

**THE** *ULTIMATE GUIDE TO PROFITABLE MANUFACTURING*  
**MACHINIST**



# FROM IDEA TO EXECUTION AND BEYOND

IMPROVING EFFICIENCY OF A PRODUCT'S ENTIRE VALUE CHAIN

14

## Automotive Engineering Show

The Machinist reveals what to expect at this year's edition

40

## Plant Head of the Month

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"Jyoti CNC Automation Limited is proposing, subject to receipt of requisite approvals, market conditions and other considerations, to make an initial public offer of its equity shares and has filed a [draft red herring prospectus with the Securities and Exchange Board of India (the "SEBI")] ("DRHP"). The [DRHP] is available on the website of the SEBI at [www.sebi.gov.in](http://www.sebi.gov.in) as well as on the websites of the Book Running Lead Manager at [[www.avendus.com](http://www.avendus.com)] and [[www.sbicaps.com](http://www.sbicaps.com)]. Investors should note that investment in equity shares involves a high degree of risk and for details relating to the same, see the section titled "Risk Factors" of the aforementioned offer document."

# The invisible gorilla

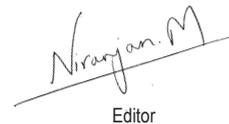
# A

few years back, Christopher Chabris and Daniel Simons from the Department of Psychology at the Harvard University conducted an experiment. They asked a group of students to watch a short video in which six people (three in white shirts and three in black shirts) pass basketballs amongst each other. The students were asked to count the number of passes made by the people in white shirts. While the people are passing the balls, a gorilla walks into the scene. The gorilla looks at the camera, thumps its chest, and then leaves. The students watching the video were so engrossed in counting the passes that half of them actually missed the gorilla! It was as if the gorilla was invisible!! This experiment reveals two things: people often miss a lot of what is happening around them, and they do not even realise it.

The above revelations came to my mind when I was reading the news about the accident of the C-130J transport aircraft of the Indian Air Force (IAF), which crashed last month. Yet another tragic accident in the series of mishaps that have marred the safety records of the Indian armed forces. Do you know that the Indian Navy has suffered 14 accidents in the last ten months? Who is responsible for the human lives lost? We are not even asking about the financial and strategic losses. And by the way, the black box of the C-130J aircraft has been sent back to its manufacturer in the US as the IAF does not have the capability to decode it. Now, do you see the gorilla in this news?

India today tops the list of importers of defence equipment. Why can't India – when it is spending billions of dollars – at least ensure that it is also acquiring the technology to comprehensively use the equipment it is buying? While there is a lot of talk about offset policies and encouraging indigenous defence manufacturing, priority needs to be given to ensure that we get the right bargain for the money that we are spending. (We are not even talking about the alleged kick-backs associated with these deals). Priority needs to be given to saving lives so that our defence personnel do not fall victims to such self goals. Importantly, buying new technology should open doors to boosting the country's manufacturing capabilities.

We are all hoping that the 2014 general elections will provide the nation with a stable government. We also hope that the new government takes up defence manufacturing on its priority list.



Editor

# EDITORIAL

**“PRIORITY NEEDS TO BE GIVEN TO SAVING LIVES. IMPORTANTLY, BUYING NEW TECHNOLOGY SHOULD OPEN DOORS TO BOOSTING THE COUNTRY'S MANUFACTURING CAPABILITIES.”**



## THE MACHINIST

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# NEWS

## Right implementation of policies by new Government will lead to 150 million new jobs: New CII President

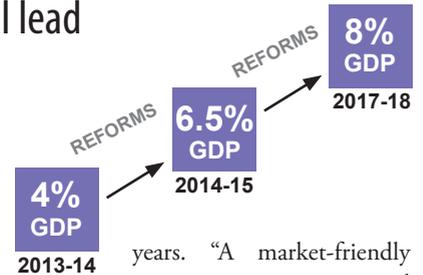
India can achieve GDP growth rate of well over six percent provided systemic reforms are carried out quickly by the new Government, said Ajay S Shriram, the new President of the Confederation of Indian Industry (CII).

