A new round of **GLOBALIZATION** is sending upscale jobs offshore. They include chip design, engineering, basic research—even financial analysis. Can America lose these jobs and still prosper?
A new round of \textbf{GLOBALIZATION} is sending upscale jobs offshore. They include chip design, engineering, basic research—even financial analysis. Can America lose these jobs and still prosper?

\section*{Is Your Job Next?}

\textbf{By Pete Engardio, Aaron Bernstein, and Manjeet Kripalani}

The sense of resignation inside Bank of America is clear from the e-mail dispatch. “The handwriting is on the wall,” writes a veteran information-technology specialist who says he has been warned not to talk to the press. Three years ago, the Charlotte (N.C.)-based bank needed IT talent so badly it had to outbid rivals. But last fall, his entire 15-engineer team was told their jobs “wouldn’t last through September.” In the past year, BofA has slashed 3,700 of its 25,000 tech and back-office jobs. An additional 1,000 will go by March.

Corporate downsizings, of course, are part of the ebb and flow of business. These layoffs, though, aren’t just happening because demand has dried up. Ex-BofA managers and contractors say one-third of those jobs are headed to India, where work that costs $100 an hour in the U.S. gets done for $20. Many former BofA workers are returning to college to learn new software skills. Some are getting real estate licenses.

BofA acknowledges it will outsource up to 1,100 jobs to Indian companies this year, but it insists not all India-bound jobs are leading to layoffs.

Cut to India. In dazzling new technology parks rising on the dusty outskirts of the major cities, no one’s talking about job
losses. Inside Infosys Technologies Ltd.’s impeccably landscaped 55-acre campus in Bangalore, 250 engineers develop IT applications for BofA. Elsewhere, Infosys staffers process home loans for Greenpoint Mortgage of Novato, Calif. Near Bangalore’s airport, at the offices of Wipro Ltd., five radiologists interpret 30 CT scans a day for Massachusetts General Hospital. Not far away, 26-year-old engineer Dharin Shah talks excitedly about his $10,000-a-year job designing third-generation mobile-phone chips, as sun pours through a skylight at the Texas Instrument Inc. research center. Five years ago, an engineer like Shah would have made a beeline for Silicon Valley. Now, he says, “the sky is the limit here.”

About 1,000 miles north, on an old flour mill site outside New Delhi, all four floors of Wipro Spectramind Ltd.’s sandstone-and-glass building are buzzing at midnight with 2,500 young college-educated men and women. They are processing claims for a major U.S. insurance company and providing help-desk support for a big U.S. Internet service provider—all at a cost up to 60% lower than in the U.S. Seven Wipro Spectramind staff with PhDs in molecular biology sift through scientific research for Western pharmaceutical companies. Behind glass-framed doors, Wipro voice coaches drill staff on how to speak American English. U.S. customers like a familiar accent on the other end of the line.

Cut again to Manila, Shanghai, Budapest, or San José, Costa Rica. These cities—and dozens more across the developing
world—have become the new back offices for Corporate America, Japan Inc., and Europe GmbH. Never heard of Balazs Zimay? He’s a Budapest architect—and just might help design your future dream house. The name sgv & Co. probably means nothing to you. But this Manila firm’s accountants may crunch the numbers the next time Ernst & Young International audits your company. Even Bulgaria, Romania, and South Africa, which have a lot of educated people but remain economic backwaters, are tapping the global market for services.

It’s globalization’s next wave—and one of the biggest trends reshaping the global economy. The first wave started two decades ago with the exodus of jobs making shoes, cheap electronics, and toys to developing countries. After that, simple service work, like processing credit-card receipts, and mind-numbing digital toil, like writing software code, began fleeing high-cost countries.

Now, all kinds of knowledge work can be done anywhere. “You will see an explosion of work going overseas,” says Forrester Research Inc. analyst John C. McCarthy. He goes so far as to predict that at least 3.3 million white-collar jobs and $136 billion in wages will shift from the U.S. to low-cost countries by 2015. Europe is joining the trend, too. British banks like HSBC Securities Inc. have huge back offices in China and India; French companies are using call centers in Mauritius; and German multinationals from Siemens to roller-bearings maker INA-Schaeffler are hiring in Russia, the Baltics, and Eastern Europe.

