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 From the Los Angeles Times

## Moves to Baja Profit Tech Firms

**Low costs and links with San Diego have created an expanding medical device industry in the region, spurring new entrepreneurial dreams.**

By Evelyn Iritani  
 Times Staff Writer

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TIJUANA — This border city — perhaps best known for tunnel-digging drug smugglers, bottomless margaritas and maquiladoras that churn out cheap toys — is quietly transforming itself into a high-tech manufacturing hub.

Although thousands of Baja California residents still live in squatter camps without electricity or running water, pockets of technical innovation are cropping up in unlikely places. A new report says northwest Mexico is reaping the benefits of an ambitious government program aimed at leveraging the region's low costs and proximity to leading-edge firms in San Diego.

In heavily guarded industrial parks a few miles south of U.S. territory, Mexican workers are producing implantable medical devices and other sophisticated products for foreign firms eager to take advantage of lower production costs and hire high-skilled workers for bargain wages.

Faced with fierce competition from China and other low-cost countries, dozens of plants in Baja closed their doors in 2001 and 2002, shedding about 51,000 jobs. But Baja officials said they have reversed that trend, overseeing the creation of 78,000 jobs in the last three years, many of them higher-paying positions. The region now boasts the highest average wages in Mexico.

U.S. medical device firms such as Medtronic Inc. and DJ Orthopedics Inc. employ 23,700 people in Baja California, compared with 6,000 working in the industry in San Diego. Last year, Wilson Greatbatch Technologies Inc., a producer of components for implantable medical devices, closed its facility in Carson City, Nev., and opened a 144,000-square-foot plant here.

Of the more than 60 medical device firms operating in Baja, at least 40 have U.S. parent companies and 13 of those have a significant San Diego presence, according to the report by San Diego Dialogue, which is affiliated with UC San Diego.

Even veteran observers of Mexico such as Kenn Morris, one of the report's authors and a cross-border consultant, are impressed by the technical sophistication south of the border. Facilities there

not only produce heart valves and pacemaker circuitry but provide parts for U.S. Longbow missiles and software programming for Samsung and other multinational firms.

"It was a very big surprise to us that [the biomedical] industry we considered so strong in San Diego was more than three times as large in Baja California," Morris said.

In Baja, companies can hire scientific talent at half the salary level of American tech centers and benefit from rent, utility and other costs that are at least 40% below the going rates in the U.S., according to executives here. Factories can supply U.S. firms that need a steady flow of components for their "just-in-time" production.

Baja's economy still faces huge challenges. Tijuana's business leaders have warned the police that an escalation in kidnappings and violent crime could scare away investors, said Roberto Quijano, an attorney and official with Coparmex, a national business confederation. A big part of the problem, he said, is the shortage of adequate housing and social services for the 80,000 newcomers that stream into the city every year in search of work. Rapid development is also putting a strain on the region's water, sewage and energy systems.

Along with crime and infrastructure problems, companies sometimes must grapple with the Mexican bureaucracy and frustrating delays — for both personnel and products — at U.S. border crossings.

But John Riley, chief executive of BC Manufacturing, which helps set up and manage Mexican operations for foreign firms, said the biggest barrier to investment is perceptions. Many U.S. executives still need convincing that Mexico has grown beyond "a guy leaning against a lamppost with a beer in his hand and an antenna sticking out of his sombrero."

Andrew Kinross, a medical device consultant, said some U.S. firms remained hesitant about moving sophisticated production to places like Mexico because of quality concerns. "If it's going into a person's body, it's got to be 100% perfect," he said.

Medtronic's sprawling Tijuana facility, located in an industrial area minutes from the Otay Mesa border crossing, is evidence of Baja's ability to move beyond low-tech assembly jobs.

Gerardo de la Concha, director of Medtronic Mexico, said many factories in Tijuana had been certified by the U.S. Food and Drug Administration to produce the most sophisticated Class III devices, including those that could be implanted in people's bodies.

"An engineer is an engineer," he said. "It's just a matter of the level of training you give to these people."

De la Concha said he invests heavily in his 1,200 employees, giving technicians at least two weeks of training in a dummy laboratory before they join the production line.

At a sterile "clean room" in Medtronic's plant here, rows of young women swathed from head to toe in protective clothing make aneurysm stent grafts by stitching rows of intricate rings made of advanced materials onto long polyester tubes. The stents are inserted into heart patients' blocked or weakened arteries to prevent them from collapsing. It takes 17 people a total of 12 hours to produce one aneurysm stent graft.

Almost all of the company's raw materials must be imported because U.S. suppliers haven't

migrated to the region. After mad cow disease surfaced in the U.S. in 2003, the Mexican government halted beef imports. De la Concha had to get special permission to import the bovine tissue used to make valves.

But De la Concha said his Mexican factories could still make high-quality products at half of what it would cost in the United States and deliver them to Medtronic's Minnesota headquarters faster than factories in other parts of the world.

"The barrier is more with the people on the U.S. side," he said. "It's a mental barrier, there really isn't a physical barrier."

After losing thousands of television assembly and apparel jobs to low-cost competitors in China, Baja officials worked to replace them with higher-paying positions. To increase the state's allure, they offered tax breaks, training programs and other incentives. In the last two years, the state has attracted \$4.1 billion in private investment.

"If we were to base our competitiveness on low labor costs, we were destined to disappear," said Baja Economic Secretary Sergio Tagliapietra.

Baja officials are now promoting the area's new image abroad, taking trade missions to Europe and Asia and opening trade offices in Tokyo, New York and Madrid.

This technology boomlet has touched off a reverse brain drain, entrepreneurs and officials say. The growth is attracting ambitious engineers and programmers back to Baja from the U.S. as well as other parts of Mexico and stemming the exodus of talented Mexican graduates to the United States.

Some of Mexico's scientists are also striking out on their own.

In a cramped, three-room office over the El Franc taco shop and a video store in downtown Tijuana, three Mexican entrepreneurs are hatching a plan to grow their tiny company, Amplitec, into a biotech powerhouse.

In just a few years, the six-person firm has carved out a reputation as one of the region's most sophisticated diagnostic labs, using high-tech equipment to extract the genetic blueprints that can reveal the paternity of a child.

"We're five years into this, and we're past the no-return point," said co-founder Diego Guereña, 34, a molecular biologist who managed a lab in San Diego before launching his own company in 2001. "I feel that it's really beginning to happen."

Guereña co-founded the firm with Alexei Licea, 37, a professor of biotechnology at the Ensenada Center for Higher Education and Scientific Research. In 2004, they brought in Marco Santillan, who had expertise in business development, to help sell their start-up to the world.

Last year, the trio persuaded Baja officials to select Amplitec as the centerpiece for a biomedical cluster in the northern part of the state. The state government agreed to give them \$200,000 for a new laboratory on the campus of Autonomous University of Baja California. In exchange, the firm agreed to serve as a teaching facility for students.

By working closely with the university, Guereña hopes to build a pool of future employees for the biotech industry. "We cannot import people because that is too expensive," he said.

Construction has not yet begun on the abandoned school that will house Amplitec's laboratory high on a hill overlooking downtown Tijuana.

But during a stroll through the deserted classrooms, Santillan described the anticipated transformation of his firm's "diamond in the rough." The laboratory will have a clean room and a temperature-controlled environment to protect the firm's expensive equipment.

"Baja has been known for its maquiladoras," said the 32-year-old Tijuana native, referring to the assembly plants that line the border. "We want it to be known for technology."

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*Iritani was recently on assignment in Tijuana.*

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