



The New Face of Global Competition

Not so long ago, India's Wipro Ltd. sold cooking oils and knockoff PCs. Now its 15,000 technologists cook up vital software applications and research for Ericsson, GM, the Home Depot, and other giant customers. Are you prepared to go head-to-head with the best the world has to offer?

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There are certain moments when you can see the future with such clarity it nearly takes your breath away. I went to India and witnessed the future. I am certain of this, because I saw the explosions. I arrived in Bangalore at the start of the Hindu festival of Diwali. Diwali is a four-day-long celebration of wealth and prosperity, of light over darkness. Strings of colored lights festoon every window; even the meanest shanty blazes with candles. In Bangalore, a city of 6 million, children scamper through the alleyways with sparklers. Fireworks burst randomly from tens of thousands of rooftops.

A thousand points of light? Try a billion. India is a nation of 1 billion people, and, despite enormous challenges, it is on the verge of something spectacular. Out of its poverty and chaotic decrepitude erupt a host of small explosions. It is a place crackling with talent and ideas and ambition. It is where a visitor confronts head-on the new face of a global marketplace -- and the emergence of a new force in high-tech competition.

Near the center of this phenomenon is a company called Wipro Ltd. On a rooftop at Wipro's Electronic City campus one evening, I joined a few dozen engineers at their team Diwali party. It was like a Silicon Valley beer blast without the beer: Laughing employees played movie charades while a portable CD player pumped out tunes. Diwali traditionally is observed at home with family and close friends, but it's not a holiday that's recognized in America -- and these engineers were doing important work for a big American customer. So as the sun faded, they dispersed to their cubicles downstairs and got back to business.

They were toiling on a project for CNA Life, a company 11 and a half time zones away in Nashville, Tennessee. Wipro engineers have been helping CNA reengineer its business processes and improve automated-underwriting performance. This hasn't just involved stringing COBOL code together. Wipro employees have set the strategy, then designed and architected the system. It's high-level stuff, a "mission critical" application.

More explosions: From Wipro's rooftop, you can see a string of holes blown out of farmland nearby.

Wipro is excavating the foundation for an 8-acre third phase of its Electronic City facility, the largest of its 10 sites around Bangalore. By 2004, it expects to triple the size of this campus; 17,000 engineers will take on projects for such clients as the Home Depot, Nokia, and Sony.

A decade ago, Wipro was an anonymous conglomerate selling cooking oil and personal computers, mostly in India. Today, it is a \$903 million-a-year global company, and most of its business comes from information-technology services. Since 1997, Wipro's revenue has grown by an average of 26% a year while profits have grown by 69%. Its 15,000 technologists write software, integrate back-office solutions, design semiconductors, debug applications, take orders, and field help calls for some of the biggest companies in the world. They are as good at doing all of that as anyone in the world. Perhaps better. And they are cheaper -- on average about 40% cheaper -- than comparable American companies.

It is an irresistible force, and it's on the rise. Three years ago, Bangalore was the software world's biggest body shop, offering coders at \$2 an hour. Now Wipro and a few rivals are moving upstream, swinging into such high-value services as consulting, integration, and architecture. Increasingly, Wipro is competing with Accenture, EDS, IBM, and the big accounting firms. And as often as not, it's winning.

Where you stand on all of this, of course, depends on where you sit. Here in Bangalore, Wipro's growth is a matter of tremendous national significance, requital for its loss of high-tech manufacturing and a sign of even bigger things to come. In America, where technology-services companies struggle with weak stock prices and uncertain growth prospects, the rise of a tough, lower-cost competitor is a sensitive subject. That's true even for Wipro's satisfied customers, most of whom declined to speak on the record. (How many American executives want to crow about all of the work they're shipping to India?)

The emergence of Wipro is inspiring and disorienting, a case study in strategic possibility -- and a warning of business dislocation to come. So it is with the unforgiving logic of global competition.

The Rank and File: Big Brains, Bargain Prices

If you are an American technology-strategy consultant making \$150,000 a year, you should know about Ganesh Narasimhaiya. Ganesh (mercifully, his business card reads simply Ganesh N.) is a friendly fellow. He is 30 years old. He enjoys cricket, R&B music, and bowling, and he lives with his parents in Bangalore. He earned a bachelor's degree in electronics and communications, and he can spin out code in a variety of languages: COBOL, Java, UML (Unified Modeling Language), among others.