Unveiling the CII action theme for the year as 'Accelerating Growth, Creating Employment', Shriram noted, "With slowing growth and high inflation adversely impacting employment, CII will urge the next Government to focus on reviving growth and generating jobs."

CII has also proposed a strong 100-day action agenda for the new

government to boost growth. "A strong economic revival package and right implementation of policies by a fresh Government can help create as many as 150 million jobs in the next ten years," he stressed. "Industry is looking for top policy steps such as introduction of GST, easing of interest rates by 100 bps, keeping subsidies at 1.7 percent of GDP, and restructuring of labour laws to promote mass manufacturing," Shriram said.

CII further stated that with continuing robust reforms, GDP growth could be taken back to the 8 percent level in the next three



years. "A market-friendly environment is required that would proactively promote investments, business and entrepreneurship," said Shriram. Key priorities for CII in the coming year will be in the following ten areas: education, skills, economic growth, manufacturing sector growth, investments, ease of doing business, export competitiveness, legal and regulatory architecture, labour law reforms and entrepreneurship.

## Shell opens first technology and research centre in China



Shell has formally opened a new technology centre in Shanghai, China dedicated to research and development into lubricants and oils. The centre will focus on lubricant product development and application for China and the wider Asia region covering countries such as India, Indonesia, South Korea, Thailand and Vietnam. The centre will cover a wide range of applications including passenger car motor oils, motorcycle oils, heavy duty engine oils, transmission fluids, as well as industrial and speciality oils and greases.

## Manufacturing employment generation grows by 28.5% during 11th plan

India's registered manufacturing sector has clocked 28.5 percent growth in employment generation during 11th Five Year Plan (2007-12), according to an analysis carried out by Assocham based on the Annual Survey of Industries (ASI). "An additional 2.9 million jobs were generated in the registered manufacturing sector during 2007-08 to 2011-12 i.e. from



over 10.45 million jobs in 2007-08 to 13.43 million as of 2011-12," highlighted an analysis of 'Registered Manufacturing Sector Performance,' conducted by The Associated Chambers of Commerce and Industry of India (Assocham).

## SAP Technical successfully organises seminar for aerospace engineering in Bangalore

SAP Technical & Marketing Consultants organised a technical seminar for aerospace engineering in Bangalore on March 25, 2014. The topics included criteria for selection of machine tools for aerospace; aerospace components, different types of components, case study, application data, video clippings, etc; future business prospects;



special emphasis for medium scale industries entering this field, advise on type of machines and components, and so on. Guest speaker was Scott Walker, President, Mitsui Seiki, US.

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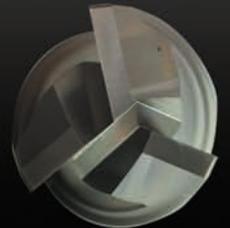
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## Grundfos appoints Mads Nipper as the new CEO and Group President

Mads Nipper has been appointed as the new CEO and Group President of Grundfos with effect from August 1, 2014. He comes from a position as Executive Vice President of LEGO.



Jens Moberg, Group Chairman, Grundfos, said: "With Mads Nipper we get a highly competent leader who has solid background in strategy, business development, sales and marketing from the global marketplace." Mads Nipper has worked for the Lego Group for 23 years and has held numerous directorships in various companies.

## Volkswagen appoints a new brand head for passenger cars in India

Michael Mayer has been appointed as Director, Volkswagen Passenger Cars India. He will be the new Brand Head for Volkswagen Passenger Cars in India with effect from June 1, 2014.



Mayer (45) who currently holds responsibility for Market Planning of Volkswagen Passenger Cars European Sales Division and Business Administration and has been with the Volkswagen Group since 1993. In his career of over 20 years in the Volkswagen Group, Mayer has worked with many organisations.

## Faurecia's gets new Executive VP for automotive exteriors

Faurecia has appointed Niklas Braun as member of the Group's Executive Committee, effective April 1, 2014 and as Executive Vice President for the automotive exteriors business group, effective June 2, 2014.



Braun will follow an induction program to ensure the transition with Hervé Guyot in May. He was previously a member of the Group Executive Board of REHAU, and CEO of the REHAU Automotive Business Division. A graduate of Technical University Berlin, he started his career in 1999.

