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## Outfitting Asian Labs

Confronted with surging demand in China and India, instrument makers are boosting local sales and service capabilities

VISIT SCIENTIFIC LABS labs in India or China, and it becomes obvious that instrumentation makers are doing major business in those countries. From Bangalore to New Delhi, and from Beijing to Chongqing, more and more labs are conducting cutting-edge pharmaceutical research, diagnosing patients, testing water and air quality, or ascertaining whether food is safe.

The labs feature sophisticated instruments from well-known manufacturers, including Agilent Technologies, Bruker, Thermo Fisher Scientific, Varian, PerkinElmer, and Beckman Coulter. As these major instrument makers enjoy a surge in their Asian business, they are busily building their sales and technical support capabilities to meet customers' rising expectations. Asian instrument users who might once have been content with second-class treatment increasingly expect a level of attention and support from instrument companies comparable with what they offer customers in the U.S. or Europe.



**SLOW SUPPORT** To provide consistent service to its clients, Calcutta based contract research firm Chembiotek buys redundant lab equipment because, the firms says, technical support in India can be slow.

"This is where it's all happening—in Asia, and particularly in China and India," says Syed Jafry, president of Thermo Fisher's China operations. "Either I can be in the U.S. in a business that is growing at 2 to 3% annually, or I can be here in China, where growth is many times stronger."

Jafry lived in China earlier in his career when he was manager of General Electric's sensors and test measurement equipment business. He moved to Shanghai at the beginning of this year with a mandate from Thermo Fisher's senior management to ramp up sales, service, and manufacturing capabilities in China. One of his goals is to further strengthen China's contribution to Thermo Fisher's global sales. Asian countries accounted for 11% of Thermo Fisher's \$10 billion in sales last year, with China being the most

important contributor in the region.

Thermo Fisher is not alone in enjoying surging growth in China. Since 2004, China has been Agilent Technologies' second largest market after the U.S. And at Beckman, Jackey Ho, president of China operations, tells C&EN that sales of his company's diagnostics instrumentation in China will likely increase 25% this year. The Chinese market, Ho says, is a "gold mine."

Marshak relocated to Shanghai this summer, in part because PerkinElmer wanted a senior executive there to demonstrate its commitment to China and the rest of Asia. "Even though China is still being widely discussed as an emerging country, I tend to think that it's got beyond emerging," he says.

According to Marshak, Chinese researchers are increasingly involved in world-class projects. "Scientists here want to have the same high-end instruments as everyone else, and they're going to do very creative things with them just like everyone else in the world," he says. "They are moving from manual plate readers to high-throughput screening systems; from biochemical screens to image-based, cell-based assays; from very simple confocal microscopes to very high-resolution microscopes where you can get to 1  $\mu\text{m}$  or less in resolution. These things cost money, but you can get much better results."

IT'S NOT JUST the increasing sophistication of Chinese research that is multiplying PerkinElmer's opportunities in the country. Marshak says China is also attempting to improve its environmental and safety record. "The Chinese want to have clean water and air, as well as food products that are safe," he says. "They're just bringing the regulatory and oversight systems on-line to do that." In the wake of the scandal involving melamine-tainted milk that has been unfolding in China in recent weeks, instrument makers are reminding potential customers that they have devices that can detect the contaminant.

In both China and India, Marshak expects pharmaceutical research to be a key business driver. In China, the growth is partly driven by multinational companies that are setting up research centers and partly by local firms that are starting to engage in research of their own. He expects that Chinese firms will become especially strong in natural products research.

"In the past, pharmaceutical research has focused on pure chemical compounds, looking at particularly pure receptors' binding characteristics," Marshak notes. "More and more, the field is turning to cell-based assays—physiological assays where one looks at the overall outcome for efficacy and safety." He says China's long familiarity with the medical properties of natural products could prove useful in that regard.

Likewise, the rise of the Indian pharmaceutical industry has been phenomenal, Marshak says. "In India, you find there is the combination of contract research, of being able to do clinical trials, and of the ability to do high-quality manufacturing that complies with U.S. requirements—and then they have their own new drug discovery capabilities," Marshak says. "I think that they have the whole package, the ability to take over a lot of the global pharmaceutical industry."



Jean-François Tremblay/C&EN

**SEND THE BOSS** Marshak, PerkinElmer's chief scientific officer, relocated to Shanghai this summer in recognition of the growing importance of the Chinese market.

