Confederation of Indian Industry

CII

INDUSTRIAL INNOVATION AWARDS 2016

TOP 25 INNOVATIVE COMPANIES

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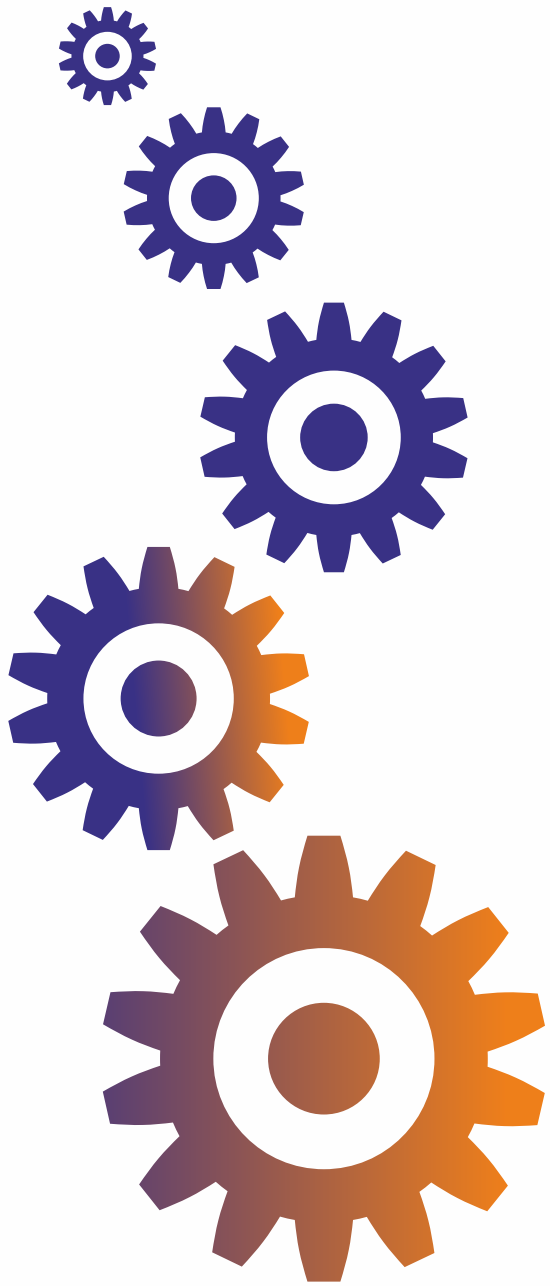
INDUSTRIAL INNOVATION AWARDS 2016

Top 25 innovative companies



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FOREWORD

Mr Chandrajit Banerjee
Director General, CII

In this age of rapid technological progress, industry is constantly amplifying capabilities through new models and processes. From the first electricity-powered tele-operator to the advanced artificial neural networks of today, technology is an ongoing and accelerating journey. Nowhere is the impact as significant as in the industry sector, which is constantly innovating to stay competitive.

India has been an active participant in this innovation mission. The Global Innovation Index (GII) 2017 places India at the top spot in Central and Southern Asia as a regional innovation center. Innovation lies in the domain of industrial enterprises, and an economy that aspires to be on the higher innovation competitiveness must prioritise industrial innovation. For this reason, CII has developed the CII Industrial Innovation Awards as a step forward in cultivating innovation across organisations.

Since inception in 2014, the CII Industrial Innovation Awards have become a flagship initiative to help industry identify strengths and weaknesses on various firm-level innovation parameters. The unique innovation assessment process stands out among other similar initiatives in India. The last three editions of the CII Industrial Innovation Awards recognized 76 firms and 20 start-ups as Champions of Indian Innovation in their respective industry sectors and segments.

This compendium highlights case studies of 24 companies, which were recognized for their innovation and best practices in 2016. These innovations range across manufacturing and service disciplines, from automotives and aerospace, electronics and chemicals, hospitality and medicines, to health insurance products,textiles and power.

Through this publication, CII aims to disseminate the wide benefits of imbibing innovation as a business strategy. The case studies would motivate and encourage industry to embrace innovation, and facilitate enterprises to harness their organization's capabilities for success. This compendium sets the right examples for organisations to rethink their strategic priorities and to develop a sustainable support system for innovation.

The CII Industrial Innovation Awards will continue to serve as a true motivation for practicing structured innovation within the organisations.

CONTENTS

JCB INDIA LTD.

JCB India is a leading manufacturer of Earthmoving and Construction Equipment in India. JCB machines have been contributing to infrastructure development in India for close to four decades. It's five world class factories in India produces products to One Global Quality not only for India but also for exports to over 80 countries.

JCB has global headquarters in UK, 22 plants worldwide at facilities in UK, India, Brazil, China and US. JCB India has 3 operational sites and 5 plants – one in Ballabgarh, two each in Pune and Jaipur. Ballabgarh facility is world's largest Backhoe plant which also manufactures Telescopic-handlers Engines and Diesel Generators. Pune facilities manufacture heavy equipment like Excavators, Wheeled-Loaders & Compactors. Jaipur plants manufacture Mid-range machines. JCB India has a dedicated Design-Center at Pune only captive engineering center for Group. JCB India has exported to over 85 countries around the world.

CII INDUSTRIAL INNOVATION AWARDS 2016
Grand Winner & Manufacturing
Large Enterprise

THE INNOVATION

JCB's comprehensive Product Portfolio Strategy, One Global Quality ensures that it is benchmarked for Innovation leadership in Industry. JCB India's positioning as Innovation leader in Industry is further ensured by its Robust Sales and Distribution Network (60 dealers and 650+ outlets in India); Excellence in After Sales and Services – employing 5000+ people; Excellence in Product Support with 650+ outlets.

Recognizing need of cross-hierarchal/informal teams for generation and incubation of Innovation, JCB has AIM (Applied-Ignited-Minds) teams, consisting of pan-organization volunteers who generate Innovation Ideas. Another set of volunteers with requisite expertise form Innovation implementation clusters 'i-CUBE'.

JCB India ICONIC Innovation 3DX Excellence Backhoe sustains attribute leadership and high Value of Ownership through a series of innovations. These are:

1) SMART POWER MANAGEMENT TECHNOLOGY - PMaX leading to intelligent thinking machine which adjusts its functions according to duty cycle and cuts peak power requirement of machine.
2) LEEP® delivered fuel efficiency helping Customer save INR 2,80,000 annually on backhoe operations.
3) Q-FILL TECHNOLOGY led to reduction in braking efforts.
4) EcoMAX led to efficient drive-line and reduced 30K Tons of Carbon emissions.

THE APPROACH

R&D activities are catered at JCB Engineering Design Center, Pune. It has over 400 Engineers working at the state of the art centre. 750,000 hours of design time already done.

Objective of Innovation@JCB is enhancing value of ownership for customers. Increasing fuel prices and dropping rental value were making Backhoes operating margins thin for customers; threatening relevance of Backhoe. Keeping value of ownership (of its prime product - Backhoe) intact and high for its customers was objective of this Innovation.

THE BENEFITS

1. 3DX Excellence Innovation led JCB India regain its market share in India Backhoe market.
2. JCB Backhoe benchmarked itself in Industry through leadership in PRODUCT ATTRIBUTES of Performance, Value/Cost of Ownership, Quality/ Reliability, Serviceability, Efficiency and Productivity.
3. PMaX (Patent Pending) led to downsizing engine with enhanced performance, offsetting the requirement of a bigger engine for AirCon option. LEEP® delivered fuel efficiency improvement helping Customer save INR 2,80,000 annually.
4. Q-FILL TECHNOLOGY led to braking efforts reduction.
5. EcoMAX led to efficient innovative drive-line reducing 30,000 Tons of Carbon emissions in 3 years.

THE FUTURE

1) Next cycle of Fuel efficiency improvement through LEEP-NX®
   - Application of Smart Power Management PMaX and Intelligent Machines through diversification of PMaX over the duty cycle
   - New ergonomics and NX Cabin features to be part of next
2) Livelink – Gen Next will be fully IoT based, where the machine behaves like and eventually becomes a family member.
3) Nex-Gen Loadall to have efficiency improvement through LEEP-NX®, Intelligent Machines through diversification of duty cycle along-with the State of the Art aesthetics, ergonomics and machine features.

GRIND MASTER MACHINES PVT. LTD.

Grind Master is a pioneer & leader in special purpose machines for Nano-finish, Metal Finishing, Deburring and solutions including Robotic automation and Abrasives. They provide total solutions for surface finishing requirements.

With over 4000 machines across 6 continents, serving a wide range of industries, they bring a world of experience of over 30 years in machine technology & process knowledge.

Grind Master competes with the best in the world. They constantly strive to exceed customer expectations with innovative & trustworthy solutions created with passion and expertise. Grind Master accounts for 20-25% of All Indian Machine Tools Exports (data from IMTMA). 75% of Grind Master exports are to China, where Grind Master competes with German and Japanese machine builders on technology. Grind Master is the only established Indian supplier to global automotive companies such as SGM, SGMW, Great Wall and DPCA for machinery with turnover around INR 125 crores.

CII INDUSTRIAL INNOVATION AWARDS 2016
Manufacturing
Medium Enterprise

THE INNOVATION

Automation of Deflashing and Fettling operations in foundry:

Deflashing and Fettling are labour intensive cleaning operations in every Aluminum and iron casting foundry. Manual operation is a health hazard and results in poor inconsistent quality results. Grind Master automation created disruptive Innovation in robotic applications for various operations such as machining, aluminum deflashing and iron casting fettling. These solutions in casting industry are transforming Indian foundry and human lives therein.

It uses the combination of flexible programmable movements of industrial robots and multiple Deburring/Grinding/Finishing tools to provide turnkey automation systems to foundry sector.

The suite of technologies that powers the robotic machines performs complex activities that create a productivity Jump, reduces rejection and rework, ensures safe operations and compliance to global manufacturing practices.

Equipped with automatic tool changing facility and offline programming tools, the machine is provided with intelligence for automatic path correction and can be configured easily to suit specific requirement.

THE APPROACH

Casters need to deal with various difficulties as well as variables such as complex castings, hazardous shop floor conditions, consistency required for aesthetic value parts, very high production volumes, component – component variations, etc. Such large number of variables needs in depth process knowledge, rigid system as well as high level of customization to suit particular operation. Hence Grind Masters have kept complete flexible approach for tool selection as well as cell configurations.

THE BENEFITS

- High quality uniform finish result
- Eliminates health hazards
- Compliance with global manufacturing practices
- Reduction in rejection
- Unmatched productivity
- Complete system integration

THE FUTURE

Robotic Fettling & Deflashing is a revolutionary technology in casting industry. It leads to key benefits such as consistency in quality, high productivity and health and safety on shop floor. Casters can deploy this technology in foundry by taking certain precautions to ensure success. In the near future robotic foundry automation is likely to sweep the Indian casting industry setting new benchmark for shop floor practices and methodologies, especially for deburring, deflashing & fettling applications.

LOTUS WIRELESS TECHNOLOGIES INDIA PVT. LTD.

Established in 1995 as Lotus International at Durg, Chattisgarh; Lotus Wireless Technologies India Private Limited was later incorporated at Vizag in the year 2004. Today, Lotus Wireless is India's leading technology provider for Power, Steel, Port, Mining and Transport Sector. With Pan-India presence for sales and support, Lotus Wireless enjoys a major share for their technology business in India along with growing export of solutions to various countries in the world. Lotus Wireless leads in offering turnkey customized solutions for all real world applications.

Lotus Wireless span of competencies in Embedded Electronics, Wireless Technologies, IT Development and Electrical Controls & Automation enables it to offer tailor made solutions for challenging and varied project requirements. The system implementations are undertaken on a turnkey basis to ensure high performance and on time delivery of the projects.

CII INDUSTRIAL INNOVATION AWARDS 2016
Manufacturing
Micro & Small Enterprise

THE INNOVATION

A Green, Energy Efficient Process Management Platform for Coke Oven Batteries EAGLE COKE™ is designed for the coke oven batteries. The basic foundation of this system is based on the strong framework of analytics.

EAGLE COKE is an ideal platform to execute optimized energy balance, pollution accounting, high-end coke quality with integrated asset management and safety controls. Above all with the cloud-enabled platform user can opt for minimal IT infrastructure for an easy integration of IoT concept in the digital world.

THE APPROACH

- System works to improve energy efficiency
- Environmental health and safety norm audit ensures, firms meet environmental regulations
- Officials (with system assistance) can work to conserve natural resources by improving energy efficiency
- Plant Management can develop lean production methods with the aid of the system implemented
- Production supervisors can leverage the energy-efficient opportunities of coke making process

THE BENEFITS

- Net Return On Implementation Of Eagle Coke™ Solution
- Revenue generated due to optimum utilization of heat input = 112L - 1MT coke production
- Saving in BF coke consumption due to CSR improvement = 150L - 1MT hot metal production
- Production improvement (2-3 pushing extra per shift) for medium size battery = 250 T additional coke production / day
- Additional (Net) revenue generation (from item-3) = ₹2000 X 250 T/day X 365 days
- Total Yearly Saving = Approx. 1 Million USD for 1MT of Coke Production & 1 MT Hot Metal Production

THE FUTURE

- Reducing energy consumption together with higher CSR
- Adhering to environmental regulatory requirements
- Increased safety at every phase of charging, pushing and quenching cycles
- Integration of Oven Battery with various types of machinery, IT infrastructure, software and multiple communication networks by adopting state-of-art technologies

UYOME BIOSCIENCES PVT. LTD.