## The India tour comes to a successful end, as iglidur continues its trip around the world

Igus celebrated the beginning of a adventurous worldwide tour to mark the 30th anniversary of its 'igidur' polymer bearings and the 50th anniversary of the company as a whole. igus GmbH sent out a small, retrofitted car on a round-the-world trip with its first stop in India.

Igus presented the car fitted with 56 igus polymer bearing components in January in Delhi. It was also displayed at the Auto Expo 2014, Delhi and had an overwhelming response from the

visitors. The iglidur started its road trip from Delhi travelling through 14 major cities like Agra, Jaipur, Ahmedabad followed by Mumbai and Pune to Chennai and finally to its last destination in India - Bangalore, the head quarters of igus India. It covered a total distance of 4,619 km and visiting 61 major manufacturing companies across India. At the end, a sum of Rs8,54,515/- was donated to M.A.D (Make A Difference) which would help sponsoring the education of 854 kids in India.

At the closing event in the igus India Factory and HQ the car had a traditional welcome and emotional send off by the staff in the presence of vendors, asso-



**Manus Award Winners: Gold: Late Harshwardhan Gupta from Neubauplan Automation for file cutting machine with Drylin and many other parts. Silver: Munir Pansare from Tata Motors for his application of noise reduction in steering column using JVSM. Bronze: Manjari Govankop from Mahindra & Mahindra for a tractor application where igubal WGRM ball and socket special part with seal and major VAVE objectives were met.**

ciates and members of the press.

Iglidur on tour continues its journey in Asia and is currently touring China followed by America and Europe, covering more than 20 countries across the globe and returning back to celebrate the 50th anniversary of igus in Cologne, Germany.



Car welcomed at the igus India factory.

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# Mark your diary

A list of key events happening between April 2014 to February 2015, both nationally and internationally

## Die & Mould India International Exhibition

**April 17-20**, Mumbai  
<http://www.diemouldindia.org/>

## India Manufacturing Show

**September 11 - 13**, Bangalore  
<http://www.indiamanufacturingshow.com/>

## Automotive Engineering Show

**May 29-31**, Pune  
<http://www.aes-show.com/>

## Laser World of Photonics India

**September 23-25**, Bangalore  
<http://www.world-of-photonics.net/en/laser-india/start>

## INTEC

**June 6-10**, Coimbatore  
<http://www.intec.codissia.com/>

## Automation 2014

**October 15-18**, Mumbai  
<http://www.iedcommunications.com/index.php>

## ACMEE

**June 19-23**, Chennai  
<http://www.acmee.in/>

## International Mining and Machinery Exhibition (IMME)

**December 3-6**, Kolkata  
<http://www.immeindia.in/index.aspx>

## Amtex

**July 25-28**, New Delhi  
[www.amtex2014.com](http://www.amtex2014.com)

## Imtex 2015

**January 22-28, 2015**, Bangalore  
<http://www.imtex.in/>

## Himtex 2014

**September 4-6**, Hyderabad  
<http://www.himtex.in/>

## SPS Automation India 2015

**February 5-7, 2015**, Ahmedabad  
<http://www.spsautomation-india.in/>



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EVENT



# GATEWAY

## to Indian automotive industry

The Automotive Engineering Show will bring the widest variety of automotive automation and engineering products to one efficient trade fair in India.

India is the world's favoured destination for automotive manufacturing with some of the biggest names in the automotive sector setting up shop in India. The industry is slated to grow further in times to come as production of automobiles saw an increase at a CAGR of 12.2 percent over FY05-13. Additionally, automobile exports are also showing an upward trend with 2.03 percent increase. This is the perfect time for domestic and international companies that offer technology and equipment allied with the gradation, automation and modernisation for automotive sector to come together on one platform.

Now organised by Messe Frankfurt India, the Automotive Engineering Show will be the industry's destination for technologies and products that set new benchmarks. Posing as a gateway to the Indian automotive sector, the show will be held from May 29-31, 2014 at Auto Cluster Exhibition Centre, Pune.