In the past three years, Ganesh has worked on high-level projects for Wipro all over the world. He has helped GE Medical Systems roll out a logistics application throughout Southeast Asia. He proposed a plan to consolidate and synchronize security solutions across a British client's e-business applications. For Statoil of Norway, he developed a strategy for transferring legacy system applications onto the Web.

"I want to be on the cutting edge of technology," Ganesh says. The guy is sharp. And hungry. He'll work 18 or 19 hours a day at a customer site. For that, while overseas, he may pull down \$7,000 a month. When he's home in Bangalore, his pay is about one-quarter of that -- \$21,000 a year. By Indian standards, it's a small fortune.

Ganesh is part of Wipro's wedge. The company is massing a small force of high-level strategists, increasingly focused on specific industries, who can compete -- with anyone -- for any given consulting project. Once Ganesh and his colleagues work their way past a CIO's door, Wipro can play its Trojan horse: offshore outsourcing solutions that dramatically lower clients' expenses.

At that point, your applications developers could find themselves up against Dilis Antony, 30, and her team of four. Antony, who holds the equivalent of a master's degree in computer science, manages a project to build a Web-based customer survey for United Technologies' Otis Elevator Co. division, part of a much broader Web strategy that Wipro is executing for Otis. Antony says that she "wants to grow with Wipro." She has her sights set on bigger management roles. Her programmers average \$8,000 a year. She probably doesn't make much more.

Think hard about that. If you are a strategy consultant working for Accenture or EDS in the United States, how do you compete with Ganesh? How does your company compete when Antony's troops can execute Ganesh's solution for perhaps a quarter of the cost of your staff -- and execute just as well?

In America's information economy, we have become comfortable framing our competitive advantage in terms of knowledge and innovation. We justify charging premium prices because we have the best-trained talent delivering top-quality information solutions. That's why panic over the overseas migration of manufacturing jobs in the 1980s was short-lived: For all of the talk of a "hollow economy," we remained masters of white-collar brain work. So what happens if brain work can be done anywhere?

The Strategy: The power of "power consulting"

Well, no, it can't be done anywhere. That would understate the enormity of what Wipro is pulling off. The company has been canny enough to understand that peddling a low-cost service can't lead to sustainable growth and profitability. This is the oldest, harshest lesson of the global economy: If what you do can be done by anyone, there will always be someone willing to do it for less.

Wipro knew that long-term prosperity depended on providing services of increasingly higher value. A decade ago, like dozens of other Indian companies, it supplied technical labor on demand. Then it realized that piecework is fine, but relationships are better. So Wipro created development centers within its offices, each dedicated to a single important customer. The idea: to promote relationships that would create annuity revenue.

Today in Electronic City, Wipro hosts development centers for Hewlett-Packard, GM, and dozens of other huge global companies. Lumber company Weyerhaeuser's three centers -- one in Bangalore, one in Chennai, and one in the United States -- house more than 200 engineers. The engagement began in 1999 with two Wipro employees conducting a modest on-site analysis at Weyerhaeuser's U.S. headquarters. Now Wipro develops, maintains, and supports a broad array of Weyerhaeuser applications from Bangalore.

At the same time, Wipro has embraced quality. In six years, it has trained 7,000 employees in Six Sigma and completed 1,000 quality projects. Six years ago, Fast Company profiled a team at Lockheed-Martin that wrote nearly perfect code ("They Write the Right Stuff," Dec : Jan 1997). The team's claim to fame: It was one of only four outfits in the world to achieve Level 5 certification from the Software Engineering Institute. Wipro has Level 5 certification in three different categories. It's eye-glazing stuff, but an amazing achievement.

Such accomplishments confirmed that Wipro's developers weren't just cheap: They were cheap and very, very good. It was enough to distinguish them from every aspiring dollar-an-hour coder in Malaysia, Russia, and South Africa. But it wasn't enough to allow them to take on the big American firms. To do that, Wipro had to become more like them. "The company has had to let go of the Indian brand and create a global company while maintaining the cost advantage associated with being Indian," says Stephen Lane, research director for IT services at Aberdeen Group.

