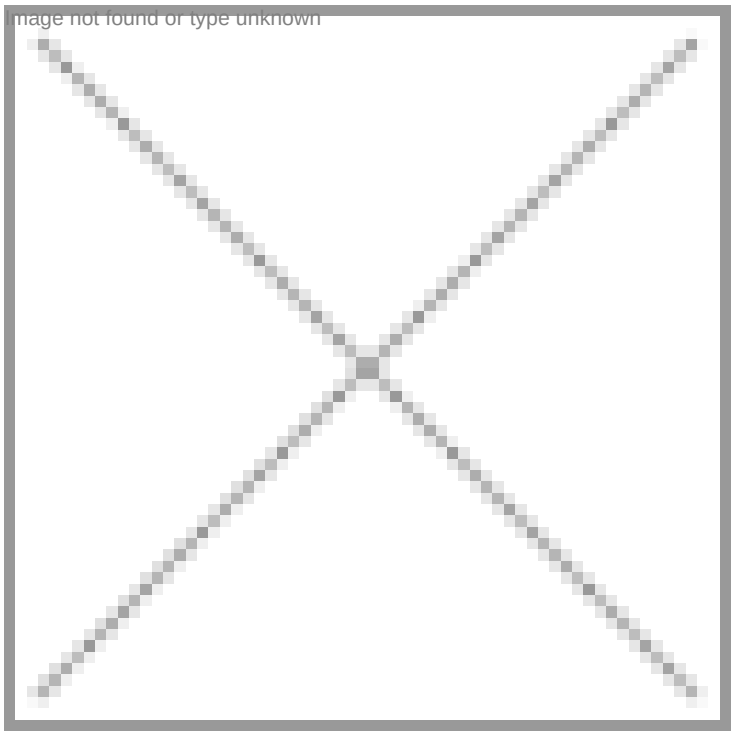
BioSpectrum
the business of | Bio & Health Sciences

Indian analytical instrument manufacturing industry on a high

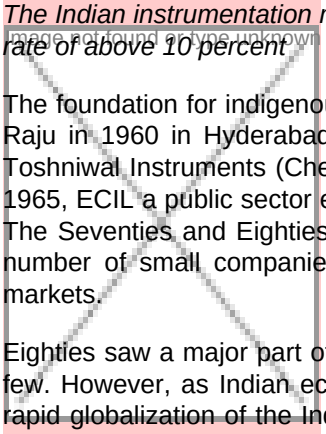
09 January 2008 | News

Image not found or type unknown



Indian analytical instrument manufacturing industry on a high

The Indian instrumentation market including consumables and spares is estimated around $1 billion, with an annual growth rate of above 10 percent



Ramesh Datla
managing director,
ELICO Limited,
Hyderabad

The foundation for indigenous analytical instrument manufacturing industry was laid with the establishment of ELICO by DVS Raju in 1960 in Hyderabad. ELICO developed and introduced the first indigenous pH meter. Others companies such as Toshniwal Instruments (Chemito) by Arun Toshniwal in 1961, Systronics by Dr Vikram Sarabhai and AIMIL by HC Verma in 1965, ECIL a public sector enterprise by Dr AS Rao in 1967 followed suit and entered the arena of instrument manufacturing. The Seventies and Eighties witnessed the entry of CIC, Nucon, Netel, EI, Lab India, Transasia and Premier Color. A large number of small companies were started in late Eighties and Nineties producing low end products addressing regional markets.

Eighties saw a major part of the instrument industry moved into trading and representing foreign manufacturers, except for a few. However, as Indian economy grew since the 1990s fueled by the economic liberation policies of the government, and rapid globalization of the Indian economy, the market opportunity became visible to the global players. Pharmaceuticals, life sciences, petroleum, mines and minerals, metals, and food and beverages were few of the distinct sectors that achieved global scales, and required to adopt best practices for research and quality. This resulted in a shift in strategy for the global players who had a reasonable representation of their products to establish their own subsidiaries for not only providing sales and support but to offer value add services like application support to the various verticals.