The driving forces are digitalization, the Internet, and high-speed data networks that girdle the globe. These days, tasks such as drawing up detailed architectural blueprints, slicing and dicing a company’s financial disclosures, or designing a revolutionary microprocessor can easily be performed overseas. That’s why Intel Inc. and Texas Instruments Inc. are furiously hiring Indian and Chinese engineers, many with graduate degrees, to design chip circuits. Dutch consumer-electronics giant Philips has shifted research and development on most televisions, cell phones, and audio products to Shanghai.

In a recent PowerPoint presentation, Microsoft Corp. Senior Vice-President Brian Valentine—the No. 2 exec in the company’s Windows unit—urged managers to “pick something to move offshore today.” In India, said the briefing, you can get
“quality work at 50% to 60% of the cost. That’s two heads for the price of one.”

Even Wall Street jobs paying $80,000 and up are getting easier to transfer. Brokerages like Lehman Brothers Inc. and Bear, Stearns & Co., for example, are starting to use Indian financial analysts for number-crunching work. “A basic business tenet is that things go to the areas where there is the best cost of production,” says Ann Livermore, head of services at Hewlett-Packard Co., which has 3,300 software engineers in India. “Now you’re going to see the same trends in services that happened in manufacturing.”

The rise of a globally integrated knowledge economy is a blessing for developing nations. What it means for the U.S. skilled labor force is less clear. At the least, many white-collar workers may be headed for a tough readjustment. The unprecedented hiring binge in Asia, Eastern Europe, and Latin America comes at a time when companies from Wall Street to Silicon Valley are downsizing at home. In Silicon Valley, employment in the IT sector is down by 20% since early 2001, according to the nonprofit group Joint Venture Silicon Valley.

Should the West panic? It’s too early to tell. Obviously, the bursting of the tech bubble and Wall Street’s woes are chiefly behind the layoffs. Also,
any impact of offshore hiring is hard to measure, since so far a tiny portion of U.S. white-collar work has jumped overseas. For security and practical reasons, corporations are likely to keep crucial R&D and the bulk of back-office operations close to home. Many jobs can’t go anywhere because they require face-to-face contact with customers. Americans will continue to deliver medical care, negotiate deals, audit local companies, and wage legal battles. Talented, innovative people will adjust as they always have.

Indeed, a case can be made that the U.S. will see a net gain from this shift—as with previous globalization waves. In the 1990s, Corporate America had to import hundreds of thousands of immigrants to ease engineering shortages. Now, by sending routine service and engineering tasks to nations with a surplus of educated workers, the U.S. labor force and capital can be redeployed to higher-value industries and cutting-edge R&D. “Silicon Valley doesn’t need to have all the tech development in the world,” says Doug Henton, president of Collaborative Economics in Mountview, Calif. “We need very-good-paying jobs. Any R&D that is routine can probably go.” Silicon Valley types already talk about the next wave of U.S. innovation coming from the fusion of software, nanotech, and life sciences.

Globalization should also keep services prices in check, just as it did with clothes, appliances, and home tools when manufacturing went offshore. Companies will be able to keep shaving overhead costs and improving efficiency. “Our comparative advantage may shift to other fields,” says City University of New York economist Robert E. Lipsey, a trade specialist. “And if productivity is high, then the U.S. will maintain a high standard of living.” By spurring economic development in nations such as India, meanwhile, U.S. companies will have bigger foreign markets for their goods and services. For companies adept at managing a global workforce, the benefits can be huge. Sure, entrusting administration and R&D to far-flung foreigners sounds risky. But Corporate America already has become comfortable hiring outside companies to handle everything from product design and tech support to employee benefits. Letting such work cross national boundaries isn’t a

A global pool of skilled workers... is drawing more Western companies...
radical leap. Now, American Express, Dell Computer, Eastman Kodak, and other companies can offer round-the-clock customer care while keeping costs in check. What’s more, immigrant Asian engineers in the U.S. labs of TI, IBM, and Intel for decades have played a big, hidden role in American tech breakthroughs. The difference now is that Indian and Chinese engineers are managing R&D teams in their home countries. General Electric Co., for example, employs some 6,000 scientists and engineers in 10 foreign countries. GE Medical Services integrates magnet, flat-panel, and diagnostic imaging technologies from labs in China, Israel, Hungary, France, and India in everything from its new X-ray devices to $1 million CT scanners. “The real advantage is that we can tap the world’s best talent,” says GE Medical Global Supply Chain Vice-President Dee Miller.

