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# Future tech: Merger of medicine and technology

BY ARCHANA RAI, ET BUREAU | UPDATED: APR 15, 2011, 01.10 AM IST

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It is not often that [General Electric](#), one of the world's largest corporations, collaborates with a start-up company to develop high-end medical devices. But that is just what the John F [Welch Technology Centre](#) — GE's largest research arm outside the US — is doing through a tie-up with [Teleradiology Solutions](#), a start-up company based in Bangalore.

GE's researchers get clinical inputs from TelRadsol, which is being used to improve the interpretation of medical images on diagnostic devices.

Founded by two doctors trained at the [Yale School of Medicine](#), TelRadsol is an outsourced radiology reporting centre that offers diagnosis on CT and MRI scans beamed from hospital emergency rooms worldwide.

This workflow is emerging as a goldmine of insights for a slew of global corporations seeking inputs to improve design of medical devices, build new workstations and measure the efficacy of new drugs.

"We didn't have the ability to do this kind of work in India. The tie-up with TelRadSol made it possible to conduct advanced research in a practical setting," says [Ravi Malladi](#), India Technology Leader at the Jack [Welch Centre](#).

Apart from GE's research arm, the start-up also has collaborations with other global majors including [Siemens](#) and drug maker Biocon. While it provides design inputs for high-end workstations built by the German multinational, its work with [Biocon](#) is focused on interpreting clinical trial data for new drug development.

Such specialist services could mark the next wave of medical service outsourcing from India, say analysts, as global corporations seek to offset the rising cost of healthcare and drug discovery.

"This could trigger the launch of a spate of new start-ups seeking to recreate the TelRadsol model," says [Mohit Mathur](#), founder of [Neev Corporate Advisors](#), a boutique consulting firm that tracks the life sciences sector.

For the founders, this emerging business is an offshoot of a proven record in radiology reporting built up over the past seven years.

Set up as an outsourced centre to read scans from large hospitals overseas, TelRadSol in the last year provided diagnosis for 3.2 million patients across the globe, up from 5.5 lakh cases in the previous year and just 21,000 cases in 2004, when it began interpreting CT scans, MRI scans and ultrasound images forwarded from emergency rooms in US hospitals.

This steep growth is especially significant, as it comes in a market dominated by US and European telemedicine companies. However, the opportunity for India-based start-ups such as TelRadsol is set to increase, as the world market for telemedicine rises to \$18 billion by 2015, according to a report by [Global Industry Analysts](#). Ageing population, increased medical requirements in remote locations and technology advancements also favour the trend.

Kalyanpur, who began remote radiology reporting while he was part of the faculty at the Yale School of Medicine between 1999 and 2001, spotted this trend very early. A shortage of radiologists for night shifts in ER rooms of US hospitals was his first trigger.

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He knew of the time arbitrage that Indian software companies were making use of to win business 24/7 from US companies. “It struck me that a radiologist in a different time zone could easily report on night-time scans for US hospitals,” says Kalyanpur, who earned his bachelor degree in medicine at AIIMS, Delhi, before moving to train at Yale in the early 90’s.

Once he managed to convince the top faculty at Yale to test his remote reporting model, Kalyanpur moved back to India with his wife and co-entrepreneur Sunita Maheshwari, a paediatric cardiologist who also studied in Yale. In 2002, the duo invested \$100,000 of their personal savings to kick-start the business, but struggled to establish the concept of specialists in India providing critical scans to US hospitals.

But the turning point for the firm came when the [Singapore National Health Service](#) sealed a deal for remote radiology reporting in 2004. After a series of audits to certify their competence, NHG signed on the Bangalore start-up as a way to get a quicker turn around on reports and to deal with the shortage of radiologists in the island.

“Remote reporting, as in sending images overseas, allows a keener competition among the provider,” says Tyrone Goh, head of NHG diagnostics, Singapore. “It benefits the patient with a faster turnaround time, more efficient service and competitive pricing.” TelRadSol now provides an average of 6,500 reports a month to Singapore, which is about 37% of the total volume at NHG.

Seven years on, the challenge for Kalyanpur and his team is in growing this highly-specialised business without affecting the quality of the service. About 50 radiologists — many of whom have been trained overseas on fellowships — form the crux of the TelRadSol team. In a bid to overcome shortages, the company has recruited specialists from other Indian cities including Bombay, Mysore, Delhi and Pune, with a few based in Israel and the Netherlands.

Maheshwari, who drives the group’s allied units such as the on-premise hospital RxDx as well as the [TelRad Foundation](#) that offers low-cost radiology reporting for hospitals in rural Mysore and Arunachal Pradesh, says: “We are very clear that we do not want the radiology reporting business to grow beyond a size where quality is affected.” Instead, the duo is now looking at emerging businesses in areas such as technology-led healthcare services as the growth engines for the group.

At its airy complex in Bangalore, the company is now building a collaborative ecosystem that includes a slew of new services: from inputs to large medical device makers such as GE to clinical trial data interpretation for drug makers including Biocon.

It is a move that analysts say will pay off very well for the start-up firm, as large corporations increasingly move high-end device design and clinical trials to emerging markets. “For global companies in pharma and healthcare, such reverse innovation pays,” says [Muralidharan Nair](#), Partner, Ernst & Young. “60% gross margins in an emerging market that is growing at 15% is far better than gross margins of 80% in a mature market that is growing at 2%,” he added,

For TelRadSol, this upsurge is already giving them benefits. The start-up provides pre-treatment as well as post-treatment scan analysis for drugmaker Biocon for a range of diseases including rheumatoid arthritis. Typically, such medical expertise is not normally available within a pharmaceutical company, making it critical for firms to have access to expert advice on a continuous basis.

“You can forget about new drug discovery if you do not have access to an ecosystem that supports such collaboration,” says Kiran Mazumdar-Shaw, chairman of Biocon. “It is not possible to have such medical domain expertise within a company.” The company firmed up the partnership with TelRadSol based on the medical expertise of its founders and the strength of the radiology reporting business.

“We are in talks with more pharmaceutical companies, as more drug development moves to India,” says Kalyanpur. The group has also spun off an in-house technology platform used for their core radiology reporting into a separate software business, TelRadTech, which is now seeking venture funding to scale the scope of operations. “It is a pleasant surprise every passing year to see the increasing solidity of the business model we have built,” says Kalyanpur, who bootstrapped the business with internal accruals for nearly a decade now.

Today, with revenues of nearly \$15 million (about Rs 60 crore) and a profit of close to \$5 million, TelRadsol is ripe picking for a growing community of keen investors.

“This is a company with a business model that is fairly difficult to replicate. I would place its value at between \$60-80 million,” says Vikram Bihani, CEO, [Mosaic Capital](#), an investment bank that advises on deals in the life sciences space. Most industry analysts reckon the strength of the founding team is TelRadsol’s biggest asset as it now seeks to scale the scope of its operations. While there will be many who seek to emulate this Bangalore-based start-up’s unique model, not all who follow will succeed.

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