What:  
**Automotive Engineering Show  
2013**

When:  
**May 29-31, 2014**

Where:  
**Auto Cluster Exhibition Centre,  
Chinchwad, Pune**

URL:  
**[www.aes-show.com/](http://www.aes-show.com/)**



The Automotive Engineering Show will cover all aspects of the manufacturing chain such as: IT solutions in design, development, planning and manufacturing, Automation systems, Factory control and sensors, Specialised solutions in welding including laser welding, Automotive painting equipment, paintshop integrators, Robotics, Metrology, quality inspection & vision system.

Strong international traction is in the automotive sector as Messe Frankfurt India Trade Fairs Pvt. Ltd. has now acquired the Automotive Engineering Show, India's only trade fair focussed on technologies for automotive manufacturing, from Focused Event Management Pvt Ltd. With this acquisition, Messe Frankfurt further expands its portfolio of mobility and infrastructure fairs, thus reinforcing its position as a leading exhibition organiser.

Drawing from its successful history in hosting similar sector trade fairs like Automechanika and SPS IPC Drives, Messe Frankfurt plans on making Automotive Engineering Show an international standard trade exhibition. Raj Manek, Managing Director, Messe Frankfurt India stated, "The Automotive Engineering show is a credible industry platform. We are delighted to add Automotive Engineering Show to our existing portfolio, which would complement our existing trade fair on automotive aftermarket - ACMA Automechanika New Delhi." Since its debut, Automotive Engineering Show has maintained its focus on automotive plant processes and technologies. With the last edition attracting 120 participants and more than 5,600 industry visitors from OEMs, and tier one to tier three suppliers, the show continues to be a well-recognised platform for the automotive sector.

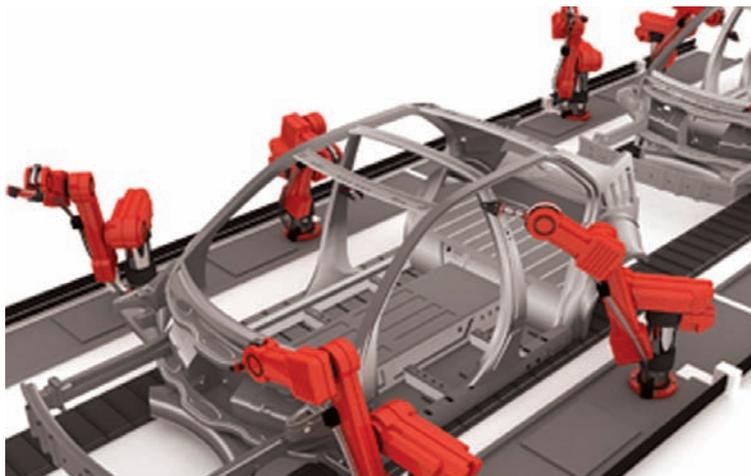
Sameer Khedkar, Director of Focused Event Management Pvt Ltd, commented "We are pleased to join hands with

**5,600**  
Number of  
industry visitors  
at the last edition  
of Automotive  
Engineering  
Show

## Exhibitor profile



- IT solutions in design, development, planning and manufacturing
- Automation systems, factory control and sensors
- Assembly line system integrators and line builders
- Machining centers and metal cutting equipment including laser cutting
- Productivity enhancers, latest concepts in tools, jigs and fixtures
- Specialised solutions in welding including laser welding
- End to end in-plant material handling systems
- Automotive painting equipment, paintshop integrators
- Robotics
- Metrology, Quality Inspection & Vision System.



The show will cover all aspects of the manufacturing chain including Robotics

Messe Frankfurt and feel that with their expertise and unmatched global presence will allow Automotive Engineering Show to gain a strong foothold in the industry and encourage international participation."

Messe Frankfurt India's portfolio of trade fairs includes: ACMA Automechanika New Delhi, Techtextil India, Light India, Heimtextil India, Ambiente India, SPS Automation India, Watertech, Pollutech, Cleantech, Wastetech and Secutech India. The organiser plans to bring the Automotive Engineering Show on par with international events in the same sector and present the perfect trade platform for companies looking at reaching out to both vehicle and autocomponent manufacturers within a strictly business-to-business environment. 