That’s the good side of the coming realignment. There are hazards as well. During previous go-global drives, many companies ended up repatriating manufacturing and design work because they felt they were losing control of core businesses or found them too hard to coordinate. In a recent Gartner Inc. survey of 900 big U.S. companies that outsource IT work offshore, a majority complained of difficulty communicating and meeting deadlines. As a result, predicts Gartner Inc. Research Director Frances Karamouzis, many newcomers will stumble in the first few years as they begin using offshore service workers.

A thornier question: What happens if all those displaced white-collar workers can’t find greener pastures? Sure, tech specialists, payroll administrators, and Wall Street analysts will land new jobs. But will they be able to make the same money as before? It’s possible that lower salaries for skilled work will outweigh the gains in corporate efficiency. “If foreign countries specialize in high-skilled areas where we have an advantage, we could be worse off,” says Harvard University economist Robert Z. Lawrence, a prominent free-trade advocate. “I still have faith that globalization will make us better off, but it’s no more than faith.”

If the worries prove valid, that could reshape the globalization debate. Until now, the adverse impact of free trade has been confined largely to blue-collar workers. But if more politically powerful middle-class Americans take a hit as white-collar jobs move offshore, opposition to free trade could broaden.

When it comes to developing nations, however, it’s hard to see a downside. Especially for those countries loaded with college grads who speak Western languages, outsourced white-collar work will likely contribute to economic development even more than new factories making sneakers.

### COVER STORY

#### DOES WHITE COLLAR

A trend that’s likely to grow

<table>
<thead>
<tr>
<th>COMPANY</th>
<th>NO. OF WORKERS AND COUNTRY</th>
<th>TYPE OF WORK MOVING</th>
<th>2005</th>
<th>2010</th>
<th>2015</th>
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<td>HSBC</td>
<td>4,000 in China, India</td>
<td>Credit-card, loan processing</td>
<td>3,700</td>
<td>14,000</td>
<td>37,000</td>
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<td>INTEL</td>
<td>3,000 in India by 2005</td>
<td>Chip design, tech support</td>
<td>14,000</td>
<td>35,000</td>
<td>75,000</td>
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<td>MICROSOFT</td>
<td>500 in India, China by year end</td>
<td>Software design, IT support</td>
<td>6,000</td>
<td>14,000</td>
<td>30,000</td>
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<tr>
<td>ORACLE</td>
<td>Doubling India staff to 4,000</td>
<td>Software design, customer support, accounting</td>
<td>37,000</td>
<td>118,000</td>
<td>288,000</td>
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<tr>
<td>PHILIPS</td>
<td>700 Chinese engineers in China</td>
<td>Consumer electronics R&amp;D</td>
<td>61,000</td>
<td>162,000</td>
<td>348,000</td>
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<td>PROCTER &amp; GAMBLE</td>
<td>650 in Philippines, 150 in China</td>
<td>Tech support, accounting</td>
<td>109,000</td>
<td>277,000</td>
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<td>295,000</td>
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<td></td>
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*To low-wage countries such as India, China, Mexico, and the Philippines


U.S. brokerages, investment banks, and rating agencies are buying equity research and industry reports from finance specialists in India. They mine the same databases available to Wall Street.

**OFFSHORE SALARY:**

- $1,000/month in India
- $7,000/month and up

**U.S. COUNTERPART:**

- $1,000/month
- $7,000/month and up
Big corporations are having bookkeeping, such as accounts receivables, done in Ireland, India, and the Philippines and are shifting work on taxes and financial reports there, too. Soon, offshore accountants may do everything but on-site audits.

