

# ER&D GCCs: Powertrains of innovation

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Engineering and R&D (ER&D) GCCs contributed \$25.6 billion of the overall India GCC revenue of \$46 billion in FY23, larger than the GCC revenue from IT services and BPM. There are over 1,000 ER&D GCCs in India by MNCs in diverse sectors from consumer products to semiconductors. The first ER&D GCCs were set up in the 1980s by HP and Texas Instruments and the numbers witnessed a steady ramp-up from the early 2000s. Given the rich legacy of ER&D GCCs, the question that pops up is, how can they enhance the Indian R&D and innovation ecosystem!

India GCCs are powerful hubs

The ER&D GCCs in India are among the largest and most powerful technology hubs for MNCs. Samsung Research International – Bangalore (SRI-B) is Samsung's largest R&D organisation outside of South Korea. Samsung was the highest patent holder in 2022 and the largest non-US spender on R&D. SRI-B has played a role in this by filing over 7,500 patents in India and globally in varied domains ranging from 6G to multi-camera solutions. While the primary benefits of GCCs accrue to their parent multinationals, there are also spinoff benefits to the Indian innovation ecosystem.

SRI-B is collaborating with Vellore Institute of Technology to develop Hindi language for the AI suite. The SRI located in NCR is collaborating with IIT Kanpur in GenAI and cloud technologies. Another Samsung ER&D GCC, Samsung Semiconductor India Research, is collaborating with IISc to set up a quantum technologies lab. These collaborations provide opportunities for faculty members in Indian technical HEIs (higher education institutions) to pursue joint research and for students to obtain training on leading-edge technologies at the world's best

companies. Indian HEIs get to jointly work with the GCCs on real-life problems and get access to funding and equipment to modernise their labs. The MNCs get well-trained students to join the technical workforce for their GCCs.

Robert Bosch, the German multinational with a large Indian ER&D GCC, has endowed IISc and IIT Madras to start centres in cyber-physical systems and AI respectively.

### Spawning entrepreneurs

Some professionals in ER&D GCCs are turning into entrepreneurs and have launched innovative ventures. Niramai has developed a novel AI-based medical device to detect breast cancer at a much earlier stage than traditional methods. Niramai's founder Geetha Manjunath spent close to two decades in the ER&D GCCs of HP and Xerox. Forus Health makes AI-infused retinal imaging devices. One of Forus Health's founders, Shyam Vasudevarao, worked with the ER&D GCC of Philips. The professionals working in ER&D GCCs have experience in developing products for global markets, and in the best engineering and quality processes.

In the past decade, many ER&D GCCs have started focusing on advanced competencies in data science and AI that augments the core engineering capabilities that exist in their headquarters. Siemens Healthcare's ER&D GCC leads the in-house efforts on AI LLMs. Various global product teams in Siemens use this LLM platform to streamline workflows, reduce manual effort, and mitigate error rates. Amazon's India ER&D GCC has leveraged deep learning models to improve catalogue quality by extracting attributes such as colour from product titles and images, and backfilling missing product information.

### Three must-dos

We believe Indian ER&D GCCs must have three focus areas to make them powertrains of innovation. First, they

must aspire to take end-to-end ownership of product and solutions development. This may require ramping up core engineering, product management, and marketing expertise. This may not be easy and will need champions both in the GCC as well as in the headquarters. Once we have exemplary GCCs doing cutting-edge work, it will snowball into a movement in many more GCCs, and jumpstart a new era of product development and translational research in India.

Second, ER&D GCCs should increase their support for the Indian deeptech innovation ecosystem. This is beneficial for both the parent and the Indian ecosystem – the startups may develop complementary products and solutions or leverage the products of the multinational for new use cases.

Third, ER&D GCCs must partner with Indian technical HEIs. This can be in multiple formats, from GCC professionals becoming professors of practice and offering electives, to sponsoring joint R&D. These programmes will prepare students for a career in the GCCs. They will also motivate faculty in the HEIs towards translational R&D which is now a top priority in our national S&T missions like the National Mission on Interdisciplinary Cyber-Physical Systems. Organisations like Nasscom can help catalyse these partnerships.

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