In 1999, Wipro hired Vivek Paul to run its small technology subsidiary. Paul, an executive with Bollywood-movie idol looks, is Indian by birth. But he made his mark in the United States, graduating from business school at the University of Massachusetts at Amherst and thriving at GE Medical Systems. Among other things, he negotiated one of GE's earliest IT outsourcing joint ventures in India -- with Wipro.

Paul headquartered Wipro Technologies not in India but in Santa Clara, California. He saw "a great opportunity to be a player at a company that had a shot at being global." But he also saw a workforce in need of a spark. "The whole ethos was rooted in execution," he says. Indian workers had been raised and schooled to respect authority. They did what they were told to do very well. What they didn't do as well was tell clients what needed doing.

There is a slangy Hindi word, *jugaad*, that describes what Paul was looking for. It implies the ability to think assertively, and work creatively around unexpected problems. "How does one move from being a good pharmacist to being a good doctor?" asks Ranjan Acharya, Wipro's vice president for human-resource development. "A pharmacist cannot add value to a prescription. He can impress with his service but not with a decision."

Wipro needed more doctors. Some of them, it could hire. In fact, it had to. To compete with the big firms, it had to offer expertise in specific industries. If you want to solve a commercial bank's technology problems, you should understand how the banking business works. So Wipro lured Ramesh Subramanian, a McKinsey & Co. veteran who had focused on financial-services clients. It found Aswatha Amarnath, an energy-finance specialist with high-level relationships at big U.S. utilities.

But such high-profile hires still left 15,000 engineers and managers who were thinking like pharmacists. For them, Acharya rolled out a wide-ranging training strategy called Power Consulting. In the United States, a corporate initiative by that name might well be laughed out of the company cafeteria -- especially since some elements seem almost insultingly basic. Engineers who are to meet customers, for example, prepare by dressing for a formal lunch and learning to use silverware properly.

But at Wipro, employees accept the training as competitive weaponry. They learn to "understand the context of the relationship," as Acharya says, and to home in on customers' problems. In small groups, engineers practice asking pointed questions about clients' companies, their businesses, and their people. "Our people are accustomed to speaking from Wipro's view," says Acharya. "They must learn to speak from the customer's view."

Employees are taught to analyze situations and to define the scale and scope of a problem. They learn to "prewire" a presentation, talking to everyone involved ahead of time to prevent nasty surprises. And they are instructed in the fine arts of negotiating and closing a deal. Every new engineer -- and Wipro hired 2,200 engineers in a six-month period last year -- has some consulting perspective built into his 45-day indoctrination.

Where does all of this lead? Up the food chain. Teach engineers to think like consultants, make them experts in their clients' industries, and you forge a workforce that will keep pushing the business forward. Wipro expects that strategy consulting will ultimately account for just 10% of its technology revenue. But those slivers, such as current consulting gigs at General Motors and Nationwide Insurance, will drive long-term relationships with clients, producing steady streams of outsourcing revenue.

Wipro hopes to win more high-level contracts like the one from Storage Technology Corp., which this year agreed to outsource the design and engineering of a line of tape-storage devices. By 2004, Wipro

employees will take responsibility for the products' development, supplanting Storage Technology workers in Minneapolis. And in September, Wipro took over a whole R&D facility for Ericsson. Beyond accepting the financial risk, the 120-person Wipro team will manage the research process.

Here, then, is Wipro's challenge. New business will come, because in a global downturn, everyone is looking to slash costs. For Wipro, Power Consulting is all about turning that opportunity into an inflection point. It's about restructuring straightforward commodity work into high-value partnerships. It's about selling something that no one in the world can replicate.

The Boss: Outsourcing as a way of life

Some 8,300 miles from Bangalore, Wipro chairman and managing director Azim H. Premji slides into the front seat of a Lincoln Town Car for the journey into Manhattan. He is a courtly man, silver haired and impeccably dressed. This morning, he is pitching some of Wipro's biggest clients and prospects. He has run late with Verizon Wireless, and he worries now about making an important appointment at J.P. Morgan Chase.

Premji's story is near legend in India, largely because with a fortune estimated at \$6 billion, he is by far the nation's wealthiest individual. In 1946, his father founded the Western India Vegetable Products Company to manufacture and distribute cooking oils. The elder Premji died suddenly in 1966, obliging his son to cut short his studies at Stanford to take over the family business. (He finished his electrical engineering degree in 1999.)