Uyome Biosciences is an innovation driven company, with a vision to develop novel drugs for antibiotics-resistant acne and other opportunist pathogens through a unique pipeline of antibiotics that retard resistance development.

Uyome Biosciences' management team members are the leaders in the field, with deep expertise, demonstrated capability and a proven track record of successfully launching over 50 products in dermatology & other life sciences areas, and building visionary companies.

Uyome's development platform is completely risk mitigated. Uyome has a deep pipeline of IP based products targeting multiple indications. The lead molecule (UB 1953), which targets the huge unmet need in the drug resistant Acne prescription market, recently completed enrollment for Proof of Concept Clinical Study. Earlier in Feb 2017, Uyome announced Phase 1 Clinical Trial Results after USFDA accepted Uyome s Investigational New Drug Application.

Uyome has state-of-the-art infrastructure facilities to carry out all its research and lab development work, with full-fledged formulation, analytical, chemistry, biology & molecular biology, clinical and the regulatory divisions. The infrastructure and the team enables Uyome to conceive ideas, develop them and commercialize them at a rapid pace.

CII INDUSTRIAL INNOVATION AWARDS 2016
Manufacturing
Micro & Small Enterprise

THE INNOVATION

Clindamycin, along with various combinations, is being used as first line therapy by doctors to treat acne, disease affecting 80% teenagers. However, Clindamycin treatment has been witnessing increased resistance rates, which leads to reduced treatment response rates, currently between 40-50%. This causes treatment dissatisfaction with dermatologists as well as patients.

Vyome's product VB 1953, a first-in-class repurposed antibiotic and first-ever bactericidal product, addresses antibiotic resistance issue and also meets multiple target product profile parameters which will make it a new and safe topical treatment option for Acne. It also has an important property of developing insignificant resistance to Acne bacteria.

THE APPROACH

Vyome built a library of Propionibacterium acne isolates from patients, and built genomic understanding of the drivers of resistance. Based on this understanding, Vyome rapidly advanced its lead molecule VB 1953 to the clinics for the treatment of drug-resistant acne. Vyome merges this next-generation antibiotic with an IP-protected microtechnology gel system that ensures the Drug is retained at the site of infection and minimizes systemic exposure.

VB 1953 has huge potential to shift the acne treatment paradigm. The molecule selection was done after rigorous antibiotic profiling and screening according to pre-defined selection criteria including minimal systemic exposure, minimal current clinical use, preference of bactericidal product and strong activity against resistant strains. Expert opinion was taken from dermatologists, clinicians, microbiologists, formulation scientists, product development experts & regulatory experts

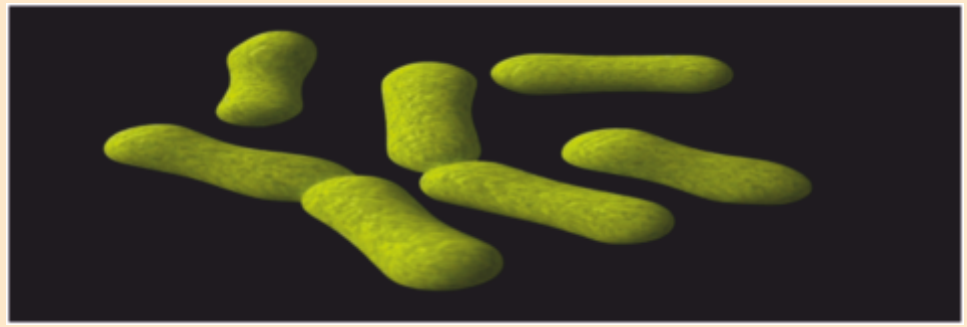
THE BENEFITS

Vyome becomes first Indian Dermatology start-up to receive USFDA go-ahead for clinical development of VB 1953. It recently completed enrollment for Proof of Concept Clinical Study. Earlier in Feb 2017, Vyome announced Phase 1 Clinical Trial Results after USFDA accepted Vyome's Investigational New Drug Application. Top KOLs in Dermatology excited by VB 1953's clinical benefits

THE FUTURE

As current topical antibiotic treatment options do not suffice due to poor response rates of Clindamycin based drugs, the time is ripe to explore beyond the current arsenal of therapeutic choices, and develop next-generation drugs that are effective against both sensitive and resistant P acnes. This huge unmet need of Antibiotic-Resistant Acne treatment is Vyome's key target market. About 100 million people are suffering from antibiotic resistant acne worldwide, with over 10 million patients in the US alone. Vyome is looking to address this potential USD 2 billion market of drug resistant acne with VB 1953, which has proven to work very effectively against Clindamycin resistant patients and is very less prone to developing self-resistance.

VB 1953, being first in class, first ever bactericidal antibiotic for acne treatment with anti-inflammatory properties and lesser probability of developing resistance, is well positioned to meet this unmet need.



TATA POWER DELHI DISTRIBUTION LTD.

Tata Power Delhi Distribution Limited (Tata Power-DDL) is a joint venture between Tata Power and the Government of NCT of Delhi with the majority stake being held by Tata Power Company (51%). Tata Power-DDL distributes electricity in North & North West parts of Delhi and serves a populace of 7 million. The company started operations on July 1, 2002 post the unbundling of the erstwhile Delhi Vidyut Board (DVB). With a registered consumer base of 1.51 million and a peak load of around 1764 MW (May 2016), the company's operations span across an area of 510 sq kms.

Tata Power-DDL's has been the frontrunner in implementing power distribution reforms in the capital city and is acknowledged for its consumer friendly practices. Since privatization, the Aggregate Technical & Commercial (AT&C) losses in Tata Power-DDL areas showan unprecedented reduction of around 82% from an opening loss level of 53% in July 2002.

Tata Power-DDL has to its credit several firsts in Delhi: SCADA controlled Grid Stations, Automatic Meter Reading, GSM based Street Lighting system and SMS based Fault Management System. Tata Power-DDL's Smart Grid initiative with Automated Demand Response (ADR) is another first. To ensure complete transparency, Tata Power-DDL has also provided online information on billing and payment to all its 1.51 million consumers.

Tata Power-DDL's change management experience, distributed leadership system, adoption of latest technology; robust competence development process and innovative and open work culture are the key strategic boosters which helped in building and sustaining competitive advantage in the changing business scenario.

CII INDUSTRIAL INNOVATION AWARDS 2016
Service
Large Enterprise

THE INNOVATION

In an environment where power distribution utilities across the country are reeling under heavy losses and experiencing acute power shortages, Tata Power-DDL has consistently over achieved its targets and scripted an unprecedented turnaround story.Tata Power-DDL's leadership had evolved an inspiring Vision and Mission focusing on 24x7 supply of quality power and deliver value customer services. Tata Power-DDL has established an environment of creativity, continuous improvement and innovation through employee engagement.

Globally Extra High Voltage (EHV) cables (66000V & above) are single core cables. They are having inherent issue of limiting sheath current and voltage resulting in frequent failure of cable circuits. This results in low reliability, loss of cable circuits, high impact on capital expenditure, revenue loss and customer dissatisfaction. For the first time, Team Tata Power-DDL has developed three core EHV cable at 66000V to address the existing problems and provide reliable power supply.

In Tata Power-DDL, large number of 11kV switchgears are used to control and protect electrical equipment's across the distribution network. Failure of a single 11kV switchgear not only results in high Repair &Maintenance cost, but also high down time, unsafe working environment and customer dissatisfaction. The present technology was not sufficient to proactively diagnose the health of 11kV switchgears onsite and predict abnormalities which impacted the reliability parameters. Team Tata Power-DDL developed an android based mobile app – "USSOFT" to overcome the problem resulting in improved reliability indices.

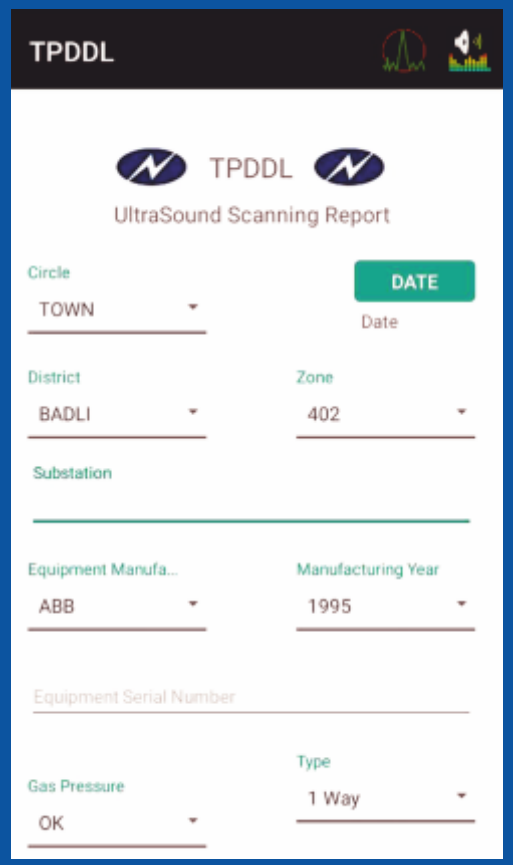
Tata Power-DDL was well aware of difficulty faced by its customers in lodging complaints due to need of quoting eleven digits CA Number. Though the CA No. is available in bill, finding same during power failure is not so easy for most of us. To overcome the issues faced by customers in logging complaints, "TPDDL Connect" mobile app is an effort by Tata Power-DDL to keep the pace with changing technologies and exceed customer expectations.

THE APPROACH

Single core EHV cables have inherent issue of limiting sheath current and voltage resulting in frequent failure of cable circuits. Team Tata Power-DDL examined Indian and International standards for cable manufacturing and observed while specifications of 3 core 33kV and 11kV cables are available, there was no standard for 3 core EHV cable. The team decided to utilize in-house domain knowledge, studied different cable systems and concluded that 3 core EHV cable systems are more robust and free from problems associated with single core EHV cable systems. Thus, the team conceptualized and designed own specifications for 3 core EHV cable with stringent testing norms.

Tata Power-DDL haslarge numbers of 11kV switchgears and faced partial / complete failures and flashovers despite sticking up to best maintenance practices available. Any abnormality occurring in a switchgear produces an electrical discharge which is commonly referred as Ionization. These discharges produce high frequency sound which is beyond the human audible range. The team captured these abnormal sound patterns and analyzed on different scales like intensity, duration & frequency. The sound patterns were correlated with field observations / findings and classified under three stages – Corona / Tracking / Arcing. The team defined algorithms based on the overall analysis and designed a user-friendly android based mobile app – "USSOFT" which can predict and classify 11kV switchgear abnormalities onsite.

Tata Power-DDL was aware of customer problem in registering complaints since quoting 11 digit CA number was mandatory and remembering CA No. was an issue. With proliferation of smartphones and associated applications, relevance of exploring and exploiting smartphone technologies for empowering our customers was need of the hour. Tata Power-DDL's team decided to develop android based mobile app – "TPDDL Connect" since CA nos. and Mobile nos. of the customers were already mapped in the existing CRM database. The customer just needs to download the app and it will automatically display the linked CA no. to the mobile. The customer can login and register request / complaints. Further, the mobile app also provides functionality like 'Bill Payment', validate workforce (regular as well as outsourced employees), report unsafe situations, provide feedback, energy saving tips, locate nearest payment center on Google Map, notification alerts, and view account details.



THE BENEFITS

Three core EHV cables have resolved the issues faced with single core EHV cable. The overall cost of cable has reduced and the process of cable laying has been simplified. The operational efficiency has increased impacting the reliability indices and exceeding customer expectations. Tata Power-DDL has been invited by Bureau of Indian Standards (BIS) and The Council on Large Electric Systems (CIGRE) for framing standards and cable specifications.

"USSOFT" app implementation has helped Tata Power-DDL to address the problem of partial / complete failures and flashovers in 11kV switchgears. The benefits include reduction in Repair & Maintenance cost, safe working environment and reduction in global warming by preventing escape of SF6 gas used in these 11kV switchgears.

"TPDDL Connect" app has enhanced customer satisfaction to a greater extent as they now get some of the relevant utility services on their finger-tips instead of queuing in line at the customer care desk or on phone.

THE FUTURE

Three Core EHV cables are a global innovation product and have scalability across the power industry. The consumption of EHV Cable in SAARC nations itself is of 6700 Kms per annum, costing 20000 million INR. The product is also a boon for smart cities project.