## German Engineering, 'Made in India'

Headquarters for the Volkswagen Group in India, the Volkswagen Pune Plant in Chakan has recently celebrated its five-year anniversary



The Volkswagen Pune Plant in Chakan celebrated its five-year anniversary on March 31, 2014. The Pune Plant has also been serving as the Headquarters for the Volkswagen Group in India. Since the inauguration, more than 367,000 cars have rolled out of the Volkswagen production facility in Chakan, where currently around 3,400 people are employed.

Volkswagen India Pvt Ltd began construction of the Volkswagen Pune Plant in Chakan in 2007 with an initial investment commitment of 3,800 crore (580 Million Euro). The plant was inaugurated on March 31, 2009. Spread over a total land area of approximately 575 acres, the Volkswagen Pune Plant is houses the entire automotive production process – from Press Shop through Body Shop and Paint Shop to Assembly. By incorporating futuristic technologies like Diode Laser Welding and In-line Measurement Processes, Volkswagen India has emphasised on bringing German Production Technology to 'Made in India' cars.

The Volkswagen Pune Plant began full-fledged manufacturing of cars in May 2009 with the Škoda Fabia, followed by the Volkswagen Polo in December 2009. The production of the first Made for India Volkswagen model – the Vento, began in August 2010 while that of the Škoda Rapid began in October 2011. With these cars, Volkswagen India ensured that it brought the volume models of the Volkswagen Group to the Indian consumer. The plant is currently providing employment to approximately 3400 direct and indirect employees.

After starting the export of Vento to South Africa in 2011, Volkswagen has expanded its export activities to 32 countries across three continents of Asia, Africa and North America, which include left-hand drive markets like Mexico and AGCC (Arab Gulf Cooperation Council). Also, as part of the export activities, Volkswagen India initiated its Parts & Components Business Unit (PCB Unit) at its Pune Plant which exports parts and components of

### Green results

The Volkswagen Pune Plant continues to be on a successful way towards environmental friendly and sustainable production The 'Think Blue. Factory.' initiatives undertaken have delivered the following results in 2013:

**21.8%** reduction in specific waste generation

**17.4%** reduction in specific water consumption

**10.8%** reduction in specific CO2 emissions

**10%** reduction in specific energy consumption



With the Pune Plant, Volkswagen not only brought 'German Engineering made by Volkswagen in India' to the Indian Subcontinent, but also kicked off the production of car models for the volume segments in India."

**Mahesh Kodumudi,**  
Chief Representative of  
Volkswagen Group India,  
and President & MD,  
Volkswagen India Pvt Ltd.

Polo and Vento to Malaysia where they are assembled for the Malaysian market.

The Volkswagen Pune Plant also focuses on environment friendly manufacturing through its Think Blue. Factory. initiatives. These initiatives have been adopted by Volkswagen manufacturing plants across the world and the Pune Plant has been contributing to this cause since 2012. With a target of reducing the impact on environment due to manufacturing processes by 25 percent, several initiatives are undertaken by the Plant to reduce energy consumption, water consumption, CO2 emissions, waste generation and VOC emissions.

"Our Pune Plant is one of the most modern car production facilities in India. With this plant, Volkswagen not only brought 'German Engineering made by Volkswagen in India' to the Indian Subcontinent, but also kicked off the production of car models for the volume segments in India. And we are not only producing cars with highest quality for the domestic market in India; we are also currently exporting our Volkswagen Polo and Vento models to more than 30 countries across three continents. This is clear proof of the high standards we have achieved at our Pune Plant over the past five years," said Mahesh Kodumudi, Chief Representative, Volkswagen Group India, and President & MD, Volkswagen India Pvt. Ltd.

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## Mercedes-Benz India announces the local assembly of the new S 500



**M**ercedes-Benz India has started the local production of the new S-Class from its manufacturing facility in Chakan, Pune. In line with the ‘Year of Excellence’

strategy, this strategic move will help to cater to the increasing demand for the best known Three Pointed Star in the country. The new S-Class is the most powerful luxury car to be produced in India and currently has a waiting period of approximately three months.