Beyond pharmaceuticals, Koos van der Steuijt, general manager of Thermo Fisher in India, sees a business opportunity in the well-documented shortcomings of India's infrastructure. The company has instruments to serve the needs of the construction industry, such as elemental analyzers to ascertain the quality of concrete or the carbon content of steel.

"Our customers here are a healthy mix of government institutes, companies engaged in research, and industrial companies involved in infrastructure development or real estate development," van der Steuijt says. Sales in India, he predicts, will continue to grow by "double digits." This year, some of the company's business lines are enjoying sales surges there as high

as 40%, he notes.

In both China and India, one class of customer that has been growing fast is contract research organizations, or CROs, companies that perform research for pharmaceutical companies based in Japan or the West. Typically headed by scientists who have previously worked in industry in the West, CROs are big buyers of advanced instrumentation. Because they promise their customers speed of execution, these firms demand prompt technical support from instrument suppliers.

In Beijing, the CRO Chemizon is spending between \$4 million and \$5 million on scientific instruments to equip its second laboratory in the city. It already spent about \$4 million so far this year to outfit its first lab, which mostly performs chemistry research. The second facility will have biological capabilities. The company's managers are already thinking about setting up a third lab next year.



Jean-François Tremblay/C&EN

**GROWING NEED** Instrumentation needs grow in China as manufacturers such as Asymchem, pictured here, expand their R&D operations.

Xin Bu, Chemizon's director of biology, says the company decided recently to spend \$250,000 on a high-throughput Biomek FX liquid-handling robot from Beckman. Bu looked at competing products, but he says the deciding factor was his belief that Beckman offers the best technical support in Beijing for this type of instrument.

As to why his company decided to spend so much on a single machine, Bu says he needs equipment that generates reliable and replicable data. He figures the device is probably the first of its type ever to be installed in Beijing and costs more in China than it would in the U.S. Although Chemizon goes to international suppliers for high-end instruments, Bu knows many fine Chinese

suppliers of basic lab equipment, like refrigerators, incubators, and shakers. "The prices are very good," he notes.

At BioDuro, another fast-growing drug discovery services firm in Beijing, Chief Executive Officer John V. Oyler laments that the quality of technical support in China lags behind what is available in the U.S. Firms such as Agilent or Beckman may have a substantial presence in the country, "but when a manufacturer of some particular type of instrumentation has only sold \$500,000 worth of equipment in China to date, it's unrealistic that they would have the same level of technical support that they offer in Cambridge, Mass."

When BioDuro is doubtful of a supplier's ability to service a machine rapidly, Oyler says, it buys two or three—even if they cost as much as \$40,000 apiece—in order to have spare capability when a device is down.

Another major difference between China and the U.S., Oyler says, is that equipment financing is generally unavailable in China. Partly as a result of China's weak regulation of property rights, he says, the law restricts repossession of equipment if a buyer falls behind on payments. In the U.S., equipment suppliers will provide financing to buyers and will repossess the equipment if payments aren't made.

Thermo Fisher's Jafry says that although his company can provide financing to buyers in China, members of his sales force are not sufficiently aware of the company's capabilities in that area. Still, he warns that financing is not as simple as in the U.S. because it is difficult to obtain reliable financial data on potential Chinese customers. In any case, he says, Chinese buyers have generally not shown much interest in financing from Thermo Fisher, preferring to work with local banks or pay in cash.



Chemizon

**BIG BUYERS** Chemizon, a newly formed contract research organization based in South Korea, is spending nearly \$10 million on instruments at its Beijing labs this year.

Beckman's Ho sees limited potential in China for financing services. Even if customers were interested and companies had recourse when buyers fall behind in their payments, the fact is there isn't a market for secondhand instruments in China. Leasing instead of selling equipment might be doable, he says, but only for instruments that require a steady supply of consumables.

In India, instrument manufacturers don't provide financing except on a very short-term basis, says Swapan Bhattacharya, manager of the Calcutta-based CRO Chembiotek. When buying equipment from abroad, buyers in India pay by letters of credit. The equipment manufacturers draw down these letters of credit only after they have delivered and installed the instruments.

Since 2001, Chembiotek has expanded from a 20-employee CRO focused on chemistry services to 1,000 people who provide drug discovery services ranging from early discovery work to clinical trials. Bhattacharya says both the company's sales and its instrumentation budget are increasing at about 70% annually.

Bhattacharya says Chembiotek has enjoyed perfectly adequate levels of technical support from its chemistry instrument suppliers. But it's a different story in biology, where for the past three years Chembiotek has been expanding its contract research capabilities. "In several cases, biology instrumentation suppliers have had to fly in their technical people from overseas to take care of our problem," he says.