Premji proved to be a shrewd opportunist. He diversified into personal-care products and then into lightbulbs. In the early 1980s, after India walled off its economy and shooed away foreign technology companies, Wipro ginned up an R&D lab and produced a passable knockoff of Digital Equipment's PDP11 minicomputer. Within a few years, having concocted its own operating system and semiconductors, Wipro was the leading manufacturer of personal computers, printers, and scanners in India.

When India reopened its gates in 1990, Premji acknowledged that Wipro could not compete with PC imports. But he had his R&D lab, filled with some of India's best talent. So Premji began renting it out to the rest of the world. His engineers designed semiconductors for Texas Instruments, phones for Nokia, and switches and routers for Nortel. Then they started tinkering with software.

Here's what he will tell the executives at J.P. Morgan Chase: "What's happening now in services is what happened 15 years ago in manufacturing. It started in software, in application development. It's moving to software-enabled services. Call centers, legal services, medical. Wherever work can be removed and done somewhere else, it will be done where it's most cost-effective.

"Take a large law firm. The clerks and paralegals could be trained in India, serving partners and associates in the U.S. Salomon Smith Barney has a big research staff here. Why can't 60% of its reports be done from India? Why should they require everyone to be in the United States?" Wipro just signed a contract to interpret radiology images for a major American research hospital. Indian radiologists will, in effect, provide the hospital's second and third shifts.

Why should everyone be in the United States? In his understated way, Premji delights in this question. "I have had meetings in the past year with the top partners of a U.S. accounting firm. One year ago, they thought that the Indian model was not important. Six months back, they raised their target for outsourced jobs to 2,000. Now they're talking about raising it to 25,000. They will get to that number. If

they don't, they'll be out of business."

Of course, this is a fair bit of bluster. But a few blocks away, executives at Accenture's New York offices are struggling with exactly the dilemma that Premji proposes. Accenture is more than 10 times Wipro's size. It can take on huge outsourcing projects, such as running a global company's data center, that Wipro won't be able to touch for years, if ever. Still, when Lattice Group wanted to outsource systems integration for its fiber-optic network in the United Kingdom, it awarded the \$70 million contract to Wipro.

So Accenture has upped its Indian outsourced workforce eightfold, to 800 this year, even as it has fired partners and cut bonuses in the United States. In November, troubled EDS boasted that it would have 20,000 employees working offshore by 2004. It will spend \$100 million to open a new business-process outsourcing center in India by spring and to build up similar capabilities in Argentina, Hungary, New Zealand, and other countries.

Wipro, in other words, is charging upstream into consulting and other high-value services while its bigger American rivals are rushing downstream. Vivek Paul argues that "both ends of the spectrum are racing for the same point. Neither strategy is easy. It's not easy to build a strong global-delivery model, and it's not easy to rent real estate in India and hire engineers. But ultimately, the center point is where the big players will play."

As it nears the center, Wipro is taking pains to seem less, well, Indian. A true global company, Premji reasons, appears to be local wherever it does business. That's one reason why he's sharing his limousine today with Richard S. Garnick, a 20-year technology-sales veteran who joined Wipro last year to head its American field operations. In July, Wipro hired Steve Zucker, a former top U.S. sales executive for EDS, to lead its push into total outsourcing deals.

Within two years, Wipro says, three-quarters of the employees its customers see will be local nationals: American, European, or Asian. It will hire local talent and buy companies that give it instant industry presence. In November, for example, the company paid \$26 million for the energy practice of American Management Systems, buying not just credibility but 90 consultants and 50 existing client relationships. And within two years, Wipro will likely begin shipping development work to locations where workers are paid even less than in India. It will itself look offshore, perhaps to the Philippines or Vietnam. This is what a truly global company does. It operates close to its customers, and it constantly seeks opportunities to arbitrage labor markets.

Back in Bangalore, the folks at Wipro are paying close attention to this. Not just Premji and his top executives, and not just the marketing department. Every Wednesday morning, Paul emails his "weekly highlights" to every Wipro Technologies group employee. He recounts each contract win and loss, assesses the state of the industry, and lays out Wipro's near-term strategy.

And amid the blonde-and-gray cubicles at Electronic City, in the massive lunchroom where servers fill steel trays with rice and curries, employees digest every word. They know all about Accenture and EDS, about the accounting firms and IBM Global Services. And they're not one bit daunted. "We are getting confidence that we're world-class," says Vinayachandron P S, a 35-year-old program manager in Wipro's Oracle practice. "It's a fact now. We know we can beat them."

