

Hot Start-ups: Monitoring the critical rhythm

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India has 8 to 20 million heart rhythm disorder patients and about 50 million worldwide.

Cardiac monitoring is widely used to identify heart diseases and in monitoring cardiac activity before and after surgery and other cardiac procedures. It is also used to assess the effects of therapeutic drugs on cardiac activity.

Monitra's products detect heart rhythm disorders at real-time for pre-emptive treatments.

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"We are developing wearable devices that make monitoring experience seamless, discreet and comfortable for patients that they can perform their regular daily activities while collecting rich clinical data for physicians. We are enabling our devices to connect over mobile networks to provide healthcare access at homes and also tackle last mile connectivity in rural areas," says Mr Ravi Bhogu, Founder, Monitra Healthcare. "India, unlike the West, is still largely an out-of-pocket driven market and hence making devices affordable is very important. We are toying with innovative product design and business models to make our devices cost-effective in India."

Mr Ravi has lead R&D, marketing, sales and clinical support teams across India, the United States, China and Australia at Johnson & Johnson (J&J) and Global Cardiac Monitors prior to founding his venture.

He holds a Bachelor's degree in Electronics & Telecommunications Engineering from the University of Mumbai, an MS degree in Electrical Engineering from the University of Houston, USA, and an MBA degree from Johnson School, Cornell University, USA.

Co-founder and wife of Mr Ravi, Ms Aparna Bhogu has expertise in distributed IT systems. She has a Master's in Information Systems Management from Carnegie Mellon University, USA.

Mr Ravi's brother Mr Sashank Bhogu is another co-founder who has experience in database systems, user acceptance

testing and software production environments. He has an Engineering degree in Information Technology from Mumbai University.

"A fabulous team, good go-to-market plan and resources are most critical for a [start-up](#). On the team front, I was lucky to find two critical product development resources within my family itself," he expresses happily.

During his MBA at Cornell in 2008, Mr Ravi explored the idea of starting cardiac monitoring services in India. His research at that time told him that the market was not ready for quick adoption of such technologies because mobile networks, a key enabler, were not so strong in the Indian market. However, when his ninety-year-old grandfather suffered a cardiac event, it almost took days for doctors to confirm the episode. "This event was the tipping point, and I decided to take the plunge," Mr Ravi reveals.

Finding the right team with composite skills is most important for a [start-up](#). Monitra's software and database requirements were taken care by both the co-founders.

"It took us some time to find a person with good embedded engineering skills and mixed signal experience. India has a shortage of skilled embedded engineers while the demand is fast rising with advent of Internet of Things (IOT)," Mr Ravi adds.

It is important for entrepreneurs to get plugged into the entrepreneurial eco-system to gain access to right resources such as regulatory compliances, technology licensing and management, IP management, fund-raising and networking.

"I would like to acknowledge the fantastic support lent by IKP Knowledge Park in Hyderabad during the early stages. They have built a fantastic eco-system for biotech entrepreneurs," Mr Ravi appreciates.

The founder initially raised money from family and through his own savings to get the venture started.

"My grandfather," he reveals, "was the first to put in the seed amount. Since then, we have been focusing on raising money through innovation grants in the biotech and healthcare sector to fund our R&D. We plan to raise equity rounds as we have the minimum viable product in place now."

Monitra has a prescription-based business model. It has identified cardiac electro-physiologists, cardiologists and MD physicians as its primary target user segments.

The [start-up's](#) goal now is to run pilots in smaller geographies, in a state or two to establish minimum viable business model that can be easily scaled in other parts of India.

"Simultaneously, we will work on getting regulatory approvals like CE and then 510k. This will get us access to global markets," Mr Ravi says. "Our goals over the next two years will be industrial design, clinical validation and running pilots to test the product and our assumptions in commercial model."

The company is exploring collaboration with DuPont for developing breathable materials for its devices in the Indian marketplace, and have jointly applied for United States India Science and Technology Endowment Fund.

"On the commercial side," the founder says, "we are looking to establish partnerships with med-device and pharmaceutical companies who stand to benefit from early diagnosis of heart rhythm disorder ailments."

Life Sciences and Healthcare [start-ups](#) involve long gestation cycles and good amount of investment upfront.

Mr Ravi has a simple suggestion to the Government. "We request for exemption from income tax for [start-ups](#) in our industry for at least first ten years of operation so that profits can be plowed back into growing the business. The Government stands to benefit far more from successfully scaled [start-ups](#) in terms of taxes, employment and accessible medical care," he opines.

The healthcare infrastructure in the urban towns are built mostly by the private sector while rural places are covered by public sector. There is significant demand for healthcare in rural India but there is a limited capacity of skilled healthcare professionals.

"Technology and innovation can be huge enabler to solve this supply demand dichotomy and ensuring last mile reach," explains Mr Ravi. "However, public sector procurement mechanisms such as tenders, solely rely only on established companies with prior track record. This stands as a big deterrent for technology and innovation in the rural healthcare space. Government needs to not only establish mechanisms to quickly adopt good technologies but also encourage them for the benefit of rural India."

In the Indian context, simple-to-use Point-of-Care diagnostic devices that use technology to assist screening communicable and as well as non-communicable diseases are seen as emerging.

With the advent of smartphones and consumer exposure to excellent design in consumer electronics, patients are now expecting the same level of product design and ease-of-use in their medical devices. "Technology is enabling access to healthcare at home rather than having to go to a doctor's clinic," he comments.

For the emerging entrepreneurs, Mr Ravi explains, "Visit [start-up](#) events and talk to as many entrepreneurs in your field to learn from their experiences. Find your own path. Most importantly, get your family behind your decision as they are the ones who will be your support system during your low moments, and a root during your triumphs. Healthcare industry is complex with big established players. The rate of disruption is not as fast as in the consumer industry. It is important to note that it is a regulated market and there are established norms to follow. It is important to know what can and cannot be disrupted. Quality is very important in this industry and should focus on it right from the beginning. It can result in significant delays and cost overruns."

Mr Ravi recalls that his mother always wanted to start her own business. However, owing to responsibilities and taking care of her two kids, she couldn't pursue her dream.

"I'm so glad that at least I have been able to fulfil her dream to a certain extent," Mr Ravi joyfully signs-off.

Monitra's Milestones:

ĩ,§ Received BIG from BIRAC in May 2015

ĩ,§ Completion of functional prototype of Smart MCT with wires. This version will be able to acquire biopotential signals, digitize, filter unwanted signals, compress data and transmit over wireless networks to the respective web servers and database systems with report generation capability. The next prototype in progress is said to be without wires and closer to the actual product

ĩ,§ Two provisional patents filed

ĩ,§ Vendors for sourcing materials, industrial design, prototyping and manufacturing identified