"USSOFT" mobile app for predictive maintenance of 11kV switchgears can be utilized across power industry for reliable and safe supply of power.

Tata Power-DDL in its quest to exceed customer expectation plans to offer more services through "TPDDL Connect" mobile app platform.

SURYAGARH
Jaisalmer

SURYAGARH, JAISALMER

Suryagarh, Jaisalmer is your gateway to the Thar Desert. Its not just a hotel, but a representation of a unique way of life, carefully preserving the traditions of our past yet framing them in a modern idiom. The hotel takes the path less well travelled, and discovers with its guests, secrets of a land that have long been shrouded in myths and legends. At Suryagarh, history is the foundation, and the experience, original.

The hallmark of Suryagarh is a belief in the extraordinary, as well as in excellence and consistency and its driving force is passion for people and successful interaction. With great consideration to its guest's comfort, this particular brand of hospitality is intuitive and genuine.

CII INDUSTRIAL INNOVATION AWARDS 2016
Service
Micro & Small Enterprise

THE INNOVATION

Understanding shifts in the aspiration of travelers

Suryagarh understood that the expectations and aspirations of the Millennial's were going through a fundamental change. They sought authentic and rare experiences, integration with the local community and genuine hospitality more than thread counts, crystal chandeliers, cookie cut itineraries or intrusive hospitality. Suryagarh with its unique positioning, experiential product offering and residential sense of hospitality, was able to bring in the discerning and experience seeking global bohemian nomads to Jaisalmer- a market segment that never existed in Jaisalmer, thereby creating a niche for itself.

Valuing the vernacular

Suryagarh realised the strength of vernacular wisdom, and leveraged it immensely in building and operating the hotel. Whether it was using earthen pots sandwiched between layers of lime plaster for insulation, use of courtyards and "jaalis" for passive cooling, hiring local "khansamas" instead of chefs or developing "the chudail trail", Suryagarh effectively used traditional wisdom and contextualised it in order to gain competitive edge for positioning as well as reducing capital and operating costs.

Strengthening local ecosystems

Suryagarh believes in strengthening local social and environmental ecosystems that it is a part of, realises that this is a prerequisite for sustainable growth. Besides integrating with the local community, employing and procuring locally and developing many such symbiotic relations, Suryagarh's CSR project, "I Love Jaisalmer" has been responsible for Jaisalmer's largest cleanliness and conservation drive since 2013. The program has undertaken many projects on women empowerment, tourist safety, healthcare, facilitating collaborations with artisans & craftsmen & skill development. As a result the hotel has enjoyed consequent cascading benefits.

THE APPROACH

Listening to and empathising with all stake holders, observing and understanding their needs and aspirations. This helps clearly define problems and various approaches for finding solutions.

Mapping in great detail, available cultural, human and natural resources.

Promoting a cross cultural cross disciplinary collaborative approach through tangible programs for problem solving.

Empowering the staff and management through enhanced exposure and encouraging them in taking decisions.

Developing solutions and strategies that create value for all.

Monitoring execution and involving iterative improvisation through appropriate feedback mechanisms.

THE BENEFITS

Suryagarh, by offering a fresh lens to view the Thar desert and its vast natural, cultural and material heritage and by unlocking the regions latent human potential and traditional wisdom, to curate product and service offerings that are relevant to 21st century, has created tremendous value for all stakeholders.

From local building materials to time tested local technologies, from local food to craftsmanship, by showcasing the best that the region has to offer, Suryagarh has helped, locals to realise, maximise and capitalise their potentials, thereby being a catalyst in changing the socio-economic landscape of Jaisalmer.

The business model contextualises the vernacular and makes it aspirational. Given India's rich diversity and human potential, it is highly replicable and can prove to be the lowest hanging fruit in safeguarding India's heritage and bringing prosperity to the hinterlands of the country.

THE FUTURE

Our endeavour is to leverage, India's unparalleled cultural and geographical diversity, rich heritage and tremendous human potential. We want to go into uncharted territories and build hotels that offer a sense of place and a slice of time, showcase undiscovered facets and tell unheard stories of the people and their ways of life, thereby developing unique and life time experiences for discerning travellers.

AEROSPACE™ ENGINEERS PRIVATE LIMITED

AEROSPACE ENGINEERS PVT. LTD.

M/s. Aerospace Engineers Salem, Tamil Nadu an AS9100C certified company is one of the leading organizations for manufacturing of precision aeronautical components in India under metallic and nonmetallic group. Founded in 1988, company caters aerospace components manufacturing company in India and abroad.

Aerospace Engineers has manufactured about 15,000 parts that comply with global aviation requirements with rigorous quality standards which are ratified by authorities. The Inflatable Cockpit Seals were successfully developed for Kiran, LCA, LCA Trainer, Su30MKI and IJT.

Centre for Military Airworthiness Certification (CEMILAC) has accorded air worthy clearance for 1124 products for use on aircraft, helicopters, missiles, Civil Aviation and other systems including rubber components. Also in Missile Projects like BrahMos, Akash, Agni, Prithui and Composite components for BrahMos, LRSAM missile for DRDL and also for TAML.

They have developed and manufactured high pressure aerospace quality stainless steel wire braided smooth bore Teflon inner core hose assemblies by swaging process and supplied to ISRO Electro Hydraulic Actuation System Division for use in Hydraulic system (Working pressure 220 bar) of RLV-TDHEX-01 mission.

CII INDUSTRIAL INNOVATION AWARDS 2016

THE INNOVATION

Hose assemblies are the integral part of the aircraft; they are used for transferring the fluids at rated pressure. These pneumatic hose assemblies are used in aircrafts for transferring the pressure outputs to air data transducers in aircraft. Unlike the other conventional hose assemblies these assemblies prevent the transmission discrepancies & pressure losses.

THE APPROACH

The identification of the problem was the bigger task during initial stages. The each sub-assemblies were subjected to the product level, environmental & functional testings. The problems were summarized & analyzed in detail with corresponding teams. To minimize the transmission losses the materials were developed to have a minimum dielectric constant values. To minimize the pressure losses the design of the sub-assembly were modified taking consideration of the mating adapters, weight constraints. These modified adaptors were simulated to the operating conditions and analyzed using mechanical software's for their efficiency. As a whole these product were manufactured and tested to their functionality and the expected results were achieved.

THE BENEFITS

- The pressure & the transmission losses caused during its operation were eliminated completely
- The weight of the assembly were reduced by 60%
- The assembly is capable of working at extreme low & high temperatures - 200°C to 260°C

THE FUTURE

Aerospace Engineers is planning its new Manufacturing setup named “The Salem Aeropark LLC” at Texas USA.

In addition to this, they have opened a new office at Hosur to extend their good services with faster response to the customers who are in and around Bangalore.

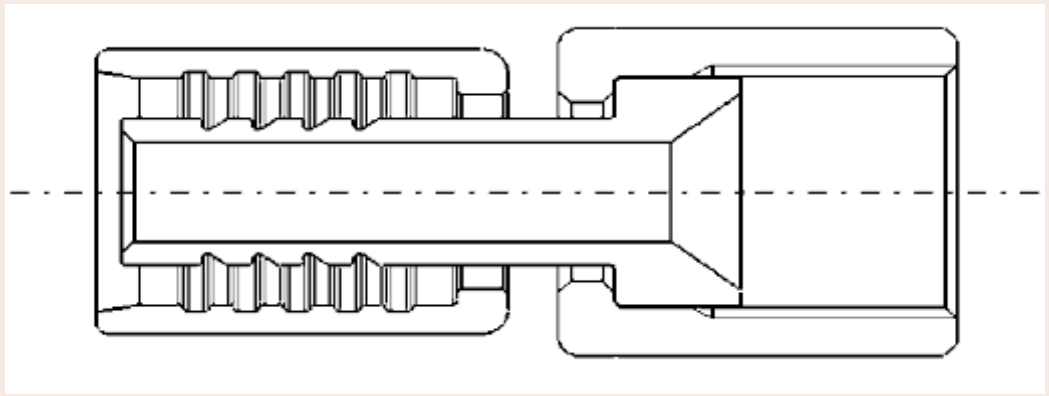


Figure 1 Cross Section of Fitting

ANANDI ENTERPRISES

Located in the Knitwear Capital of India, M/s Anandi Enterprises is a manufacturer of specialized Yarn and Fabric. Anandi Enterprises offers a diverse range of products that include Cotton Fibers, Cotton yarns, Polyester yarns, Fabrics and Knitted Garments.

Anandi Enterprises is the vision of textile technologist Mr. R.S. Balagurunathan. Mr. Bala, who has worked the complete value chain in textile manufacturing, has the dream of building an innovative Eco-conscious organization that delivers value both to Farmers & Employees and to its Customers & Shareholders.

In his words, "Everything we do, pollute or taxes the Earth in some way. It is an inescapable fact. But there are things which we can do as individuals and as businesses to lighten our impact on the environment." Driven by this vision, the organization is continuously innovating and differentiating itself as a niche manufacturer of recycled yarn in Ring Spinning and Authentic Organic Yarn.

M/s Anandi is a GRS3 Certified manufacturer of recycled Yarn, a GOTS Certified manufacturer of Authentic Organic Cotton and one of the Pioneers and Certified partner from India for the "Better Cotton Initiative" program.

ANANDI ENTERPRISES™

Supplier of all types of

Cotton, Yarns & Fabrics

REUSE
REDUCE
RECYCLE

CII INDUSTRIAL INNOVATION AWARDS 2016

THE INNOVATION

The world is witnessing an era of consumerism all around us. There is an increasing demand for new clothing with shorter use durations. This is resulting in demand for more raw materials putting pressure on the supply ecosystem on one side and on the other hand huge amounts of waste getting generated. The problem of landfills, the overuse of water, pesticides and fertilizers all of which is pushing the world towards an ecological disaster.

Among the various sustainable initiatives taken up by the Industry is the promotion & adoption of recycled cotton & Pet (Bottle) poly (Ripping) cotton. The use of recycled cotton is not new, but it is limited to coarser grades used in rugs etc. The challenge in using recycled cotton in Ring spun for garments was in getting yarn of the required strength & fines.

Anandi successfully developed RECCA recycled Cotton yarn and poly cotton yarn to GRS 3.0 standards. Making it the first in India and among the few worldwide to develop this technology process in ring spinning.

Another of its pioneering work during the same period is the production on a commercial scale of Authentic Organic Cotton yarn from Non-GMO Indian variety seeds (SURABI). Further this yarn is herbally processed and dyed to preserve its Organic Purity. These Authentic Organic Cotton fabrics cater to the Wellness products and are being adopted for a range of skin friendly garments in particular for children.

THE APPROACH

A major supplier of cotton yarn to the industry Anandi Enterprise works closely with leading global textile brands. This gives it a ring side insight to the challenges and needs of the Industry. These insights are the genesis to their various innovation initiatives undertaken at Anandi and the two innovations of recycled Cotton & Poly-cotton Yarn and Authentic Organic Non-GMO Cotton Yarn both of which it has researched and developed in-house.

Always on the lookout for niche product spaces, Anandi spotted an opportunity in the increasing demand for wellness products and in particular Authentic Organic Cotton.

They worked with farmers under an Authentic Cotton Initiative set up by them. It set up a not for profit wing named Anandi Eco Farms that is working with and developing thousands of farmers in the use of non GMO seeds & organic farming techniques. This not only ensures strict control over the complete supply chain but also ensures better returns to the farmer while establishing traceability of authenticity all along the value chain from “Farm to Garment”.

THE BENEFITS

Today Anandi is among the first Indian Companies with the capability to manufacture recycled Cotton & Poly-Cotton yarn. It has successfully launched RECCA & EcoElate. Both Indian Brands into the Global textile market. They are a fabric supply chain partner for LEVIS.

Their eco-conscious products are consuming lesser virgin Cotton and consuming recycled PET, thereby reducing the burden on the environment. As a result of its initiatives at the grass root level thousands of farmers have been introduced to and adopted eco-friendly farming practices and growing Non-GMO ethnic cotton that yield higher prices for the farmer. Farming techniques that consume lesser water, Organic pesticides and farming practices that are softer on the environment.

THE FUTURE

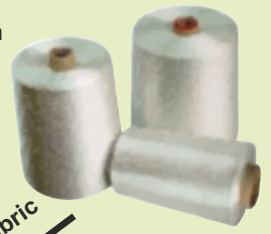
Anandi enterprises continues its journey towards the vision set for itself by its founder. The company is working in the area’s of increasing yield in terms of output and mix ratio and take a pioneering role in propagating “Fair Market Practices”.

As a brand, it looks to establish both RECCA & Ecoelate as leading respected global brands and Anandi Enterprises as an Eco conscious Sustainable Manufacturer of specialized Yarns.