**OFFSHORE SALARY:**
$300/month in Philippines with master's.

**U.S. COUNTERPART:**
$5,000/month and up.

**GOING ABROAD**

**Accountant**

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**PHILIPPINES**

**Maribeth Medina**

**SGV, Ernst & Young**

**STARTING PAY:**
**AROUND $4,000**

Manila number-crunchers work on the books of U.S. companies.

This is no sweatshop work. Just two years out of college, Gaurav Daga, 22, is an India project manager for software that lets programs running on Unix-based computers interact smoothly with Windows applications. Daga's $11,000 salary is a princely sum in a nation with a per capita annual income of $500, where a two-bedroom flat goes for $125 a month. Microsoft is adding 10 Indians a month to its 150-engineer center and indirectly employs hundreds more at IT contractors. "It's definitely a cultural change to use foreign workers," says Sivaramakrishnan Somasegar, Microsoft's vice-president for Windows engineering. "But if I can save a dollar, hallelujah."

Corporations are letting foreign operations handle internal finances as well. Procter & Gamble Co.'s 650 Manila employees, most of whom have business and finance degrees, help prepare P&G's tax returns around the world. "All the processing can be done here, with just final submission done to local tax authorities" in the U.S. and other coun-

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**THE NEW COLD WAR AT BOEING**

You've heard about those companies that hire cheap overseas professionals to do their accounting, software programming, and architectural work, and you want to jump on the bandwagon. Not so fast. Your U.S. staff might just balk. There may be no better example of that than Boeing Co.

Nearly 12 years ago, as the Soviet Union collapsed, Boeing started recruiting out-of-work Russian aerospace engineers to collaborate on space and commercial-airplane projects. At first, their numbers were small. But the Russians did good work for as little as $5,400 a year. Boeing began to view its Russian staff as the vanguard of a new push into the European market, and in 1996 it opened its Moscow Design Center, which a year ago boasted nearly 700 engineers. From the day the center opened, engineers at Boeing's Seattle hub had voiced concerns. Last year, those fears boiled over.

Boeing's 22,000 engineers in Seattle, represented by the Society of Professional Engineering Employees in Aerospace (SPEEA), threatened to walk out in December, when their contract expired, if the Russian venture wasn't cut back.

Partly as a result, Boeing reduced its troop of Moscow engineers to about 350, though the company won't be precise. "The underlying fear is that we're giving away our technology and our competitive advantage, and we're losing jobs," says Dave Landress, a test engineer and union rep. The union has good reason for concern: Struggling to reduce costs to cope with the sharp falloff in orders from the ailing airline industry, Boeing has laid off 5,000 engineers since 2001.

Still, Boeing has refused to yield entirely to the union's demands. It declined, for instance, to adopt tough new
6328BW YourJob 5/17/04 12:04 PM Page 9

- **Cover Story**
  - **GOING ABROAD**
    - **Info-Tech Support**
      - No longer are Asian IT engineers only writing routine software applications and maintaining mature computer systems. Now they are remotely managing sophisticated networks, designing Web sites, and developing software for entire business processes for big Western corporations.
      - **OFFSHORE SALARY: $500/month in India for database manager**
      - **U.S. COUNTERPART:** Up to $10,000/month.

- **Warpath**
  - **Engineering union member Craig Buckham protesting a Russian venture**
  - **U.S. JOBS for U.S. Workers**
  - **Future, company insiders say.**

  The strategy is to integrate the cheaper Russian engineers into the design process for everything Boeing makes. The Russian staff—spread over seven cities—already works on everything from redesigning jet-wing parts to designing components for the International Space Station. Boeing’s other goal is to develop a 24-hour global workforce, made possible by a satellite link from Russia to Boeing’s Seattle offices. “We have achieved substantial cost reductions on every airplane we deliver with the help of our Moscow team,” Hank Queen, Boeing vice-president for engineering, told SPEEA members recently.