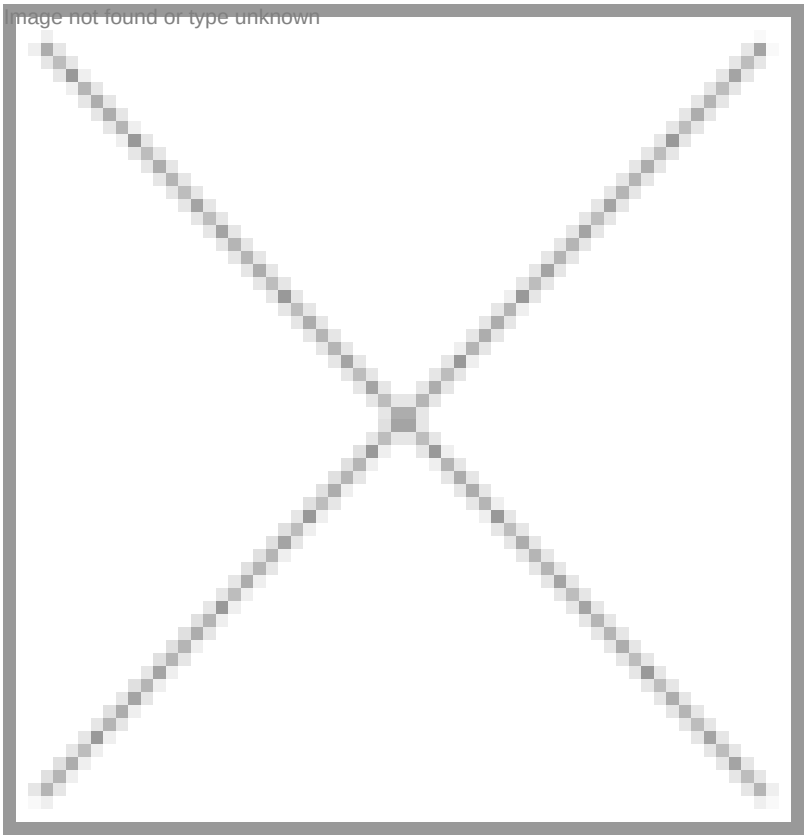
Technology isolation in India

In the 1960s, a lot of work went into the development of analytical instrumentation mainly in the Department of Atomic Energy (DAE) and Council of Scientific and Industrial Research (CSIR) labs that were funded by the government. This was because of the technology isolation faced by India after the Chinese war and the "self reliance" objective thus set by the government.

Very few of the instrument technologies thus developed were ever commercialized. Later, dependence on foreign products grew because of non-availability of indigenous technologies. Most of the Indian instrument companies though initially started developing indigenous technologies, could not keep pace with technological advancements, as the support structure did not evolve. Hence they opted for technical tie-ups except for a couple of companies who continued to invest in in-house R&D.

Products manufactured in India

The products manufactured in India are in the following technology areas:



Apart from these products, application specific products like clinical chemistry analyzers, color analyzers, micro plate readers, milk analyzers and consumables like chemicals, reagents, enzymes, chromatography columns are also manufactured.

The technologies discussed have been indigenously developed and successfully compete with imports addressing the low and mid range markets. Some of these products are being exported worldwide. A couple of the Indian companies have moved into high end product development and are also working with global players in co-development and manufacturing.

Deterrents for industry collaboration and innovation

The instrument industry is technology intensive involving several disciplines of technology which include optics, fluidics, mechanics, precision engineering, materials, electronics (hardware and software), sensors, detectors, chemicals, product engineering and above all competent human resource. Backward and forward integration is very essential for any industry to grow and non-existence of this structure was a deterrent for the growth of Indian instrument industry.

Comparatively in the western world the R&D has been extensively driven by defense and space programs initially and later supplemented by funding for agriculture and medicine. Preference was given for locally produced products for many years. Governments funded heavily on research programs that integrated government, academia and industrial research in a closed loop program under their respective national technology plans. This resulted in establishing centers of excellence and extensive generation of IPRs and the outcome was that the industries became globally competitive due to technological superiority.