In the case of fluorometric imaging plate readers (FLIPRs), machines that cost \$600,000 each, Bhattacharya says Chembiotek purchased two when it really needed just one because it expected slow technical support from the supplier. Not having a backup system, he says, could have led to the loss of a key customer if the FLIPR had broken down. He adds that Chembiotek's biology business has since grown to the point where both FLIPRs are regularly in use on projects presenting various degrees of urgency.

Although Thermo Fisher does not make FLIPRs, van der Steuijt acknowledges that his company has had to step up its technical support in India in recent years. As he recalls, the effort followed a decision top management made two years ago to better meet customers' expectations in India, a market into which Thermo Fisher expects to sell \$125 million worth of products and services this year. It is now rare for Thermo Fisher to fly in an expert to fix a technical problem, van der Steuijt says. Indeed, he says, the company even has enough local talent to train new technical support staff.

WITH THE APPEARANCE of so many well-equipped labs in Asia trying to smoothly operate all sorts of temperamental instruments, PerkinElmer's Marshak sees service as a business opportunity. In developed markets such as the U.S., PerkinElmer offers OneSource, a service through which the company sells and maintains instruments made by many manufacturers. He expects the company to offer OneSource in China once it further builds its business infrastructure and staff base.

Ho, the Beckman executive, perceives the service business as an uphill battle because Chinese customers do not value it. Customers in China, he observes, instinctively regard human labor as something that is essentially free.

"Buyers expect that when you sell them an instrument, you have to maintain it for life," Ho says. It's especially true at Chinese research institutes, where scientists have difficulty obtaining funds for repairing broken equipment. But offering technical support is expensive—Beckman's engineers are usually university graduates who have received training overseas—so the service can't be given away, he notes.



Thermo Fisher  
**DEVELOPING RELATIONSHIPS** Jafry (left) hosts Tsinghua University professor Guofan Jin (center) at Thermo Fisher's demo center in Shanghai. Thermo Fisher and Tsinghua collaborate in some R&D projects.

More important than introducing new services, Ho believes, is that instrumentation companies need to first strengthen and deepen their pool of management talent. Even though Beckman has been active in China for the past 30 years, he figures it will still take more time to develop a corps of senior managers who are Chinese nationals. Ho is a native of Hong Kong and still lives there. His top management colleagues in China are either from Hong Kong or Taiwan.

At the other major instrumentation firms, managers in China are usually people who have been sent from headquarters, Ho adds. "It shows that the instrumentation industry still has a shortage of management resources in China," he says. "At present, we overpay for young professionals who are looking for fast promotions and are hopping around from job to job."

At Thermo Fisher, Jafry admits that staff turnover is a problem—and one he is committed to fixing. Jafry sees little turnover on Thermo Fisher's management team but is concerned about younger workers. In his view, job hoppers do not realize that they may be sacrificing overall job satisfaction for a higher salary.

"I think it helps to encourage people to think about not just the financial aspect but the longer term growth and the type of respect that you get in the organization from your peers and your managers," Jafry says. The company has roughly 1,000 employees in China now, about half of whom are in manufacturing.

PerkinElmer's Marshak says employees leave their jobs in China and elsewhere for a variety of personal reasons. But one of the ways firms can keep employees motivated is by constantly coming up with new and exciting products. "We make sure that we have new instruments constantly being launched," he points out, "and through that, employees feel that they are on the

forefront of technology."

Jafry wants Thermo Fisher to take this concept one step further and boost its product development capabilities in China. "We need to start leveraging the technology talent that is growing in China," he says.

Most of Thermo Fisher's R&D is done in the U.S. and Europe, he says, primarily because the company is worried about China's intellectual property (IP) protection. The concerns are exaggerated, he believes. Jafry notes that companies like Motorola, General Electric, and General Motors employ thousands of people in product development in China and have been doing so for several years. "If we continue to just latch on to the IP risk, we will never do anything here," he says.

Thermo Fisher and other instrumentation makers will have a lot to do for many years in China and India, Jafry believes. This is simply because scientific human resources are now in abundant supply in these countries. According to a paper published last year by Issues in Science & Technology, China graduates nearly four times as many engineers annually as does the U.S.

"China and India are producing so much of the science and technology talent, and now that they are setting up those R&D centers, within the next 10–15 years this is where most of the innovation will happen," Jafry says. It's a profound shift, but one that, by all appearances, the instrumentation industry is embracing.