Eberhard Kern, Managing Director & CEO, Mercedes-Benz India, said “The S-Class has always set newer standards that have retained its accolade as ‘the best automobile in the world’ with each generation. It truly embodies our DNA and aspiration of ‘the best or nothing’ in every aspect. No other car stands for Mercedes-Benz brand promise more than the S-Class and we are delighted to manufacture the new S-Class at our state-of-the-art production facility in Chakan, Pune. Quality has all along been the strength of Mercedes-Benz India, and the new S 500 production in India is set to take this success story even further. This also reiterates our commitment to bring world class manufacturing facilities in India to support our growth in the luxury automotive business.”

“It is also our constant endeavour to incorporate our brand promise and drive excellence in every aspect of our business and customer engagement. The unique multilingual chauffeur training program is one such initiative specially designed for our discerning S-Class customers in India, which will enable our customers to truly enjoy the epitome of luxury on wheels” Kern further added.

**D**MG Mori has joined the Porsche team as exclusive premium partner of the team’s return to the top category of the World Endurance Championship (WEC). Under the motto ‘Mission 2014. Our Return’, Porsche is returning to the LMP1 class of the FIA World Endurance Championship after an absence of more than a decade. The new efficiency-based regulations of the WEC requests future orientated hybrid technologies which also will be realised in the serial production. DMG Mori, as the exclusive technology partner of the Porsche Team, will support Porsche in its return to the top class of sports car world motor racing championships (WEC). The WEC consists of eight rounds on three continents and includes the Le Mans 24 Hours as the season’s highlight. Friedrich Enzinger, VP LMP1, said: “We are very proud of this partnership for our challenging WEC project.”

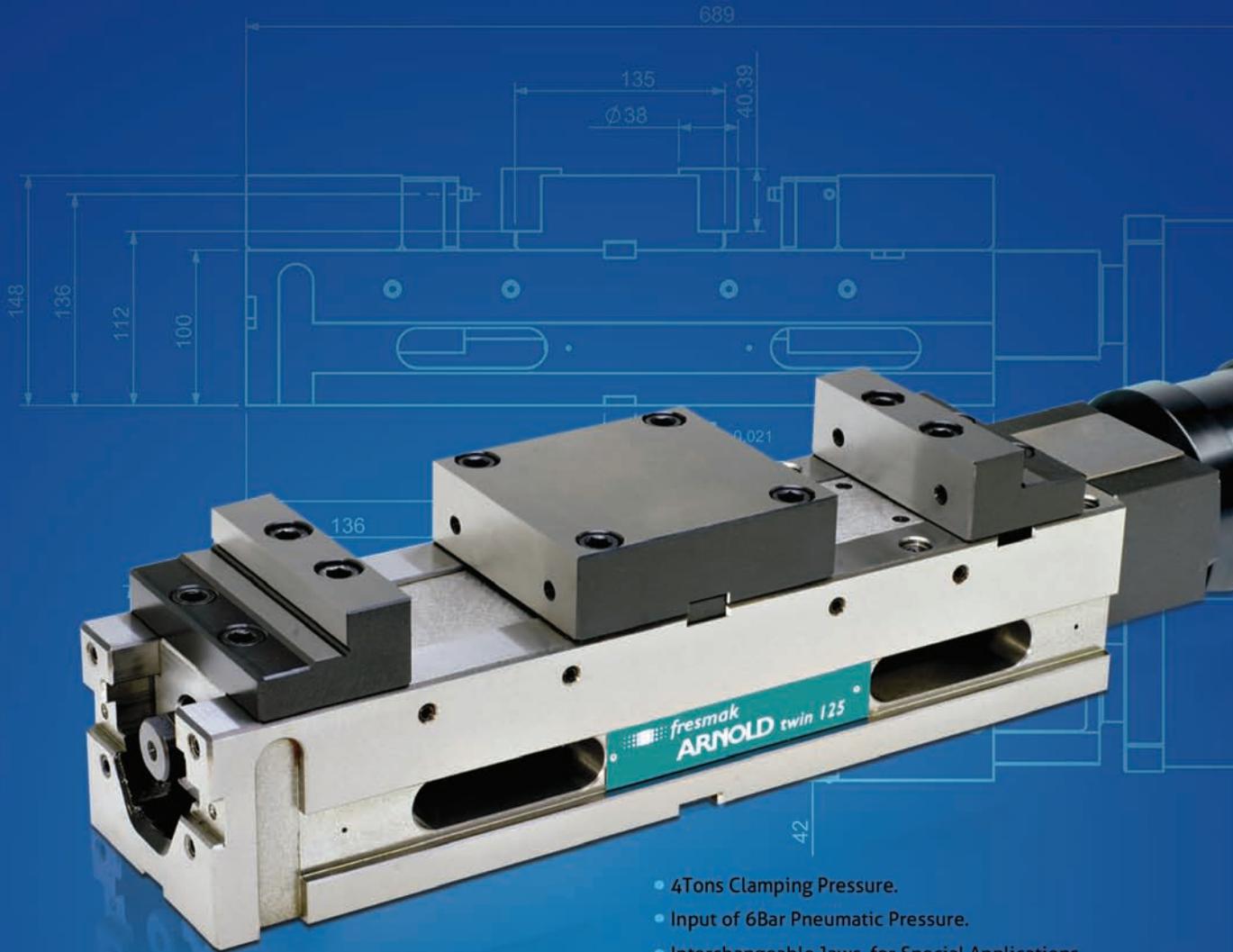
Dr Rüdiger Kapitza, Chairman of the Executive Board of DMG Mori Seiki Aktiengesellschaft, stated: “DMG Mori represents tradition, precision and technological leadership with a global presence and therefore is an ideal match for the brand values and technological demands of Porsche. We look forward to a strong, reliable partnership.” Dr Masahiko Mori,