Similarly, India too has a well established science and technology infrastructure under the CSIR, DAE, DoS and DRDO institutions and world-class academic institutions like IIT and IISc. Though a lot of funding went into these institutions the drawback was the poor interface between the industry, research institutions and academia because of lack of an integrated national instrument development program for indigenous instrument development. Very few of the technologies ever developed had commercial relevance.

However, the scenario is changing and we see an increased participation among the stakeholders.

Market demographics

For many years until liberalization in the 1990s, the government which included academia was the largest buyer and was driven more by budgets structured in the five year plans rather than a necessity.

Market demographics post WTO

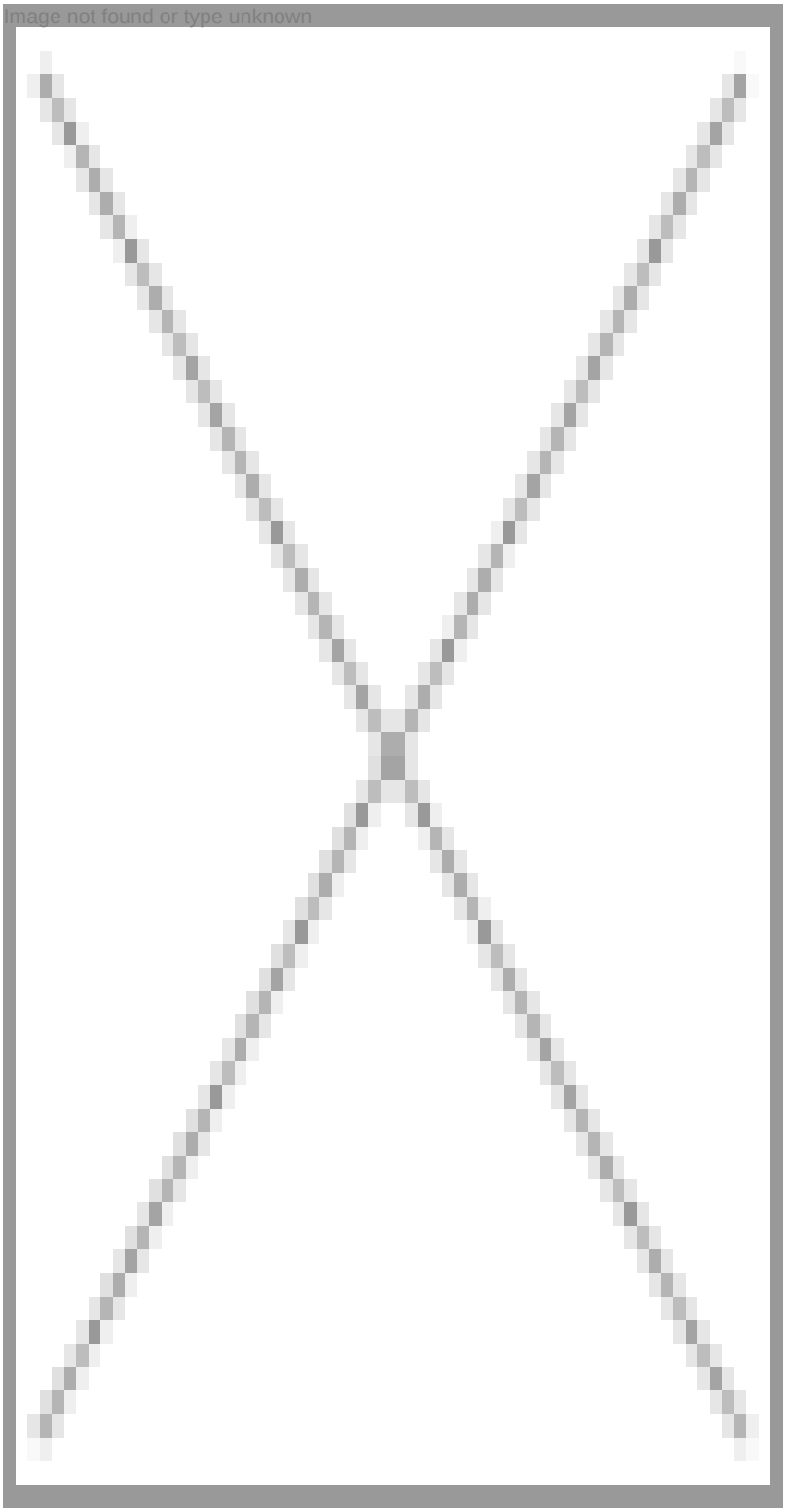
In the 1990s with opening up of the economy, the country saw rapid economic growth coupled with freeing the market of all trade barriers. In 1998 India became the signatory to the WTO-IT agreement by which the duties on most of the analytical instruments had to come down to zero by 2005.

