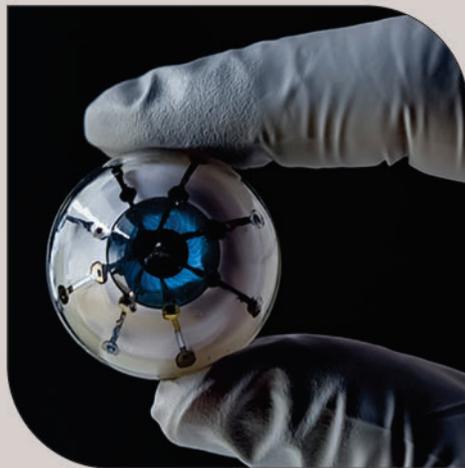


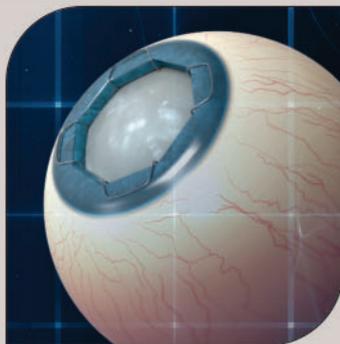
# Medical Equipment & Automation

India's Premium magazine on the diagnostic, medical equipment industry and technology



## Eye care

Product innovations of 2018



### Corneal Imaging

Vital for diagnosing and treating a huge variety of ocular diseases.

### Nasal Speculum

Helps in enlarging the sinus area so that the exposed area can be clearly observed.

### Ophthalmic Equipment Industry

A Visionary Outlook

## Interviews



**Suhas Tamras**

Global Head - Medical Devices and Healthcare Practice, Tata Elxsi



**Ravi Ramamurti**

Professor of International Business and Director, Center for Emerging Markets at Northeastern University

## Aravind Eye Hospital: Putting Patients First





## “OEMs remain bullish on Indian healthcare story”

Most of the OEMs remain bullish about the Indian healthcare story, especially owing to the recent changes in the healthcare insurance policies and also the newly introduced regulatory framework.

**Suhas Tamras, Global Head - Medical Devices and Healthcare Practice, Tata Elxsi**

— The design and development of medical devices is notably shaping healthcare as well as patient’s lives. What are Tata Elxsi’s commitments in this regard?

— Tata Elxsi is the product design arm of the Tata Group. We specialise in design and engineering and that is the core DNA of the organisation. We have a strong focus on medical device industry where we help customers design medical devices with innovative engineering practices and next-gen technologies that can impact patient care and experiences in a big way.

We have a large product design team with deep experience in understanding clinical aspects, end user-scenarios, and regulatory demands, and this holistic understanding is critical in designing products for mature and emerging markets. Our team consists of experienced bio-medical, mechanical and electrical engineers with a strong understanding of the domain. We invest in building solution accelerators, model-based development and reference designs that help customers reimagine products for the future, and bring value to the overall engineering lifecycle in terms of cost, time-to-market and competitive advantage.

Today, digitisation is impacting all realms of healthcare

and patient care which puts greater emphasis on design thinking. In this regard, we actively collaborate with universities to align design thinking and bio-medical engineering basics with the evolving industry benchmarks.

— Digitisation is changing the way functions are being carried out across the industry. Could you discuss on how digitisation is transforming medical devices industry?

— The digital transformation is not sudden and we have been seeing the transition to a connected health paradigm, for almost a decade. There have been attempts to standardise communication interfaces via protocols like Continua, HL7, DICOM etc.

In the latest development, the digitisation is focused more on the decentralisation of healthcare and making it available to the end-users. Hence, in addition to the technology risks, this paradigm also poses risks arising out of the usability aspects.

Digitisation is also moving towards making devices smart and intelligent enabling personalised patient care, medication adherence, enhanced device security and device management. Tata Elxsi’s “Design + Digital” theme addresses exactly these issues.

**What are the potential application areas of IoT in healthcare?**

IoT (Internet of Things) typically helps in making devices smart and intelligent so that you have a greater lever to connect sensors and capture insights, which previously was not possible. With improved sensors and subsequent innovation in design practices, devices can now be enabled to respond to different usage scenarios and capture performances that can be analysed for patterns. For example, using connected infusion pumps with smart sensors and control systems, nurses can remotely manage infusion rates for individual patients. The medication history of patients can also be tracked and analysed, thanks to IoT-based technologies.

**What are the innovations Tata Elxsi bringing in to this domain?**

While most service companies engineer, we innovate. Our ability to innovate in the product design space has been the fundamental differentiating factor for Tata Elxsi. Innovations can be broadly classified into different categories, for example: methodologies such as model-based design, rapid prototyping, DevOps etc., can significantly bring down engineering lifecycles while also enhancing the effectiveness of design and engineering process.

Solution accelerators and reference solutions such as generic platform development for Machine Learning based imaging analysis help in improving quicker and insight-driven diagnosis and decision making. Technology-based innovations such as solutions for cybersecurity on a low-power embedded platform help bring device security onto the point of care medical devices. We are seeing a convergence of a lot of diverse technologies in creating solutions for the end-users. Tata Elxsi has been a dominant player in consumer electronics, communications, graphics and the likes. Hence, we are very uniquely positioned to serve the medical devices and healthcare innovations leveraging these technologies. Our design and UX expertise make our offerings more holistic.

In addition to the technology and product-related innovations, innovations resulting in operational excellence, lower costs, shorter development cycles etc is also our continuous focus.

**How do you see the opportunities in emerging markets like India?**

Tata Elxsi has numerous examples of engaging with some of the largest medical devices brands in

designing and building products to enable them to foray into emerging markets. We have played a major and pivotal role in most of the innovations that have enabled medical devices OEMs to enter and expand in the emerging markets.

Despite the rapid advances and adoption of technology, the sheer size of the country, the demographics and the economics of healthcare, make it a huge challenge for the innovators. While the new technology delivers superior clinical outcomes, delivering the technology to the remotest areas is still a challenge; this will, however, foster innovation around localised solutions.

Most of the OEMs remain bullish about the Indian healthcare story, especially owing to the recent changes in the healthcare insurance policies and also the newly introduced regulatory framework.

**What are the key challenges you witness in terms of introducing new technologies especially in developing economies like India?**

The challenges are manifold – they start with the adoption of the latest technologies by the healthcare staff, training, regulating and at the same time ensuring affordability and desired clinical outcomes. The sheer volumes in terms of population and the fact that the healthcare sector remains largely unorganised makes the delivery of the service a huge challenge. However, there have been successful models developed by quite a few institutions to deliver affordable and high-quality care, and we believe that technology will further enable this effort.

**How do you deal with these challenges?**

We see a trend wherein the endeavour is to reach the point of care and make solutions available to the larger population. This essentially means making portable and point-of-care devices or solutions, versus hospital or lab-based capital equipment. Also, low-cost Internet connectivity is further making telehealth and remote-care a more practical possibility.

**What are the services you offer to the medical device OEMs and technology companies?**

We provide the complete gamut of design engineering services right from consumer or market research to mechanical design (styling and prototyping), hardware and software engineering, value-engineering, to regulatory standard adherence, independent verification and validation, and complete documentation support for certification and approval. +