer said, “In the neighborhood of $125,000 a year, depending on the benefits package.”

The interviewer said, “Well, what would you say to a package of five weeks’ vacation, 14 paid holidays, full medical and dental coverage, a company-matching retirement fund of up to 50% of salary, and a company car leased every two years — say, a red Corvette?”

The engineer sat up straight and said, “Wow! Are you kidding?”

The interviewer replied, “Yeah, but you started it.”

This apocryphal scenario accurately describes the upheaval in IT recruiting. The hockey stick of big bennies and stock options has given way to hard-core power plays. As layoffs at once high-flying and seemingly invincible IT vendors such as Cisco Systems Inc. and Sun Microsystems Inc. and hundreds of Internet bombs push IT talent and experience onto the market, the law of supply and demand appears to finally be taking hold.

This means greater availability of experienced IT workers, salaries that are more in line with traditional corporate compensation, more leverage for hiring managers and all the fancy Aeron chairs you might want — at fire-sale prices.

According to Ravi Aron, assistant professor of operations and information management at the University of Pennsylvania’s Wharton School in Philadelphia, the tech bubble of stock market valuations created an artificial inflation of value when it came to hiring IT

“Of course,” Aron says, “you would rather work for a company that promised you lots of money in the sexy Internet sector than working at some place like a Boeing.”

But the economics were flawed, like purchasing gold with tulips. So now, IT job applicants are asking questions such as: What’s the salary? Is this company going to be around next year? Does it have real customers?

Companies are now able to hire IT workers whose maturity and understanding of technology value are more closely aligned with more prosaic areas of the enterprise, such as middleware and legacy system integration. Happily, the technology expertise needed to link internal, back-end systems isn’t that dissimilar from that needed to develop and integrate flashier front-end, Web-enabled ones.

“The big difference is in more complex project design and management,” says Aron.

That’s the type of IT designed to bring value to a company by cutting costs and improving efficiencies. And so what if it isn’t part of the New Economy? It’s more satisfying and rewarding to be part of the permanent economy — and the pay is better.

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Poor Layoff Practices Cause Long-Term Damage

70% of laid-off workers wouldn’t recommend that others work at their former company.

67% wouldn’t work for the company again, even if it offered a job.

54% wouldn’t recommend the company’s products or services.

Base: Online survey of 1,200 laid-off workers (November 2002)

SOURCE: ANDERSEN, CHICAGO

Employers to Pay Top Dollar for IT Specialists

<table>
<thead>
<tr>
<th>Job title</th>
<th>2002 salary range</th>
<th>Change from 2001</th>
</tr>
</thead>
<tbody>
<tr>
<td>Database manager</td>
<td>$83,000-$146,000</td>
<td>Up 4.9%</td>
</tr>
<tr>
<td>Disaster recovery specialist</td>
<td>$57,000-$86,000</td>
<td>Up 9.1%</td>
</tr>
<tr>
<td>ERP integration manager</td>
<td>$76,000-$103,250</td>
<td>Up 2.9%</td>
</tr>
</tbody>
</table>

SOURCE: RHI CONSULTING, MENLO PARK, CALIF.