Colleting waste bottles

Bottles are ground into chips

Chips are spun into yarn

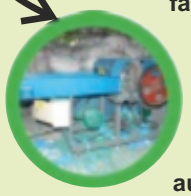


Yarn is then woven into fabric

The fabric is cut and sewn to make Recca

Yarn is then woven into fabric

Collated fabrics, segregated, washed and cut in to small pieces



Fiber opening machine to convert the recycled fabric bits into the fibers suitable for spinning

Ours fully automated fiber opener machine with GRS - 1 Certification

Fibers are compressed into bales and send to the spinning unit for conversion into Ring spun yarns, suitable for Knitting & Weaving

Our spinning unit is a solely dedicated unit for the recycled yarns and its certified under GRS - 1 Certification from the Control Union

Spun into yarn

BHARAT BIOTECH INTERNATIONAL LTD.

Bharat Biotech International Ltd. was incorporated in 1996 by Dr. Krishna Ella and Mrs. Suchitra Ella and has grown to become one of India's leading vaccine manufacturers. The company's mission is to develop novel, effective and affordable vaccines and bio-therapeutics for the emerging world population. By 2000, Bharat Biotech's innovatively manufactured the low-cost Hepatitis B Vaccine (Revac B+) and became the only company in India to commercialize Typhoid Polysaccharide Vaccine (TYPBAR) in 2003 and the first company in the world to commercialize clinically proven Typhoid Conjugate Vaccine (Typbar TCV) in 2013. Over 2 billion doses of WHO-qualified Oral Polio Vaccine was formulated and supplied to the UIPs of India and other countries since 2005.

The Company's business strategy relies on strong manufacturing platforms complimented by R &D capabilities which resulted in Japanese Encephalitis Vaccine (JENVAC) and Rotavirus Vaccine (ROTAVAC).

Bharat Biotech is accredited by the regulatory authorities of Korean FDA, ANVISA and PIC(s).

CII INDUSTRIAL INNOVATION AWARDS 2016

THE INNOVATION

Bharat Biotech innovated and developed Rotavirus Vaccine (Live Attenuated, Oral) [ROTAVAC®] to protect infants and children against severe rotavirus diarrhoea. In India, 130,000 infants are estimated to die every year due to rotavirus. This disease also causes a huge economic burden to the families and the country due to expenditure on hospitalizations.

Rotavirus 116E strain, a naturally re-assorted and naturally attenuated strain isolated in Delhi, was developed as a vaccine (ROTAVAC®) by Bharat Biotech as part of a social innovation project through a public-private partnership involving several reputed global health and research organizations. Rotavirus 116E strain was adapted by Bharat Biotech to the regulatory-approved Vero Cells grown in sterile disposable multi-stack cell factories and developed the multiple-virus harvest regime that reduced the cost of manufacture. ROTAVAC® has an advantage over two other rotavirus vaccines of the multinationals that it was found effective and immunogenic without a buffer. Single dose of ROTAVAC® is in a 0.5 ml presentation which ensures easy administration and avoids spillage. ROTAVAC® was successfully subjected to India's first phase III efficacy clinical trial and was carried out in 6799 infants at three geographical regions of India in Delhi, Pune and Vellore with a 2-year follow up of the infants. The result of this study was published in peer-reviewed journals such as Lancet and Vaccine. ROTAVAC® is administered as 5 drops to infants in a 3- dose schedule in the 6th, 10th and 12th week of age.

Government, bilateral, and non-government organisation push-funding and technical support substantially de-risked the project for Bharat Biotech, resulting in a favourable price commitment for the public sector at the time of product launch (<US$ 1•00 per dose). In this context, the vaccine is a product of a path-setting model for development of health technologies at prices that ensure increased access in places where these are needed most.

THE APPROACH

Rotavirus strain (116E) isolated in 1986-88 from asymptomatic infants at the hospital of All India Institute of Medical Sciences, New Delhi, was found to be an ideal candidate. Bharat Biotech entered into the public-private partnership in 2001 with the Department of Biotechnology, Centers for Disease Control and Prevention, Atlanta, National Institutes of Health, Bethesda, Stanford University School of Medicine, Stanford and PATH and developed the vaccine. The Bill and Melinda Gates Foundation, Research Council of Norway and Center for International Development of UK also funded Bharat Biotech for the successful completion of the pivotal clinical trial. ROTAVAC®, a 'Developed in India' vaccine, was launched by the Hon'ble prime Minister of India in March 2015.

THE BENEFITS

Rotavirus vaccine was introduced into the Universal Immunization Programme of India in January 2016. ROTAVAC® is being supplied to Andhra Pradesh, Odisha, Haryana and Himachal Pradesh and will be supplied to Assam, Tripura, Madhya Pradesh, Rajasthan and Tamil Nadu.

With a birth cohort of ~25 million infants annually, India alone may require ~75 million doses of ROTAVAC® per annum for the control and prevention of severe rotavirus diarrhoea. UNICEF has forecast a requirement of 84 to 156 million doses of Rotavirus vaccine for 2017 to 2021. Bharat Biotech will benefit from the supply of ROTAVAC® to India and to other countries through UNICEF and PAHO.

THE FUTURE

Bharat Biotech will develop for the near future, Rotavirus vaccine with potency for over 2 years with storage at 2o - 8oC. Futuristic formulation of Bharat Biotech of Rotavirus vaccine will be potent at ambient temperature. Pipeline is robust with R&D on Chikungunya, Zika, Human Papilloma Virus, Hepatitis E and Inactivated Polio vaccines.

ROTAVAC®
Rotavirus Vaccine (Live Attenuated, Oral)

CARBORUNDUM UNIVERSAL LTD.

CUMI is a mines to market company. Its integrated operations include mining, power generation, fusion, manufacturing, marketing and distribution. In Electrominerals division (EMD), the ores and minerals are transformed and marketed as materials useful for abrasives, technical ceramics, refractories, friction materials, photovoltaic and diesel particulate filter applications worldwide. Some specific products are:

i) Semifriable grains fused alumina grains developed for cool cutting applications.

ii) AzureS sol-gel derived alumina based grains for abrasive applications.

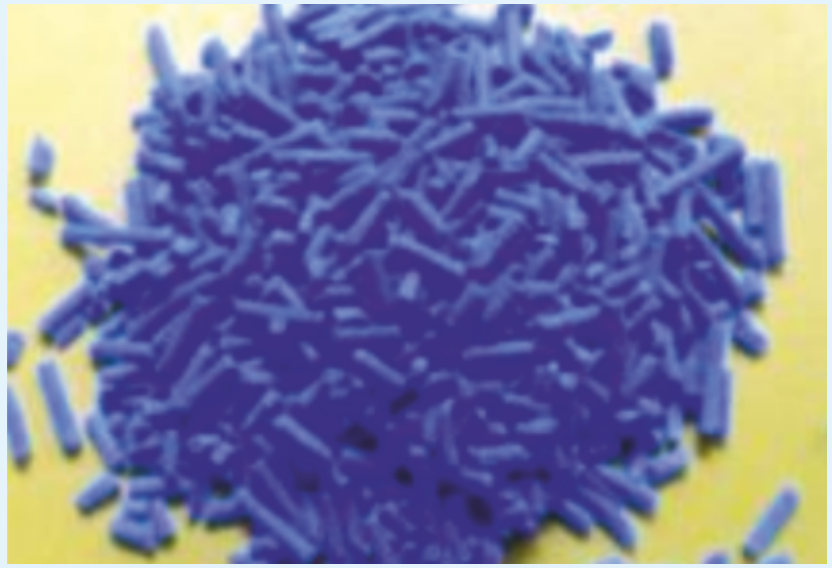
iii) Silicon carbide non-oxide ceramic with new applications such as diesel particulate filters.

iv) Materials for high performance refractories CUMI is the only Indian company to have a wide range of speciality minerals mentioned above. The Electro minerals Division's holistic approach towards excellence is highlighted by the awards bagged during the last two years: the India Green Manufacturing Challenge Silver Award, International Convention on Quality Circle, Bangkok Golden Award, National Level Manufacturing Competitiveness Bronze Award and Best CSR impact initiative National Award.

CII INDUSTRIAL INNOVATION AWARDS 2016

THE INNOVATION

CUMI-EMD was started in 1964 for producing brown fused alumina from bauxite ore. By the turn of the century, the quality degradation of the as-mined bauxite ore for abrasive grade alumina necessitated complicated processing, larger carbon foot print and affected the final product consistency. To meet the performance requirement within the available resources, process modification became mandatory. A novel process was developed which utilizes a higher standard raw material calcined alumina that is available in surplus. This eliminated the requirement of carbo-thermic reduction which has adverse impact on the environment due to CO2 emissions. In addition to this, the processing got simplified as it does not generate unwanted slag. These semi-friable range of products led to increased material recovery with lower energy consumption and increase of productivity. Product performed much better than the conventional product from customer point of view. This enabled EMD to produce consistent high performance product (value addition 2X) and is the first of its kind in the world. It also provided a platform to emerge with 5 new variants which would further enhance the performance in specific applications giving a unique space in the abrasive industry.



Another innovation that has enabled CUMI-EMD to be a forerunner in the domain of abrasives manufacturing is the sol-gel route derived ceramic grains. Nanomaterials attract a lot of attention due to their extraordinary performance. However, the commercial scale production is highly challenging. Manufacture of fine structured materials (less than 200 nm crystallite size) with high density, toughness, hardness and defined shapes to cater to niche abrasive applications was proving difficult. With in-house technology development from the lab scale, CUMI manufactures structured grains with improved grinding efficiency. Traditionally, the grains are manufactured, crushed and graded to required sizes. In the novel process developed here, only grains with the required sizes are produced i.e zero wastage.

THE APPROACH

More than a decade ago, CUMI EMD forecasted that high performance nanomaterials will redefine the abrasives market and ventured into sintered sol-gel alumina abrasives research. Initial knowledge in the sol-gel process was gained through collaboration with research labs.The project was guided by the top management and reviewed periodically to achieve the necessary quality parameters. With transformations in the automotive and construction sector towards harder materials, the product has undergone several upgrades over the years through continuous benchmarking. Aggressive development led to 5 patents applications and more than 10 crore investment to commercialize the

technology/knowhow. Once the success of the product was ascertained through field trials, the potential for further expansion and return on investment was confirmed through market research which was carried out by the independent corporate team.

THE BENEFITS

In case of semi friable fused alumina, the product performed better than the conventional product from customer point of view. The variants developed cover a wide spectrum of abrasive requirements. For example softer materials like wood and harder materials like steel need grains with different toughness and these were covered by variants of the same base grains.

Sol-gel grains showed an overall performance improvement and aided the customers to reduce costs. This also helps CUMI-EMD to gain new markets and establishment of the brand internationally.

During all these technical developments, CUMI had been highly committed towards environmental protection and has implemented zero discharge model, lower carbon foot print and NOxemission controls, utilization of green energy from hydel power plants etc., These have impact on society and sustainability.

THE FUTURE

CUMI established itself as the third largest sol gel based sintered alumina abrasive manufacturer through this breakthrough product. Profitability of this product increased by many folds. This effort also enhanced the product range from a ₹60000 per ton to ₹1000000 per ton products. The business is investing on building up the capacities in specialties and modernisation of the existing plants with a view to improve on environment, energy & productivity. Today in many of the value added products CUMI EMD is the only producer in India. As we invest and scale up the operations for value added minerals the business continues its journey with a pipe line of products under development to create the futuristic advanced and functional materials.

ELECTRONICS CORPORATION OF INDIA LTD.

ECIL, established in 1967 under the Dept. of Atomic Energy had the primary objective of productionizing the products developed at Bhabha Atomic Research Centre (BARC), Mumbai in order to support the country's Nuclear Power and other Atomic Energy Programmes. Concurrently, it has endeavored to create a strong indigenous / production base in the country for professional grade electronics spanning from small passive components to large and complex computer based systems. Though the initial thrust was on meeting the Control & Instrumentation requirements of the Nuclear Power Programs the expanded scope of self-reliance pursued by the Company enabled it to develop various special purpose products and systems to cater to the needs of Defense, Civil Aviation, Information & Broadcasting, Telecommunications, Space, Security, Oil & Gas, Power, Education and several other user departments in the government sector.

This competency in high technology areas has helped the company to successfully stay afloat in the post liberalization era and also to counter the technology denials by developed nations. Thus, ECIL has evolved into a unique multi-technology, multi-product company serving multiple sectors of strategic importance to the country.

CII INDUSTRIAL INNOVATION AWARDS 2016

THE INNOVATION

ECIL wish to showcase two of its products which symbolize how innovation can lead to a revolution.

I. Voter Verifiable Paper Audit Trail (VVPAT): The Electronic Voting Machine revolutionized the polling process in our country. The ballot slip is a kind of "vote receipt" printed by an electronic voting machine that shows the voter his/her choice of vote as it is being entered into the electoral system. The voter is required to confirm that their choice has been recorded correctly, hence making it a verified ballot in a legal sense. VVPAT slips are kept by the election official as a record of votes cast, for audit and recount purposes.

