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â??Structural challenges have slowed the growth of the Indian MedTech ecosystemâ?•

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India's medical device sector is at an inflection point, and the most consequential action is not happening in boardrooms. It is happening in labs, incubators, and early-stage startups that are building the next generation of affordable, connected healthcare devices for a billion-plus population. Amidst this scenario, US-based Silicon Labs is partnering with the Center for Healthcare Entrepreneurship (CfHE) at the Indian Institute of Technology, Hyderabad (IIT-H) to equip Indian medical device startups with best access at the design stage itself. To find out more about this initiative, BioSpectrum interacted with N Venkatesh, APAC R&D Training and Ecosystem Relations Head, Silicon Labs, Hyderabad.

Can you share how the partnership with CfHE at IIT Hyderabad will support the development and commercialisation of next-generation healthcare technologies?

Silicon Labs has entered into a strategic collaboration with CfHE at IIT-H to accelerate the development and deployment of next-generation smart medical devices designed and manufactured in India. Through a Memorandum of Understanding (MoU), the two organisations will work together to nurture healthcare entrepreneurship by enabling startups and innovators to leverage advanced embedded systems, low-power wireless technologies, edge computing, secure IoT platforms, and AI-driven healthcare solutions.

As part of the collaboration, startups incubated at CfHE will gain access to Silicon Labs' energy-efficient wireless MCU chips with edge-ML capabilities, along with technical guidance and hands-on workshops. The partnership also includes support for pilot deployments in hospitals and healthcare centres, helping startups validate and scale their innovations in real-world settings.

What key challenges in India's MedTech ecosystem is this partnership aiming to address?

The Indian MedTech ecosystem has tremendous potential, but structural challenges have slowed its growth. The partnership is focused on addressing key challenges, such as access to advanced technologies at the design stage, technical expertise, product validation opportunities, the gap between prototype and real-world deployment, and support for translating research into commercially viable healthcare solutions.

By combining CfHE's healthcare entrepreneurship ecosystem with Silicon Labs' semiconductor technologies and technical expertise, the collaboration aims to help startups accelerate product development, improve device reliability and performance, and gain access to real-world deployment opportunities. The initiative also seeks to support the development of affordable, secure, and regulatory-compliant medical devices that can serve both Indian and global markets, ultimately strengthening India's deep-tech medtech ecosystem.

How will this collaboration help MedTech and deep-tech startups move from innovation to commercialisation?

Through CfHE, startups will gain access to Silicon Labs' advanced wireless and edge-AI technologies, technical expertise, and hands-on workshops, helping them accelerate product development and build globally competitive medical devices. Beyond access to technology, the collaboration provides startups with real-world validation opportunities through pilot deployments in hospitals and healthcare centres. By combining access to advanced technology with mentorship, industry collaboration, and deployment support, the initiative aims to accelerate innovation, strengthen commercialisation pathways, and help build globally competitive healthcare solutions from India and strengthen India's medtech and deep-tech startup

ecosystem.

Which MedTech technologies and innovation areas will be the focus of this partnership, and why?

Through our collaboration with CfHE, we are focused on technology areas that address India's healthcare needs while enhancing the global competitiveness of Indian medical device startups, such as advanced embedded systems, edge computing architectures, low-power wireless health monitoring technologies, secure IoT-enabled medical platforms, and AI-driven diagnostic and remote healthcare solutions. These are key areas where advanced semiconductor technologies can help accelerate the development of smart, secure, and scalable medical devices.

How will this partnership enable clinical validation and hospital deployment for MedTech startups?

Hospital deployment is, in fact, a core component of this partnership, not an afterthought. Through Silicon Labs' CSR initiative, we are providing financial and technical support for the rollout of pilot projects in hospitals and healthcare centres across India, giving CfHE-incubated startups a structured pathway to early-stage clinical deployment of devices built on Silicon Labs chipsets.

This is important because real-world validation is critical to turning a promising prototype into a deployable medical device. Our deployment focus spans primary healthcare centres, rural health systems, and urban hospitals, ensuring that solutions are validated across diverse healthcare environments.

What outcomes do you expect from this partnership over the next three to five years?

CfHE is a preeminent incubator in the healthcare area located within IIT-H that is supported by the government and other funding agencies. It offers an annual fellowship programme for people interested in healthcare entrepreneurship. It is supported by academic research from IIT-H, clinical partners to provide an immersive experience to participants, and many other partners helping in manufacturing, prototyping, and fund raising.

The first step would therefore be to enable entrepreneurs in the programme to get started on technology products, build prototypes, carry out a pilot manufacturing run and conduct trials with a clinical partner. We would expect a few successful prototype products every year. In three to five years, some of these would go to mass production and find success in the marketplace in India and beyond.

Do you plan to expand similar partnerships to further strengthen India's MedTech and deep-tech ecosystem?

We have been establishing ‘Centres of Innovation in IoT’ at universities – over a dozen such labs created so far. The focus here is on connected and intelligent products in general with med tech also featuring prominently. We provide workshops, training, support and mentorship to student innovators paving the way to building a talent pool in this area. We have recently launched a global IoT Challenge with the theme of ‘Smart Healthcare with Edge AI’ where competing teams would create and demonstrate edge-AI enabled healthcare innovations using Silicon Labs Chips. We saw over 200 entries from India with eight out of the global top 20 teams being from here. The challenge will have its finale in September this year.

How can India build a future-ready workforce to support the growth of its MedTech industry?

Taking a medtech solution to market is an intensely multi-disciplinary effort. On the clinical side, a good understanding of the medical aspects of the chosen area is required, in addition to learning clinical workflows and regulatory compliance. On the technology side, knowledge of electronic circuits and sensors, materials, electromechanical systems, embedded system architecture, firmware development, analytical and AI software, and UI/UX design, among others, would be required. Fundamentally then, we need to leverage the existing core engineering education. In addition, we would need skills related to product thinking, business analysis, building partnerships and engaging with government and other agencies. All this is best done through structured programmes putting people from different areas of expertise together. CfHE is an example of such an effort.

Looking at the evolving global MedTech ecosystem, what opportunities do you believe India is best positioned to capture, and what challenges must it overcome to realise its potential?

Global trends include a big focus on AI for dramatic improvements in many areas like diagnostics, remote monitoring, insights, and automated healthcare workflows. There is also an emphasis on preventive care. Devices like Continuous Glucose Monitors (CGM) are being used by the healthy as much as by those with a medical condition. New age sensors along with AI processing provide unprecedented non-invasive diagnostics. AI-enabled electromechanical systems such as surgical robots and exoskeletons are increasingly complex, capable, and pervasive. Most of these and other innovations would be adopted in

India with positive results. They would help satisfy the growing requirements of remote healthcare, preventive medicine and the growing demands of elder care. The Ayushman Bharat Health Account (ABHA) identifier allows full and secure integration of health records and makes technology adoption easier and more effective.

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