The WTO regime opened up Indian market for all types of products. The Indian instrument industry started facing stiffer competition, particularly on technology and cost. With trade barriers coming down licensing of technology became tougher and IPR has become the key for survival and growth.

Worldwide the analytical instrument industry is estimated at $32 billion with top 10 companies having 50 percent of the worldwide revenues and the top 50 accounting for 70 percent of the global revenue. Consumables, spares and maintenance also form a large share of these revenues and are the most profitable.

The Indian analytical instrument market including consumables and spares is estimated around $1 billion, with an annual growth rate of above 10 percent. It is estimated that this growth rate will continue for the coming years. About 85 percent of the market is dominated by global players mainly from the US and Japan followed by European manufacturers and the rest by local players who are focused on low and mid end of the market.

Image not found or type unknown



Trends

The users perspective "Can we have an instrument or a group of instruments which can talk to each other and give the required result as fast as possible; and an instrument company which can provide an end to end solution?"

Due to competitive pressures time and productivity are the biggest challenges in the laboratory today. A one stop shop which provides automation and networking of instruments leading to speed of analysis, meeting regulatory compliance and support has become the key for the customer.

Instrument technologies are by and large driven by the life science industry which requires products and technologies that address their dynamic needs for new drug discovery and regulatory compliance.

Opportunities for India

Globally the largest segments are the separation science and spectroscopy techniques. This pattern is similar in India also. The highest growth rate has been in the life science sector, which includes pharma, bio, proteinomics, genomics and clinical research related instrumentation.

In India the government and academia are still the largest buyer of analytical instruments, followed by the research and pharmaceutical industry. As the Indian GDP continues to grow at an average rate of 8 to 9 percent the demand for analytical instruments will continue to grow and eventually industry and research will become the largest buyers of analytical instruments.

Increased security concerns in India are leading to huge investments in laboratory instrumentation for forensic and explosive detections. Stringent hygiene standards are leading to increased investments in instruments for food and beverages and water analysis.

The instrument industry being multidisciplinary and driven by industry/application specific requirements requires manpower with technical skills. As India has a large pool of technical manpower it will give an edge for India-based industry.

The rapid economic growth and the competitive environment thus created coupled with stringent government regulations are forcing Indian industry to have world-class laboratory infrastructure. This environment is creating a huge opportunity for the instrument industry.

In the last few years a large number of foreign companies from various sectors have set up their R&D facilities in India with world-class laboratories.

Growing opportunities in the Indian market space has made few large global instrument companies to look at establishing R&D and manufacturing base in India not only to cater to Indian market but also to the entire Asian markets which is now the highest growth market for analytical instrument industry.

Partnership mantra

The rapid economic growth in India has created a huge market coupled with a large pool of technically qualified human resource. This environment is making India an attractive base for R&D and manufacturing. Since the last decade a large number of foreign companies from various sectors have setup world-class R&D and manufacturing facilities in India for catering to the local as well as global requirements. This has created an ecosystem, which has enabled a competitive environment to flourish.

The huge competitive market thus created is forcing Indian instrument industry to become world class by aligning with global standards in technology and applications. This requires investing heavily in R&D leading to innovation and IPR generation. In this scenario the growth for the instrument industry will be in offering application specific, highly sensitive, intelligently networked instruments producing fast and accurate results and meeting regulatory compliances. To achieve this M&A, partnerships with research institutions or other instrument companies has become the order of the day. In the coming years we will be seeing a new breed of IPR driven instrument companies emerging.