II. Radiation Detection Equipment (RDE): Electronic equipment which prevents illegal movement of radiation material in and out of the country. These are a set of detection devices that provides with a passive, non-intrusive means to screen trucks, pedestrians and other conveyances for the presence of nuclear and radiological materials. ECIL has developed and deployed the following types of Radiation Detection Equipment:
    - Vehicle Monitoring System
    - Doorway Monitor
    - Limb Monitor
    - SNM Baggage Detection System
    - Radiation Survey meters
    - Isotope Identifiers

    These systems alert the security personnel by generating audio, visual alarms.

THE APPROACH

ECIL has designed the above products indigenously in close association with leading technical experts drawn from the academic and industry. Technical Review committees thoroughly scrutinize all the design and engineering details and guide the design team of engineers to arrive at a solution. Designers are encouraged to experiment with new ideas under the supervision of experts. Trainings by experts from reputed R&D institutes, providing state-of-the-art resources have enabled engineers to come out with innovative solutions.

THE BENEFITS

VVPAT: It has brought up transparency to the election process by providing verification facility to the voter. The VVPAT enable the voter to view the ballot slip of the casted vote, which will contain information about the candidate name, symbol and serial number. This will enhance confidence of the voter on electronic voting machine.

RDE: The RDE able to detect trafficking of nuclear material. This will enable the country transport of Legitimate monazite up to the approved level only. It provides capability to establish proper accountability for Nuclear material. It empowers to establish a full pledged mechanism to screen containers for radioactive material.

THE FUTURE

1. The design team is currently working on Compact VVPAT for easy portability and VVPAT with detachable ballot slip box.
2. RDEs are being deployed at all 14 major international airports, land border points and all Minor seaports & airports of the country.

KIMPLAS
PIPING SYSTEMS LTD

KIMPLAS
PIPING SYSTEMS LTD.

Kimplas Piping Systems Limited was established in 1996. It has pioneered the manufacture of Electrofusion and Compression Fittings in India. These fittings are used in Drinking Water and City Gas Distribution Networks. In addition, it manufactures Specialized Proprietary Equipment for Micro Irrigation Systems.

All the Products made by the Company have been designed and developed by itself. Company markets its fittings, which are certified to conform to European and British Standards by International Certification Agencies, all over the world. The Products are well established and accepted. It has a wholly owned subsidiary in UK and owns approximately 27.5% share of the UK Market of Electrofusion fittings for Gas Distribution. Thus the Company has a proud record of supplying Top Class Quality Fittings to world markets for over 20 years.

Kimplas is a recognized R&D Unit by Department of Scientific & Industrial Research (DSIR) Govt. of India.

CII INDUSTRIAL INNOVATION AWARDS 2016

THE INNOVATION

The development/improvement is carried out to reduce cost of Product and make operations easier. Some recent developments are:

1) Purge Saddles for Gas Distribution Mains.
2) Electrofusion Meter Box Adaptors. (Patents applied in UK and Europe).
3) Bagging Saddles.
4) Improved Throttle Valves with QPC Clamps to be used in Headers for Micro Irrigation for Inline Fertigation.
5) Hydrocyclones moulded with Nylon 30% Glass Filled Polymer.

THE APPROACH

Company works closely with User Utilities to understand their operational problems and designs the Products in accordance with International Standards in consultation with the user. After successful field trials, the Product is introduced commercially for sale.

The Company also has an ongoing programme of Continuous Improvement to improve processes, reduce cost of production, labour, power and pollution.

To achieve success, the Company implements a Manufacturing Excellence Programme and encourages and trains Innovative Minded Engineers, Supervisors and Technicians.

THE BENEFITS

Company's Products are well accepted and used worldwide.

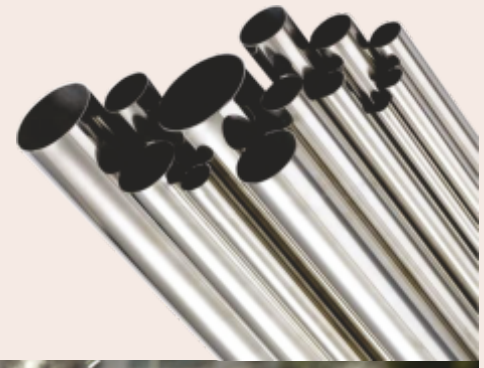
Its market share in India is:

- 80 – 85% for Water Plastic Fittings used in Drinking Water Distribution Systems
- 60 – 65% for Plastic Fittings used in City Gas Distribution Systems

It also enjoys higher percentage market share in Proprietary Equipment for Micro Irrigation. Company has reaped good commercial dividends and has become an International Player in the field of Electrofusion and Compression Fittings.

THE FUTURE

The Company proposes to follow the path of Compulsory Innovation to achieve strong organic growth.



MICROLIT

Microlit, a Lucknow based organization, was started by two brothers Ajay Jain(IIT Kanpur) and Atul Jain (M.Sc. Chemistry) in 1991 with an objective of producing innovative, import substitute products for the Indian market.

With an emphasis on R&D and innovation, Microlit has emerged as a reliable manufacturer of liquid handling products for research labs, hospitals and industry. In 1997, Microlit started its export activities and in 2004 it became a 100% Export Oriented Unit. Today, it employs over 100 people and exports to more than 70 countries worldwide.

Microlit produces Micropipettes, Bottle Top Dispensers and Electronic Pipette Fillers. These products have successfully competed with the world's most established brand names.

Microlit believes in answering the needs of the customers and has a vision of "Redefining Liquid handling Systems". This has led to the innovation of the world's first Bottle Top Dispenser with Dual Inlet Technology, patented in India, EU and USA.

CII INDUSTRIAL INNOVATION AWARDS 2016

THE INNOVATION

Microlit has the most advanced, state of the art dispenser in the world: ULTIMUS. With this Bottle Top Dispenser, Microlit's R&D has solved the biggest problem of the users: Re-filling the bottle and rinsing the instrument without dismounting from the bottle. The valve system of this product, which is the heart of the instrument, is patented in USA, EU and India. India Design Mark has also recognized the product for its good design.

Ultimus offers its users four modes of dispensing in one dispenser. It is the First Ever Dispenser which offers Dilution, Rinsing, Dual Liquid Handling and Re-circulation in a single unit.

This is a new technology and innovation for the world by Microlit. The current Bottle Top Dispensers available in the world have only single inlet from the bottle on which the instrument is mounted. This invention (Ultimus) has Dual Inlet. This is a great design feature which allows the dispenser to operate in four different modes:

1. Regular Dispensing mode.
2. Re-circulation mode: In this mode the liquid can be dispensed back into the bottle during purging.
3. Bottle Refilling mode: In this mode the liquid from second inlet can be dispensed into the main reagent bottle.
4. Dilution/rinsing mode: In this mode liquid from second inlet can be dispensed out of the delivery nozzle.

These features, especially the dilution /rinsing mode allows this dispenser to be used with hazardous chemicals and strong fuming acids which cannot be used with current dispensers.

For rinsing, one has to dismount the dispenser from reagent bottle, mount it on distilled water bottle, again dismount from this bottle and remount on reagent bottle. This is a very tedious process and in practical sense no one does it. ULTIMUS is a great solution to this problem.

THE APPROACH

Bottle Top Dispensers are used in almost all the laboratories worldwide for dispensing reagents and chemicals directly from the bottle. More often than not these are strong acids and hazardous liquids which require dilution and also the instrument needs to be rinsed after use.

Since dismounting the instrument and remounting after rinsing is a tedious and dangerous process, Microlit took up the project of developing a dispenser which can answer both the problems. This led to an innovation of a new valve system allowing Dual Inlet through which the instrument can both be rinsed and used for dilution without dismounting.

THE BENEFITS

Ultimus is highly beneficial to the users to be able to use the Bottle Top Dispenser in four different modes: Normal Dispensing, Dilution, Rinsing and Bottle Refilling. All these activities can be done without dismounting the instrument from the reagent bottle.

These features allow the user to dispense strong fuming acids, hazardous chemicals and rinse the instrument after use without dismounting from the reagent bottle. This not only increases the life of the instrument but also makes the working comfortable and safe. In dilution mode, one instrument does the work of two which adds to cost saving along with convenience.

THE FUTURE

With this state-of-the-art product, Microlit has scale up plans to reach out to the users through a larger sales team, structured marketing and strategic partnering.

Two new innovations: Motorized Dispenser and Burette are in the pipeline to be launched in 2017-18 adding to the sustainability of Microlit's scale up plans.

UNO MINDA
NK MINDA GROUP

MINDA INDUSTRIES LTD.

Making its mark in the International Grid of Automobile Components Manufacturing, UNO MINDA steers ahead as a leading Tier 1 supplier of Proprietary Automotive Solutions to Original Equipment Manufacturers (OEMs). Spanning three continents and sustaining enterprising business practices, the technology leader, NK MINDA Group has truly arrived. Incepted way back in 1958 with a meagre start-up capital and now notching up a group turnover beyond US$ 662 million, speaks volumes of the conglomerate that it is today.

UNO MINDA has 40 manufacturing plants in India, Indonesia, Vietnam & Spain; research and deuelopment, design engineering centres in India, Taiwan and Japan,

With the human edge of a highly motiuated workforce of 11000 team members the Group is headquartered in Manesar, Haryana, India. Minda has been listed in the top 10 assignee of patents in India at automotiue sector in "state of innouation report" by Thompson Reuter in year 2014-15

CII INDUSTRIAL INNOVATION AWARDS 2016

THE INNOVATION

Innovation 1

CAN controller is introduced in two Wheelers for the very first time in given innovation. There are 5 different modules with 17 functions which are connected to the inbuilt CAN controller in the Switch. The output of only 4 wires is connected directly to the ECU, which controls all the 17 functions. The switch is designed with low current, water resistant (IP67) switch modules with twice the life cycles of conventional switch. Switch is also equipped with Inbuilt Electronic CAN BUS Controller with Diagnostic & Electronic Protection, Power Saving with Low Current Application Switches Enhance Riding Experience with Excellent Ergonomics & lightweight on Handlebar(with less Number of Wires). CAN controller also helped in reducing packaging size by 40% & Weight reduction by 50%

Innovation 2

Innovation related to clamp where it acts as mounting for modules. Modules are mounted on clamp which is directly mounted over the handlebar & disintegrating Modules from Case upper & lower. In particular case the case upper & Lower are mounted separately over clamp, allows freedom to customize aesthetics of switch. Now change in aesthetics does not affect the modules & Ergonomic of switch.

Innovation 3

Three way mechanical modules with integrated Micro-Switch is a unique switching solution for Scroll (Up & Down) & lock type Mechanism. Pulse can be scrolled through Vertical Motion of switch while horizontal motion locks the pulse to given input. An IP67 Enabled switch has thrice the reliability of conventional Switching technology & low amp application which is in-line with government regulation of low emission & high reliability offered to end-user. Switch can be used for external environment application such as Cruise Control, Radio frequency Control, and Radio Volume & Mute for 2 wheeler & Off Road Vehicles.

THE APPROACH

Input Drivers such as Government Regulation, Reliability, Cost, switching Load, In-vehicle Communication & Human Aspiration (Touch, Appearance, Lighting, colour & Sound), defines input for Technology Roadmap. Technology/products give visibility of next 5 years & are dynamic in Nature. Technology / products defined in Roadmap are materialised through R&D-SOP's that have been matured & graduated over a period of last 15 years.

CFT of expert between concept design, product design, tool design & Manufacturing are put together to review & provide the input. Collaborative efforts of CFT empower them to produce innovative and alternative solutions.

THE BENEFITS

- Revenue of ₹10.38 Cr generated.
- 9 patent & 4 Design registered Under IP.
- Employment Generation of 99 man force (Direct\Indirect).
- 30% increase in Export Generation.
- 13 standard & 30 Know how were generated & managed.
- 2 New Technologies Adopted.
- 2x Product Life Cycle Improvement.
- Reduced 40% packaging Size & 50% in weight.
- Excellent Ergonomics & Aesthetics.

THE FUTURE

Today the automotive-industry is changing at a very fast-pace with ever-upgrading regulation on safety, emission-control & consumer comfort. To keep pace with this rate of change Minda as a company is constantly upgrading its own-products & innovating new-ones. Their R&D-vision spans 5years ahead, looking at potential-global-changes as well as customer preferences.

MONACHEM ADDITIVES PVT. LTD.

Monachem is a global sales, marketing, sourcing, contract manufacturing & distribution company of speciality chemicals since 1974 with its global headquarters in India. They add value to their global customers and suppliers through their technical, sourcing and supply chain expertise backed by global knowledge of speciality chemicals.

Monachem stands for its purpose, which is a one simple statement which all Monachem employees apply on daily basis –"making life easier and better by doing things differently" for all the 5 stakeholders Employees, Customers, Suppliers, Investors & Community.

Monachem created 5 year plan called vision 2020 with following aspirations.

