THE WALL STREET JOURNAL.
WSJ.com

- TECHNOLOGY
- OCTOBER 20, 2009

Indian Firms Shift Focus to the Poor

By ERIC BELLMAN

MUMBAI -- Indian companies, long dependent on hand-me-down technology from developed nations, are becoming cutting-edge innovators as they target one of the world's last untapped markets: the poor.

India's many engineers, whose best-known role is to help Western companies expand or cut costs, are now turning their attention to the purchasing potential of the nation's own 1.1-billion population.

The trend that surfaced when Tata Motors' tiny $2,200 car, the Nano, hit Indian roads in July, has resulted in a slew of new products for people with little money who aspire to a taste of a better life. Many products aren't just cheaper versions of well-established models available in the West but have taken design and manufacturing assumptions honed in the developed world and turned them on their heads.

For the farmer who wants to save for the future, one Indian entrepreneur has developed what is, in effect, a $200 portable bank branch. For the village housewife, a wood-burning stove has been reinvented to make more heat and less smoke for $23. For the slum family struggling to get clean water, there is a $43 water-purification system. For the villager who wants to give his child a cold glass of milk, there is a tiny $70 refrigerator that can run on batteries. And for rural health clinics, whose patients can't spend more than $5 on a visit, there are heart monitors and baby warmers redesigned to cost 10% of what they do elsewhere.

Such inventions represent a fundamental shift in the global order of innovation. Until recently, the West served rich consumers and then let its products and technology filter down to poorer countries. Now, with the developed world mired in a slump and the developing world still growing quickly, companies are focusing on how to innovate, and profit, by going straight to the bottom rung of the economic ladder. They are taking advantage of cheap research and development and low-cost manufacturing to innovate for a market that's grown large enough and sophisticated enough to make it worthwhile.

"There was a large potential market that all the players have not been able to reach," says G. Sunderraman, a vice president at Mumbai's Godrej & Boyce Manufacturing Co., which developed the inexpensive refrigerator dubbed the "Little Cool." "Now economic factors are making these areas more and more attractive."

Unexpectedly strong demand for cheap cellphones in recent years revealed the untapped markets in India's villages and slums. Thanks to $20 cellphones and two-cent-a-minute call rates, Indian cellphone companies are signing up more than five million new subscribers a month, most of them consumers no one would have considered serving only five years ago.

At the same time, many of the nation's poor have become aware of material goods available in developed economies thanks to a proliferation of television networks, radio stations, newspapers and magazines.

As with all innovations, many of these new products will fail to make their mark. But with so many unlikely products aimed at overlooked consumers, the trend could bolster bottom lines over time, create new companies and lead to a new kind of multinational corporation that thrives outside of the developed world. Unilever NV and General Electric Co. are taking notice. GE's chairman, Jeffrey Immelt, on a recent tour of Asia, outlined how the global giant is restructuring to take advantage of what he calls "reverse innovation." While in India this month, he said the innovations in medical equipment here could eventually help bring down the cost of health care in the U.S.

"The biggest threat for U.S. multinationals is not existing competitors," says Vijay Govindarajan, professor at Dartmouth's Tuck School of Business and chief innovation consultant to GE. "It is going to be emerging-market competitors."

What is happening today is much different than the so-called "sachet revolution" of the 1980s when Unilever and other consumer-goods companies realized they could sell hundreds of millions of dollars more of their shampoo, detergent, toothpaste and snacks just by selling them in tiny packets.

This time, Indian engineers are reinventing products to cut costs and reach the billions of people world-wide who live on less than $2 a day.

The growing awareness of this new market has sparked start-ups as well as new business divisions in established Indian companies. Everyone from small local players -- looking to go national then global with their low-price inventions -- to the country's biggest conglomerate, the Tata Group, are in the race. They are trying to figure out what the poor want and how much they are willing to pay for it. Then the companies are going back to their research teams and crafting new products and unprecedented price points.

"These are not cheap knockoffs of Western products, they are in many cases very different products," says Arindam Bhattacharya the Delhi-based managing director of the Boston Consulting Group. "Western companies have not often explored these segments so they are untapped markets."

Western companies as well as most large Indian companies have long ignored poor markets because any potential profits seemed too slim. It was too expensive to create a distribution system that could serve the consumer who shops from closet-size kiosks or weekly country markets.

But instead of using traditional supply chains, many companies are distributing through rural self-help groups and microlenders that are already plugged into villages. And while profit margins are slim, companies are counting on volume to compensate. Many hope to sell to other poor and underserved markets in Asia and Africa eventually.