  It’s not just lower pay that makes Russia so attractive. The company hopes a local presence will help to win Russian orders. It hasn’t so far: Last summer, Aeroflot weighed the pros and cons of the Boeing 737 vs. the Airbus A320 and picked Airbus, which opened its own Russian design center last year and plans to hire 20 engineers. Still, given the savings, Boeing is likely to keep shifting work to Russia, which is sure to keep some engineers sleepless in Seattle.

  *By Stanley Holmes in Seattle, with Simon Ostrovsky in Moscow*
THE WAY, WAY BACK OFFICE

Drop by the Manila offices of Source 1 Asia at two or three in the morning, and you might think you’ve stumbled into some late-night college cram session. Some 750 men and women in their early 20s, jazzed on cappuccino and junk food, are pulling all-nighters in front of their computers. The walls of the cavernous room are painted hot pink, purple, and lime green. But it’s not Calculus 101 that has these Filipinos burning the midnight oil. They’re busy handling credit-card queries from ChevronTexaco Corp., customers and walking users through the intricacies of Microsoft Corp. software.

Say “call center” to most Americans, and they think of tedious, low-paid, dead-end jobs fielding complaints about phone bills or bank statements. But in the Philippines, call centers are viewed as a gateway to exciting careers working on behalf of the best service companies in the world. Some 10,000 Filipinos, almost all with college degrees, staff 45 such centers around the clock, seven days a week. Companies like American Express, Eastman Kodak, Intel, Microsoft, and Dell Computer are flocking to the Philippines, lured by the country’s low wages, generous tax breaks, and ample supply of English speakers. The call-center staff “are a very, very talented pool of people,” says Arun Khanna, Procter & Gamble’s Manila-based accounting director.

Filipinos such as Philip Sy see call centers as a stepping stone to an exciting career. “They’re committed, and comfortable with being trained and taking on responsibility.”

Philip Sy is a typical call center worker. After graduating in 1998 from the University of the Philippines with a degree in German and Italian, Sy took a $250-a-month job at Source 1 providing assistance to people installing software on their computers. Now 28, Sy is a Source 1 operations manager overseeing 150 people and earning $13,000 a year, a small fortune in a country where 40% of the population lives on less than a dollar a day: “Considering the career growth opportunities, a job here is pretty desirable,” says Sy, practicing yo-yo tricks as he wanders the floor monitoring calls. Another Source 1 employee, Karen Betita, 25, is the daughter of a diplomat and has a college degree in communications. She says she views the job as a good starting place for a marketing career.

Because they are able to hire some of the country’s best talent, call centers in the Philippines are moving far beyond telemarketing. At the offices of Tampa (Fla.)-based Sykes Enterprises in the heart of Manila’s Makati financial district, some of the 2,200 agents troubleshoot for control systems for oil rigs made by a U.S. manufacturer. “The salary difference between a qualified engineer in the U.S. and here is colossal—at least 10 times,” says Michael Henderson, Asia managing director at Sykes. Others advise customers interested in life insurance and mutual funds offered by a major U.S. financial services company that Source 1 says it cannot identify. To get the licenses needed to market U.S. securities, Sykes flies Filipino staff to the U.S. and Hong Kong to take tests given by the National Association of Securities Dealers. Others at Sykes provide online support for users of Microsoft’s latest Internet-access service, MSN 8.0, and help buyers figure out how to operate Kodak digital cameras.

Says 24-year-old Sykes employee Michelle Abreu: “I see myself working in the industry for a long time.”

It’s that kind of attitude—and the fact that good jobs are scarce in the Philippines—that helps keep turnover at call centers under 10% a year, compared with upwards of 70% in the U.S. Indeed, Nathan Shapiro, Source 1’s director of Asian operations, says he has just one headache: The Filipino employees are too polite, leading to longer, costly phone chats. “We have to teach them to be more rude,” says Shapiro. That may be the one area in which U.S. service providers can’t be beaten.

By Frederik Balfour in Manila

Cover Story

Most economists haven’t begun to fathom the implications. For developing nations, the big beneficiaries will be those offering the speediest and cheapest telecom links, investor-friendly policies, and ample college grads. In the West, it’s far less clear who will be the big winners and losers. But we’ll soon find out.