- Creating possibility of aggressive growth for Monachem & its employees with a growth of 50% year on year
- Create a positive impact towards development of India by taking Indian manufactured chemicals to international markets
- Create an unique identity (brand image) of being known as "Innovative & Inspiring" in speciality chemicals industry

THE INNOVATION

Innovation is in their Internal working culture, which is been documented as "Monachem Cultural Policy"(MCP), which states a list of various habits & behaviors required by each employee to follow for creating an environment of sharing & capturing new ideas.

Daily Top 3 Habit

As per Monachem Cultural Policy : each employee of Monachem has to share their daily, weekly and monthly top 3 to their immediate supervisor either by message or email.

The END goal of this daily sharing is to

1) Reduce GAPS between team and closely working with them to understanding priorities.
2) Key Planning of next day done before each leaves the office.
3) Improve productivity of each employee (output/input) and the company as a whole by creating a thinking culture along with execution culture.

Breakthrough Bell

To foster happiness, fun & motivation within the employees a unique way of celebrating success was introduced - a **Breakthrough Bell**.

Any employee who achieves any success during the day, would go to a bell placed in the office, would ting it & share the success he achieved. This sharing is followed by a round of applause.

A success could be a compliment received from a customer, a new order received, a new customer developed, new business developed, new supplier added, a new application added, a new initiative taken. Basically anything which an employee feels he has achieved something unique today.

Internal Training Sessions

Every alternate Saturdays, Monachem conducts internal training sessions to build on their professional/personal skills. Training sessions are focused on providing overall growth to Monamites. Mock sessions are also organized to give them real time experience/learnings. Monamites have been trained on 7 habits of highly effective people, 6 Thinking hats, SPIN selling etc…

THE APPROACH

With the aspiration of Vision 2020 in mind, they started the process of how to achieve and as a first step they looked into their rear view mirror on learning from the past.

After digging more and introspecting, they realized that the one thing which was missing in the last 5 year journey was there was no new, fresh & out of the box thinking towards growth but it was just numbers and business plan. Their business plan did not talk about how they are going to create few unique & different services for their customers and principals.

This led them to take a study of top 100 fastest growing companies across globe. The one most common ingredient in each of them was they had incorporated innovation as a part of their culture.

This is where they decided to take innovation seriously and make it a part of their daily working culture and created a written document called "Monachem Cultural Policy".

THE BENEFITS

End goal of Monachem Cultural Policy is to create an innovative culture within the company:

1) Which creates the possibility of scaling up the profit by 50% year on year, with improved productivity.
2) Which creates a sustainable employee happiness index of min 8/10 measured on overall growth and positive Environment of work.
3) Which creates a sustainable customer and principal/supplier happiness index of 8/10 based on Credibility, Competitiveness, Convenience in service.
4) helps the not so lucky children in area of education by connecting and supporting min 50 children per year for they becoming successful in professional & personal life.

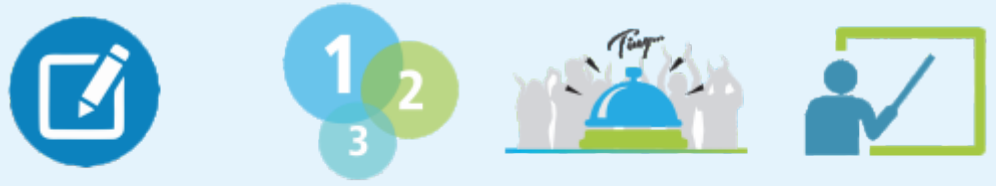
THE FUTURE

Going forward they have started:

1. Innovation room in their new "Monachem House".
2. 8 Innovation clusters to involve everybody in this exciting innovative journey.
3. "The most innovative and inspiring story of the month Award" to recognize and motivate innovative working culture in the company.

Their dream is to be known as the most innovative and inspiring specialty chemical distributor globally & they continue to enjoy this new exciting journey.

Monachem Cultural Policy (Creating the Environment)



Monachem Cultural Policy (MCP) :
A document was created with the **"behavior and habits"** to be executed in different scenario's & condition.

Daily sharing of **Top 3 Achievements & Top 3 Priorities** of next day.

Breakthrough Bell: Sharing of success stories.

Internal Training for all employees - **4 hours per month.**

Sales, Marketing, Sourcing, Distribution & Contract Manufacturing
of Speciality Chemicals

45+ EMPLOYEES
625+ YEARS
Combined Experience

25+ COUNTRIES SOURCING & SALES
1000+ CUSTOMERS WORLDWIDE

SME 1
FINANCIAL CRISIL RATING

Total Sales 23 Million $

10+ INDUSTRY SEGMENTS
1000+ SPECIALITY CHEMICALS
In paint & coating, plastics, flavor & fragrance, pharma, composites & others.

4 INDIAN OFFICES & WAREHOUSES • Vadodara • Delhi • Mumbai • Chennai

NATIONAL ENGINEERING INDUSTRIES LTD.

Manufacturing more than 150 million bearings annually in more than 1000 sizes, National Engineering Industries Limited (NEI) is the flagship company of the CK Birla Group that has a turnover of US$ 1.6 Billion.

NEI was founded by the renowned industrialist, Shri B. M. Birla, in 1946 under the name of 'National Bearing Company Limited' and commenced manufacturing operations in 1950. In 1958, the name of the company was changed to National Engineering Industries Limited (NEI) owing to its rapid expansion in engineering expertise, but it chose to retain its original trademark NBC.

NEI has four state of the art manufacturing plants in Jaipur, Newai (Rajasthan), and Manesar (Haryana) and Sauli (Gujarat).

The company manufactures a wide variety and range of bearings for Automotive, Industrial and Railways applications. NEI's assortment of bearings include ball bearing, taper roller bearing, double row angular contact (DRAC) bearing, cylindrical roller bearing, spherical roller bearings, Special Bearings for the Railways, Steel Mills, Heavy Engineering Industries and Power Generation Plants.

Profiled Freewheeling Clutch for self-start two wheelers

CII INDUSTRIAL INNOVATION AWARDS 2016

THE INNOVATION

Business environment is dynamic and uncertain with lots of competition. In order to remain relevant and continue to grow, NEI believes that innovation is the way forward to meet customer requirements. Part of NEI's mission statement "To deliver superior value to our customers, suppliers, shareholders, employees and society at large", and it is possible only with Innovation. NEI strives to develop innovative products which provide enhanced reliability, environment friendliness and power dense products. In addition to product innovations, the organization emphasizes on process and business process innovation to ensure customer satisfaction.

Cartridge cylindrical roller bearing unit is used in Locomotive wheel application in Indian Railway. This bearing is providing resolution to customer problem as well as providing benefits like easy mounting & dismounting, prolonged maintenance period, lesser nos. of parts etc. Customer is benefitted with saving on raw materials, lesser down time and resources. On the other side passengers travelling through trains also are getting benefitted with timely availability of locomotives.

Profiled freewheeling clutch is designed for 2-Wheeler self-start vehicles. Key drivers for this product are enhancing fuel efficiency and reducing nos. of rotating parts from the existing available solution. As an initiative towards green technology NEI is benefitted with enhanced brand image and appreciation by customer.

Clutch Release Bearings are designed for engagement and disengagement of clutch in commercial vehicles and tractors. If clutch release bearing fails vehicle become inoperable. Today one of the key concern for vehicles is to increase up-time by improving service life of clutch release bearing. Bearings required to meet these requirements have to be more compact and rigid with improved reliability. NEI has provided bearing design to take higher loads and improved sealing with lesser nos. of parts. NEI is benefitted with enhanced brand image and appreciation by customer.

THE APPROACH

The core of NBC's engineering success is its Research and Development Centre, the only one of its kind in the country. Equipped with the latest facilities, and with the sharpest engineering minds in the industry, this centre is responsible for NBC's triumph in making bearings of unprecedented size and complexity.

At NBC's life test laboratory, a skilled team employs state-of-the-art technology to scrutinize bearing-behaviour and life spans under the most exacting conditions; in order to improve on current products and develop this helps us stay prepared to develop the next generation of bearings for a new, more demanding industry. NBC

Cartridge Cylindrical Roller Bearing Unit for Locomotive wheel bearing application

has the distinction of being one of the few companies in the world to manufacture bearings up to 2000 mm outer diameter with indigenous technology – clearly an in-house R&D achievement.

THE BENEFITS

25% of their revenue comes from exports so they are planning to increase their footprint through M&A or green field projects. They have plans to invest more than 100 cr in the next 4 years. They are looking at doubling their sales turnover in the next 4 years.

NBC Bearings has been awarded with the ACMA Award for Excellence in Technology 2015 in recognition of the company's excellent technological capabilities that have been a major catalyst to foster its robust growth. The company has also been conferred with the 2015 Deming Grand Prize - the world's oldest and most widely recognized quality award.

THE FUTURE

NEI is forward looking organization. NEI's vision to become a preferred anti friction bearings supplier in domestic market and focus on select export markets so therefore NEI is continuously working on increasing its current product portfolio by developing new products. They strive to develop an innovative product which provides enhanced reliability, environment friendliness and power dense products. In addition to product innovations, organization emphasize on process and business process innovation to ensure customer satisfaction

NEOGI TECHNOLOGIES & RESEARCH PVT. LTD.

The company started its journey in the field of Servicing and Repairing of Fuel Dispensing pumps of Multi National Oil Companies. The knowledge base and competence was transformed to manufacturing sector thus producing accessories for Petrol Pump along with the Flow Meters for Fuel Dispensing System certified by the Department of Legal Metrology, Govt. of India. The company is now recognized as the Solution Provider in Fuel Management System and is IMS certified. The list of customers includes Tata Steel, IOCL, BPCL, HPCL, BALCO, JK Tyres, BEBCO, Café Coffee Day etc. The company has nurtured the culture of innovation at all levels of the organization and is practicing the process of sustainable development for its development. It has 15 awards and 11 patents in its fold, the latest being 1st in Lean Manufacturing Technique conferred by the Ministry of MSME, Govt. of India. The company has CSR activities also.

CII INDUSTRIAL INNOVATION AWARDS 2016

THE INNOVATION

To sustain in the competitive market, the innovation of new products and the continual development of the existing ones is must. Accordingly, the company has percolated the idea of innovation down the line and the suggestions for improvement and new development are encouraged from all levels of the organization. The organization is always trying to provide solutions to the customers in Fuel Management Sector. After the introduction of Mechanical Flow Meter, the company has innovated Electronic Flow Meter keeping in mind the ever increasing demand of digitally controlled mechanisms for the convenience of the customers. This Electronic Flow Meter is also of two types i) Pre set and ii) Non Pre set complying with the need of the customers. Moreover, the service of Mobile Dispensing Unit which is the unique idea of NTR Pvt. Ltd. has further been developed with the innovation of 12 V Brush Less DC Motor and PTO Operated Pump. Earlier, the Battery Operated Motors could run 30 minutes continuously with a break for a while otherwise the motor would be damaged due to excessive generation of heat. NTR Pvt. Ltd. has innovated 12 V BLDC Motor which can run continuously. The power input of this motor is taken from 12 V Battery of Mobile Dispensing Tanker itself with a Flow Rate of 40 L/min. To increase the flow rate of dispensing fuel i.e upto 80 L/min the PTO (Power Take Off) operated Pump unit has been innovated which is run by the engine of the vehicle. All these three innovations have provided easy solutions for those customers who are working in remote areas with minimum scope of measuring fuels with correct accuracy. These innovations have opened up the scope of dispensing kerosene in an accurate measurement thus benefiting the dealers as well as the consumers.

THE APPROACH

NTR Pvt. Ltd. accords top most priority to customer service and satisfaction. A number of feedback reports are originated from various fields like Exhibitions, Trade Fair, sales personnel etc. The need and expectations of the customers are procured at various levels of the organization and are filtered through the In Built System of the organization to the top most authority. Their Marketing Dept. carries out extensive study for new customized import substituted products. A regular interactive session under the chairmanship of their Managing Director is organized to study the customer feedback report and accordingly the future plan is chalked out.

THE BENEFITS

The innovations of the company over the years have contributed to the sustainable development of the organization. The different good practices adopted by the company in the field of Safety, Health and Environment have also helped them to approach towards their mission of becoming a Green Organization. The innovated products are also contributing towards their social responsibilities like employment generation, reduction of carbon emission etc. The tune set up by the management in the running of the organization is directed towards Green & Clean Technology and they are confident that their future innovations will be targeted in this line.

THE FUTURE

The company aims at doing best practices in innovation and for setting up a Research Laboratory suitable to measurement related activities. The company has also laid down its marketing plan for next three years. The Business Excellence Plan is also incorporated in the future plan of the organization.

NOKIA

Nokia is an innovation leader in the technologies that connect people and things, combining network infrastructure, software and services, with advanced technologies for smart devices and sensors to tap the power of connectivity. In the new connected world, where everyone and everything becomes connected through data from billions of sensors everywhere, there is a renewed opportunity to enhance the way people live and work each day – to make the world more productive, efficient, safe, healthy, smart, and sustainable.