Hindustan Unilever spent four years developing its battery-powered portable water-purification system called Pureit. The $43 water-cooler-size system is now in more than three million Indian homes, many in hard-to-reach rural areas, thanks to its network of 45,000 women, who demonstrate the Pureit and other Unilever products in their own homes. They then sell door to door around their villages, often from the back of bicycles.

Some of the products may end up in developed markets. One of the Nano's first export markets, for example, will be Europe. The European version of the car will have better interiors and safety features and cost more than the Indian version but will still be cheaper than almost anything in Europe.

Godrej, one of India's oldest groups, which is involved in everything from padlocks to pest management, saw cellphone

companies sell millions of new handsets a month in India's rural backwaters and wanted in on the action. Fewer than one in five Indian homes has a refrigerator, so Godrej figured it could attract a huge new group of consumers if it could get the price right.

It sent surveyors into village huts for months at a time to discover the needs of farm families. The result: The "ChotuKool," or "Little Cool" in Hindi, looks more like a cooler. It opens from the top and is about 1.5 feet tall by 2 feet wide. It is tiny because the poor live in small homes and don't buy food in bulk. It has handles to make it portable for the migrant workers who move a lot. It has no compressor to break or make noise. Instead, it runs on a cooling chip and fan similar to those used to cool computers. It can survive power surges and outages common in the country kitchen and even has the option of running on batteries. While designed with cost in mind, it uses high-end insulation to stay cool for hours without power.

By keeping it small and reducing the number of parts to around 20 instead of the 200 that go into regular refrigerators, Godrej has been able to sell it for only $70, which is less than one third of the price of a regular bottom-of-the-line fridge. It also consumes only half the power so it keeps electricity bills at a level the poor can afford.

"No one in our family has ever had a refrigerator," said Sangeeta Harshvardhan, a housewife in Udgir, a remote rural village in the western state of Maharasthra. "But at this price even we can afford one now."

While they have only had the fridge a month, her family is already used to the convenience. It allows her to stock up on the cucumbers her husband munches three times a day, put cool water in her son's thermos before he goes to grade school, and avoid having to boil milk to purify it every time she makes tea.

A start-up company, First Energy, which was launched with the help of BP PLC, had to reinvent the wood-burning stove to come up with a product that had the convenience and the price to crack the same market. Hoping to help village women who spend hours a day looking for wood and keeping a fire going to cook for their families, the Pune-based company adopted the gasifier technology used in power plants to make a stove that would burn more efficiently and with less smoke. Engineers from the Indian Institute of Science in Bangalore designed a stove with a perforated chamber that uses a small fan to get just the right amount of air to keep a fire burning at a high temperature, meaning less smoke and quicker cooking. It has sold around 400,000 of the $23 stoves across India.

"A lot of innovation has gone into the stove as well as the fuel," which is dry pellets made of agricultural waste like corn husks and peanut shells, says Mahesh Yagnaraman, head of First Energy. "This is not a gizmo like a cellphone. But it is definitely a life-changing product because the houses will not be smoky."

To bring banking services to villages, Anurag Gupta, a telecommunications entrepreneur, distilled a bank branch down to a smartphone and a fingerprint scanner. A bank representative goes directly to a village and can set up shop anywhere there is shade. Savers line up and give an identification number, scan their fingers and then deposit or withdraw small amounts of rupees. The transactions are recorded through the phone and the representative later visits a standard branch to pick up or drop off rupees as needed.

Mr. Gupta named his innovation Zero, after what he says is India's most important innovation -- the number zero -- which many believe was invented by Indian mathematician Aryabhata in the sixth century. Indian banks already are using his system to open millions of new accounts. The running cost of his "branches" is about $50 a month to serve hundreds of people daily. A standard branch or ATM costs thousands to run.

"We made this phone into a branch of a bank," said Mr. Gupta, holding up the smart cellphone his system uses to keep data on accounts, depositors' fingerprints, photos and voices.

The Zero system is already helping Indian construction workers in Bahrain open bank accounts and send money home.

Much of this is possible because engineers are so plentiful and inexpensive in India. It took close to 300 engineers around four years to develop the Tata Nano, which required rethinking everything from the engine to the seats to the supply chain to keep the sticker price at around $2,200.

GE tapped the same pool of inexpensive expertise to target Indian hospitals and clinics that cannot afford its equipment designed for the U.S. GE Healthcare has used Indian software engineers to develop an electrocardiograph that costs $1,000, one-tenth the standard models used in the past. GE hopes to sell the technology in the U.S. eventually and elsewhere.

"In India we have the engineers that have the brainpower and the bandwidth to deliver on these types of projects," said V. Raja, chief executive of GE Healthcare's business in India.

—Sonya Misquitta in Mumbai and Paul Glader in New York contributed to this article.

Write to Eric Bellman at eric.bellman@wsj.com

Printed in The Wall Street Journal, page A1