The Mission: "We should be world-class"

On my last day in India, I flew to Mumbai (formerly Bombay). Mumbai is one of the world's biggest

cities: seven islands in the Arabian Sea land-filled together and crammed with 16 million people. There are slums, of course, with people living on top of one another amid mud and garbage. There is wealth too. Or at least the remnants of wealth: spiraling buildings, many now in decay, built during India's two centuries under British rule.

India won its independence in 1947, yet its people are still coming to terms with the result. Arguably, the second most-populous country in the world has little to show for the past half-century. It has forfeited leadership in manufacturing to its Asian neighbors, exported many of its brightest minds to Europe and America, and grown poorer.

Imagine, then, that you are a young Indian engineer working for an Indian technology company that is successfully starting to challenge some of the most established service providers on the planet. Yes, you want to make good money and buy a home. But just as likely, your work isn't solely about personal achievement or even your employer's market cap: It's a statement of national identity. "There is the same feeling that I found in Japan many years ago," says Gurcharan Das, the retired head of Procter & Gamble India, now a writer and venture capitalist. "In the 1970s, I visited a factory there; it may have been Toyota. And a worker told me that he was working for the greater glory of Japan. It's the same sense of destiny that is partly driving these people today in India."

There is a young marketing strategist at Wipro named Anupam Mukerji whom I came to know during my stay. Mukerji works tirelessly. He has the Indian equivalent of an MBA, but he could have gone to Wharton and joined an American consulting firm. In one of our first conversations, he revealed some of the emotion that I later heard echoed in different ways throughout the company: "All of us were brought up with the thought that India was once great. We had such a rich heritage. Under the British, we lost a lot of that. Now we're rebuilding.

"Indians are proud and patriotic. Many people feel that we're superior in math and science. We invented the sundial and the numeral zero. So we think that in anything having to do with technology, we should be world-class."

Wipro won't soon stand shoulder to shoulder with Accenture or EDS or Deloitte Consulting. It will struggle to create a brand that truly can compete with those of the big boys. But there is some powerful passion at work here. Wipro's employees are intense and brimming with confidence. They know how good they are. They are enjoying themselves. And really, how long has it been since we could say that about most American workers?

The people at Wipro have seen the future, and it is them. They are the explosions, brilliant and exhilarating (and, yes, cheap). Again, think hard. How will you compete with that?

Sidebar: Boom times in Bangalore

Bangalore has the neglected feel of any number of developing cities. Overstuffed trucks vie with motorized rickshaws and mule-drawn carts for control of the few paved roadways. Ragged children chase dogs around corrugated-aluminum slums, and women sweep the streets with straw brooms.

It lends an eerie cast to Bangalore's technology-driven building boom. The skeletons of new buildings are visible everywhere around the city's dusty suburbs. They are gangly affairs with cement floors propped up by raw tree limbs and the odd scarecrow dangling from a beam. Soon, though, they will teem with technology workers.

"Yeah, it's weird," says a manager from a big U.S. media company sent here to oversee his company's nascent outsourcing operation. "It's like we're training our own replacements." IBM has a big development center in Bangalore. So do Dell, Fujitsu, and Siemens. Motorola just announced it will spend \$13 million to build a 280,000- square-foot R&D facility in Bangalore.

Can this explosion be sustained? In a study commissioned by an Indian tech trade group, McKinsey & Co. estimated that the IT-services industry will continue to grow at a rate of more than 30% a year, reaching \$77 billion and accounting for 7% of India's GDP by 2008. That growth, McKinsey & Co. predicts, will create more than 4 million jobs.

Even so, that many jobs would make just a dent in the nation's poor, uneducated population. While Bangalore's streets are packed with students in prim uniforms, very few rural kids make it past primary school. Just 6% of the population get to the university level.

To extend the boom's impact, India must educate more of its people. And therein lies the conundrum: As schooling and employment improve, incomes will go up. But it's the nation's poverty, in essence, that makes it so appealing to IBM, Oracle, and other companies as a source of low-cost labor. A higher standard of living, so desirable on one level, will threaten India's competitive advantage. That's why the next decade will pose a delicate dance for India. The country could fashion itself into an enormous economic power. Just as easily, though, it could price itself out of the outsourcing business.

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