Nokia Chennai is a high-volume Manufacturing facility and Co-located Hub (27 countries served from Chennai Hub), providing flexibility and quick turnaround. Extensive product portfolio in both factory and Hub (2G, 3G, LTE & Core Network). Best in Class manufacturing processes (1 PPM SMT). 1st vendor to launch 4G and 3G equipment manufacturing in India. Large scale manufacturing in Chennai for 2G, 3G, Long Term Evolution and Core networks. Automated online data for Real Time Monitoring through Industry 4.0

CII INDUSTRIAL INNOVATION AWARDS 2016

THE INNOVATION

Creating a conscious factory for agile enough to adopt fit for future business models, people and Eco system to excel with Customers Centric Operations.

Their Manufacturing Operations is the trusted innovative partner, and delivering Lean and Industry 4.0 differentiated solutions that provide competitive cost and time to market advantages to the Business Groups and their customers for New Product Introduction, Volume, and End of Life Production. Their ambitious vision is to position Nokia Operations as #1 in the industry - One of their key strategic pillar is Innovation as Centre of Excellence with Industry 4.0 to develop and implement ultra-lean operating model & Remote management, Real time tracking, Scalable Automation.

Their Vision, Mission & Strategy focus is on Innovation, they have their own Innovation culture fits the organization perfectly. The culture is one of inquisitive, open exchange of non-traditional ideas. Their culture engages employees with diverse experience with diverse thinking styles.

The IoT and related analytics play an important role in their plans for growth.

- Their platform addresses several IoT innovation requirements
- Collaboration
- Bringing diverse skills and ideas together
- Developing better ways to deliver solutions to market

THE APPROACH

Their organization conducts various programs to promote Innovation and also have made achievements. This includes:

1. Enthusiastically envisions the perfect world (Dream big!)-Annual Plan workshops conducted to fix the goals of this strategic pillar Innovation & Technology development
2. Diligently identifies constraints / fundamental assumptions / difficulties with the current situation. (Complain!)-Various Analytics to identify the cause
3. Freely brainstorms possibilities where current constraints / assumptions do not exist, or become irrelevant. (Break away!)-Workshops conducted to innovate
4. Carefully proposes innovation opportunities as sets of open-ended, thought-provoking questions. (Select targets!)-CI Strategic projects sponsored by leadership team

THE BENEFITS

At Chennai Manufacturing Operations high volume factory, they have various Industrial IoT Solutions developed for remote monitoring. Factory is IoT enabled and connected for real-time information flow and data is available in cloud. IoT enables advanced Analytics framework which helps in predicting and preventing issues thereby improving the overall Productivity & Cost Efficiency.

- IoT enabled Chennai Operations enabled them to provide significant improvements on Time to Market for Mobile broadband products
- Setting benchmark for connected world for manufacturing industries
- Cost Efficiency improvement through Productivity/OEE enhancement
- Real-time information for predict and prevent
- Push-button ramp-up use case through virtual training and remote access of equipment

THE FUTURE

“Shape the future connected world” - The Nokia Innovation Platform builds teams that create new solutions for the Internet of Things (IoT). It is a live development and trial environment for start-ups, industry and other contributors to the IoT. This connectivity, mobility, and application development platform will become available globally, in phases. Their aim is to accelerate the adoption of IoT solutions by supporting collaboration that promotes innovation and market visibility.

SIDDHARTH STARCH PVT. LTD.

Siddharth Starch is the company in India which is producing native Potato Starch. Siddharth Starch has developed state of the art expertise of manufacturing native Potato Starch. Presently Siddharth Starch is manufacturing Potato Starch in association with Potato processing industries in India. Siddharth Starch has done R&D for 4 years to develop its expertise in consultation and consensus with experts worldwide.

They have installed a spray drying unit having water evaporating capacity of 240 lit/hour at their facility. The unit adheres to WHO norms and follows CGMP practices. This installment has made the native Potato Starch most suitable for food and pharmaceutical applications.

Presently Siddharth Starch is Operating at 12 Locations spread in 7 States of the Country, Viz. Maharashtra 1) Pune PepsiCo, 2) Kolhapur (PepsiCo Co Packer), Gujarat 3) Mehsana McCain's, 4) Nadiad Real Chip's, 5) Rajkot Atop Food's, 6) Ahmadabad Ramdev Foods, Uttarakhand 7) Haridwar ITC, 8) Haridwar MD Foods (PepsiCo Co Packer), Delhi 9) Pragati Snacks, Madhya Pradesh 10) Indore Pratap Snacks, West Bengal 11) Kolkatta Srikrishna Foods (PepsiCo Co Packer), Tamil Nadu 12) Coimbatore Uocon Foods (ITC Co Packer)

CII INDUSTRIAL INNOVATION AWARDS 2016

THE INNOVATION

Their Unique Hydro Cyclone system coupled with the Specially Designed feed system consuming just 12 KW of Power ensured reduction of TSS from 45,000 ppm to less then 200 ppm, which in turn reduced the COD load to less then 3500 mg/liter. Thereby recycling 12 cu meter/Hour of Process Water.

Their Appropriate amplitude & Aperture of Sieve enabled elimination of the Foreign matter from the Process Water. Hydro Cyclones Separated 99% of Starch Particles which are Rewashed & further dewatered by Vacuum system. The Fluid Bed Drier with Unique Design of Agitation ensured the Drying of Starch.The Special Neutche Filter's ensured the Dewatering of the Starch Slurry. Unique Agitation system incorporated in the Drier converted the Starch cake in Dry Powder. Thus improving Shelf life above24 months.

THE APPROACH

Empowerment of Innovation in form of Process & Practice which culminated in reduction of 99% TSS from the process Water. Their Innovative Process in form of Peel Separator, Unique Hydro Cyclones design, coupled with the specially designed Feed system enabled Recycling of the Process Water of Potato Process in Companies.

THE BENEFITS

1) Conservation of 2.5 MLD of Fresh Water in 7 different States of the Country.
2) Saving of 1.2 Million KWH of Electricity, lowering 1000 MT of CO2 & 500 MT of Methane Emission Annually.
3) Creation of Wealth from Waste i.e Native Potato Starch meeting Global Quality parameters valuing INR 8 Crore+.
4) Import Substitution by catering to Local needs, thereby saving FOREX USD 1.3 Million + annually.
5) Developed Modified Potato Starch which became one more Import Substitute.
6) Created Employment for 65+ Village Youths.

THE FUTURE

Geographical expansion for:

- Peel compaction at other similar Potato processing Units. Vertical expansion in the form of Value addition since Potato Peels have very Dietary Fibre constituent & hence can be used in Food Products on appropriate treatment
- Water Recycling & Starch Extraction. Vertical expansion in form of Value addition by Modifying Starch as per Functional Requirements

STAR HEALTH AND ALLIED INSURANCE COMPANY LTD.

Star Health and Allied Insurance Co Ltd commenced its operations in 2006 with the business interests in Health Insurance, Overseas Mediclaim Policy and Personal Accident. With no other insurance category to focus and divide their attention, they use their resources to focus on service excellence, design products and use core competency of innovation to deliver the best to their customers.

Star Health constantly tries to extend their services to various sectors of the society. The company offers a wide range of health insurance products at affordable prices to make health insurance every human being's right and as a company it is single-mindedly dedicated to health insurance.

CII INDUSTRIAL INNOVATION AWARDS 2016

THE INNOVATION

1. **Sankalp group policy**

   The policy for children with Autism Spectrum Disorder underlines their commitment to help the needs of children with ASD. It is an initiative to focus on the needs of special children who are neglected in the health insurance industry. It has so far covered 241 children from a Chennai-based NGO called Sankalp. The product is ground-breaking because children with autism and other mental diseases are generally declined health insurance cover. Besides covering conditions related to autism, the policy act as a routine Mediclaim policy.

   The policy provides comprehensive coverage for in-patient management of medical and surgical complications associated with autism such as seizures, soft tissue and bony injuries, medical and surgical procedures for spasm of muscles and all infectious diseases. Apart from these, the policy also covers general medical and surgical therapies that require admission to a hospital.

2. **Senior Citizen's Red Carpet policy**

   The policy was launched by them with the aim of enhancing health insurance solutions for the senior citizens between the ages of 60 to 75 years.

   Senior citizens often face problems in getting medical benefits because of lack of financial support and due to the increase in the cost of healthcare expenses. This policy of Star Health is offering hospitalized medical expenses, as other regular policies do but they included a value addition by extending limited OP benefits to the covered seniors without any additional load of premium on them.

THE APPROACH

Star Health has a core team of officers in their organization who evaluate the processes and products on sale on a periodical basis. The feedback and suggestion that the Company keeps getting through mails and telephonic feedback from customers, both internal and external are examined by the team and appropriate changes are taken up for study and evaluation. Feasible changes in processes and product combinations are critically examined and finally rolled after extensive discussions and interactions with user departments.

They strive to make their healthcare cost management as hassle-free as possible by not involving TPAs, moreover their product development department takes up its own research and work on the design and content of the products which they introduce or revise from time to time.

THE BENEFITS

With their several products that are unique in nature, such as Senior Citizen Red Carpet policy which does not require medical screening, Sankalp- for the autistic child, Star Net Plus for the HIV patient and introducing the concept of Recharge, they are poised to set standards in the health insurance sector.

Overall their sales considerably improved because of the unique products introduced by them.

THE FUTURE

Expertise in the field and understanding of the market, creativity in product designing and providing for the niche populace has helped Star Health to beat the competition and to create a unique brand image, endearing more insuring population. The Company stands out with its bold innovations in their products and has ensured hope to the vulnerable segment with right quantum of support on health costs.

TATA CHEMICALS LIMITED

TATA CHEMICALS LTD.

A part of the over $100 billion Tata Group, Tata Chemicals Ltd. is a global company with interests in businesses that focus on essentials for LIFE: Living, Industry and Farm Essentials. The story of the company is about harnessing the fruits of science for goals that go beyond business.

It began in Mithapur, Gujarat, in Western India in 1939 with a small plant that would raise a wealth of marine chemicals from the ocean. From these humble beginnings, Tata Chemicals has evolved into a market-leading international business, with operations across four continents, and businesses that touch the lives of millions across the globe. Their Innovation Centre, today, is home to world-class R&D capabilities in Food & Nutrition, Biotechnology, Fuel Cell and Advanced Materials.

Sustainability as a practice is at the core of all of Tata Chemicals activities, including their corporate social responsibility initiatives, and is intricately woven into all their business functions. Their vision is to be a leader in corporate sustainability, focusing on all three elements of people, planet and profits.

CII INDUSTRIAL INNOVATION AWARDS 2016

THE INNOVATION

Demand for high performance tyre as well as the current environmental legislation brings technological advances in tyre manufacturing. Tyre requires excellent reinforcement filler e.g. silica to part replace carbon black as filler. However, the polar nature of silica is incompatible with non-polar rubber thus lead to poor dispersibility in tyre matrix. To address this, Tata Chemicals Innovation Centre, has developed high dispersible grade silica (HDS) through a novel, patent protected process. Each process aspect such as the method of synthesis, customization of structure, morphology, and particle size and particle porosity gives the TCL process multiple technological advantages over other suppliers of HDS. Their HDS is functionalized in a manner that it disperses well in the rubber matrix during tyre compounding. Tyres made with TCL's HDS show excellent dispersibility, improved tyre mileage (increase tyre life), better fuel efficiency (reduced rolling resistance) and improved wet skid (safety) performances.

THE APPROACH

A combination of novel methods of synthesis, customization of particle surface structure, morphology, particle size and porosity gives the TCL process flexibility for customization and a series of unique advantages. The nano-silica is so functionalized that it disperses well in the rubber matrix during tyre compounding and improves tyre performance.

THE BENEFITS

A TCL HD Silica embedded tyre shows excellent dispersibility during tyre rubber compounding. This leads to significant improvements in tyre performance parameters such as tyre mileage (increased tyre life), vehicle fuel efficiency (due to reduced rolling resistance) and wet grip properties of the tyre respectively.

THE FUTURE

The demand for HD Silica will increase substantially in the future, driven by tighter vehicular emission norms, demand for higher fuel efficiency and improved grip / safety attributes associated with tyres. This will trigger the development and growth of new types of HD Silica, each tailored to serve unique needs of the customers.

THE HI-TECH ROBOTIC SYSTEM LTD.

The Hi-Tech Robotic Systemz is an Indian tech company, with its deep roots in Artificial Intelligence, machine learning, computer vision, multi sensor fusion and autonomous navigation tech. The core to the company is its leadership team who are alumni of Carnegie Mellon University, Harvard Business School and IITs along with strong Technology Advisory members from the Carnegie Mellon University. The company designs and develops underlying technology for autonomous vehicles and driver assistive systems with its implementation in Commercial vehicles (trucks, busses, cars, etc.) and industrial vehicles (forklifts, pallet trucks, etc.). They also host a diverse and Blue-chip Clientele List which includes companies like Volvo-Eicher, Ford, Tata Motors, among others.

CII INDUSTRIAL INNOVATION AWARDS 2016

THE INNOVATION

Spanning the entire value chain starting from requirement analysis, concept development to system integration and beyond, the company holds a patent portfolio of more than 50 patents, state-of-the-art technologies, and is engaged in developing solutions to bring in effective and efficient autonomous robotic systems for mass utility. The company has consistently being the first movers in the space and have successful deployments for more than 350 autonomous & assistive systems to date, including L4 autonomous vehicles.

As a testament to its innovation prowess, the company has won several accolades including National Award for being the most innovative MSME, Nasscom Award for Most Promising Emerging companies 2016, Top 25 Most Innovative Companies 2014, 2016 by Confederation of Indian Industries (CII), most innovative products by Frost & Sullivan.

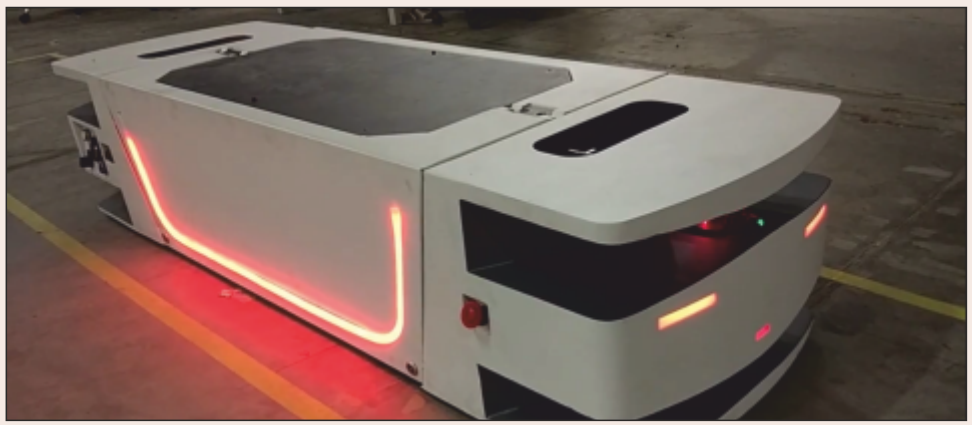
THE APPROACH

The company has 120+ strong R&D which is solely focussed on developing robust self-driving technology. This technology has already gone through rigorous testing while being deployed in defence, and has been going through multiple enhancement cycles in last decade or so. The company uses same technology to solve mobility issues in various domains-automotive & industrial and builds products which can solve today's problems.

The company also takes advantage of being in India, which gives it access to complex edge-case scenarios, which are common in India but are rare in developed nations. While solving those problems, the company has been able to develop products which have global applicability.

THE BENEFITS

Apart from enhancing safety, the company's products are built around delivering competitive ROI to the customers. The company's industrial robots & applique kits enhance throughput & raise safety standards without any change to existing infrastructure. The company's autonomous & driver assistive systems enhance efficiency of driver & reduce number of accidents. In this way, these products do not only improve well-being of driver but also enhance welfare of society as whole.



THE FUTURE

The company is focused towards global expansion and is in very strong position to access a multi-billion dollar opportunity for Autonomous Vehicles & Advance Driver Assistive Systems and Mobile Robots for Warehousing and Manufacturing facilities.

UNIVERSAL ORBITAL SYSTEMS PVT. LTD.

UNIVERSAL ORBITAL SYSTEMS PUT. LTD.

Universal Orbital Systems Put. Ltd (UOSPL) started in 2006, manufactures Orbital welding machines and complete solution for Orbital welding.

Orbital welding is widely used in Pharma process piping, Food dairy Industry, Aerospace industry, Nuclear field, Semi-conductor field.

UOSPL is the only one Indian Manufacturer of Orbital Welding Machine at the moment.

UOSPL exports the orbital welding machines all over the world. Orbital welding machine manufactured by UOSPL is the most innovative machine with auto programming and auto fault detection system.

CII INDUSTRIAL INNOVATION AWARDS 2016

THE INNOVATION

It was observed that there was a big gap in market related to high end welding systems. Few imported machines were available but cost of the machine was too high. Manufacturing of Orbital welding machine was one of the areas where no Indian firms invested in. UOSPL accepted this as a challenge and developed the Orbital welding machine.

Program storage facility and auto programs for different tube diameters and thickness and material with printout of each weld data.

THE APPROACH

With continuous market research and customer feedback UOSPL identified one field where Tube welding had some bottlenecks and offered a solution of totally ingenious machine with affordable price where small fabricators can avail the benefits of orbital welding thus improving quality of welding.

They do not sell machine without training welders. For this they have designed a 3 days course which includes basics of Orbital welding, Programming, Parameter development with welding and fault finding.

THE BENEFITS

With the development of Indian Orbital machine, even small scale manufactures could afford the technology and could deliver better weld quality.

Development of orbital welding machine can be studied as a case about how a small scale Indian manufacturer can break through the ice and develop products in India which no one has ever manufactured.

Young entrepreneurs can identify the similar areas like Orbital welding and can manufacture the substitute machinery. By this way a small scale enterprise can also contribute to The Make in India mission to make our country self-sufficient.

THE FUTURE

Orbital welding itself is very big field in welding and there are lots of variants of orbital welding such as open arc orbital welding for heavy duty pipes, U bends welding, tube to tube-sheet welders. They are developing these machines and are committed to launch them soon.

They have indentified some more fields like orbital welding where there is no Indian manufacturer present and only option is to import the machines.

Their R&D department is working on such machines and is trying to develop such machines in future.

VEDANTA LTD. – SESA GOA IRON ORE

Vedanta Ltd. is a diversified metals and mining major with operations in the core business sectors of Zinc, Lead, Silver, Copper, Aluminum, Iron Ore, Oil and Gas across India, Australia, UAE, Liberia, South Africa, Namibia and Ireland. Value Added Business (VAB) is a part of the "Sesa Goa Iron Ore" business division of Vedanta Limited. VAB comprises of Pig Iron Division (PID), Metallurgical Coke Division (MCD) and Power Plant (PP) Operations. PID started operating in 1992. It was the first to introduce low phosphorous foundry-grade pig iron in India. Their PID is the largest producer of low phosphorous pig iron in India with an installed capacity of 0.8 mtpa now. MCD is primarily a backward integration initiative to support the pig iron operations with a capacity of 0.56mtpa of Coke. Two Power Plants of 30MW each utilize the waste gases/heat from the PID & MCD to generate electricity for Captive consumption as well as supply to the grid.

CII INDUSTRIAL INNOVATION AWARDS 2016

THE INNOVATION

Innovation 1

They felt that producing high purity pig iron through blast furnace is viable, economical, easy and fast. After very long research and experiment of ladle treatment process, they saw there is a way to produce this grade through ladle treatment. So they chose the ladle treatment procedure to produce this special grade. Sesa Special Grade is an iron-carbon alloy containing very low concentrations of manganese, phosphorus, sulphur and other undesirable elements and serving to a very niche market at high premium price. As such the same was imported by customers and now they are able to supply and are proud of promoting our PM's vision of "Make in India". This process is applied for patenting in India, Ukraine and Russia.

Innovation 2

Sinter plays a vital role as it helps in better productivity and also reduces coke rate in Blast furnace. In order to maintain all important process parameters and quality (like Ti, FeO etc.) sinter machine is operated at 1 m/min speed and compromises with quantity which leadings to scarcity. In order to optimize and minimize sinter cost of production, they are using around 80% of local Goan ore in sinter plant which is having high LOI (around 6 to 8%) on an average and also granulometry is a big concern leading to lower production of sinter quantity than demand. Increasing sinter production by increasing sinter machine bed height by 100mm (i.e. from 650mm to 750mm) was proposed and executed to deliver increased productivity levels.

Innovation 3

MetCoke Division Battery II - Automated charging plate insertion mechanism with the objective of reduction in cycle time by 9 minutes and 4 hours of break time for planned maintenance in every alternate days to improve availability. Their team had designed the equipment in-house and got manufactured and commissioned through indigenization in line with the Make in India concept.

THE APPROACH

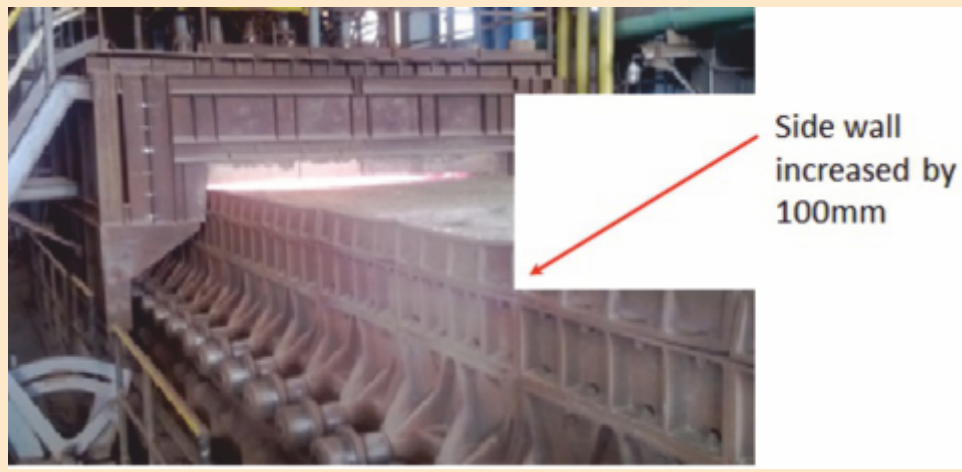
Innovation is one of the core values in Vedanta. Their organization reads, Innovation is a collaborative process where people from various disciplines within the organizations come together to generate innovations and to take these from vision to reality. It is part of their culture. Their senior management holds workshops to discuss Vision and Values of the Company from time to time. This information is percolated across the levels of entire organization. To create a culture of innovation, they invite ideas from employees through Idea Mela on innovation in areas of process, costs, efficiencies; new products etc. and the selected idea presenters are rewarded. Besides this, employees are encouraged to visit world class companies with a view to learn from them and drive innovation in their organization.

THE BENEFITS

1. They have produced these special grade nearly about 1000 tons and sold in nearby market. This new grade was sold at a premium from their normal SG grade pig iron. With the initial success, their team had undertaken a project for producing 2000 T / month with suggested modifications in the ladle treatment process with expected additional benefit of ₹2 Cr/ month.
2. Sinter production increased from 2200 T/ day to 2600 T/day which has helped in feeding all 3 blast furnaces with the cost savings of ₹1.57 Cr in FY15-16 and ₹0.72 Cr in FY 16-17 (till Jun'16).
3. This innovation resulted in ensuring targeted coke production per day. Also it had given opportunity of 4 hours window in every alternate day for completing all planned maintenance jobs. Their plant operation team also got additional time for improving plant upkeep.

THE FUTURE

On successful implementation of these innovations, the relationship between their Metallurgist, marketing, maintenance & design team had further improved to accomplish any challenge with great team spirit. They are set to scale up new heights and be the benchmark in their industry.



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Confederation of Indian Industry

The Confederation of Indian Industry (CII) works to create and sustain an environment conducive to the development of India, partnering industry, Government, and civil society, through advisory and consultative processes.

CII is a non-government, not-for-profit, industry-led and industry-managed organization, playing a proactive role in India's development process. Founded in 1895, India's premier business association has over 8,500 members, from the private as well as public sectors, including SMEs and MNCs, and an indirect membership of over 200,000 enterprises from around 250 national and regional sectoral industry bodies.

CII charts change by working closely with Government on policy issues, interfacing with thought leaders, and enhancing efficiency, competitiveness and business opportunities for industry through a range of specialized services and strategic global linkages. It also provides a platform for consensus-building and networking on key issues.

Extending its agenda beyond business, CII assists industry to identify and execute corporate citizenship programmes. Partnerships with civil society organizations carry forward corporate initiatives for integrated and inclusive development across diverse domains including affirmative action, healthcare, education, livelihood, diversity management, skill development, empowerment of women, and water, to name a few.

As a developmental institution working towards India's overall growth with a special focus on India@75 in 2022, the CII theme for 2017-18, **India@75: Inclusive. Ahead. Responsible** emphasizes Industry's role in partnering Government to accelerate India's growth and development. The focus will be on key enablers such as job creation; skill development and training; affirmative action; women parity; new models of development; sustainability; corporate social responsibility, governance and transparency.

With 67 offices, including 9 Centres of Excellence, in India, and 11 overseas offices in Australia, Bahrain, China, Egypt, France, Germany, Iran, Singapore, South Africa, UK, and USA, as well as institutional partnerships with 344 counterpart organizations in 129 countries, CII serves as a reference point for Indian industry and the international business community.

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