## Porsche returns to WEC with DMG MORI as tech partner



president of DMG Mori Seiki Company Ltd, says: “Through this partnership, the spirit of sincere manufacturing and strict quality control which the World Endurance Championship (WEC) represents, we hope to grow in many aspects and strive for further business development.” DMG Mori offers innovative high-tech machine tools and services, as well as software and energy solutions.

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## Continental to produce short range radar sensors at its Seguin plant in US



**I**nternational automotive supplier Continental will launch production this month of short range radar sensors for advanced driver assistance systems at its plant in Seguin, Texas. A single line will handle production initially, but additional lines are in preparation to satisfy the demand of OEMs manufacturing in the US. “We plan to produce some three million short range radar sensors in Seguin in 2016.

The numbers say something about how rapidly demand is rising for short range radar functions like Blind Spot Detection or parking assistant systems. Legislation is a driving

force but also our customers’ desire for increased safety and comfort is providing a major impetus,” said Karlheinz Haupt, head of the Advanced Driver Assistance Systems (ADAS) business unit of Continental’s Chassis & Safety Division.

Continental has experienced rapid growth in the business with sensor technologies like camera, lidar and radar. Since production

began in 1999, Continental has turned out more than ten million sensors, 4.5 million last year alone.

Next year should see the 26-million mark, some ten million of which will be radar sensors (short- and long range radars). However, cameras – mono, stereo and camera systems for 360-degree surround detection – are also booming. Lane Departure Warning, Intelligent Headlamp Control plus such functions as Traffic Sign Recognition and camera-based parking assistant systems are becoming increasingly popular in all classes of cars. Advanced driver assistance systems represent a key technology on the road to accident-free driving (Vision Zero).

**26 million**  
Number  
of sensors  
Continental aims  
to produce next  
year. Of these,  
ten million would  
be radar sensors

**T**oyota Motor Corporation (TMC) has developed a world-first technology for recycling the copper contained in wiring harnesses, in collaboration with Yazaki Corporation, Toyota Tsusho Corporation, and eight other companies. The newly-developed technology produces copper with a purity of 99.96 percent.

According to Japan Oil, Gas and Metals National Corporation, roughly 40 years’ worth of mineable copper resources remain worldwide, while global consumption is growing, driven particularly by infrastructure-related demand for wiring in emerging markets.

When wiring harnesses are removed from end-of-life vehicles under conventional methods, it is extremely difficult to separate the copper from the fuse box and other components. As a result, it has not been possible until now to recycle harnesses us-



## Toyota develops vehicle-to-vehicle copper recycling technology

ing mechanical sorting methods.

In 2010, however, TMC, Yazaki, Toyota Tsusho and their eight partners began collaboration in a number of areas, including establishing pre-processing quality requirements for dismantling companies.

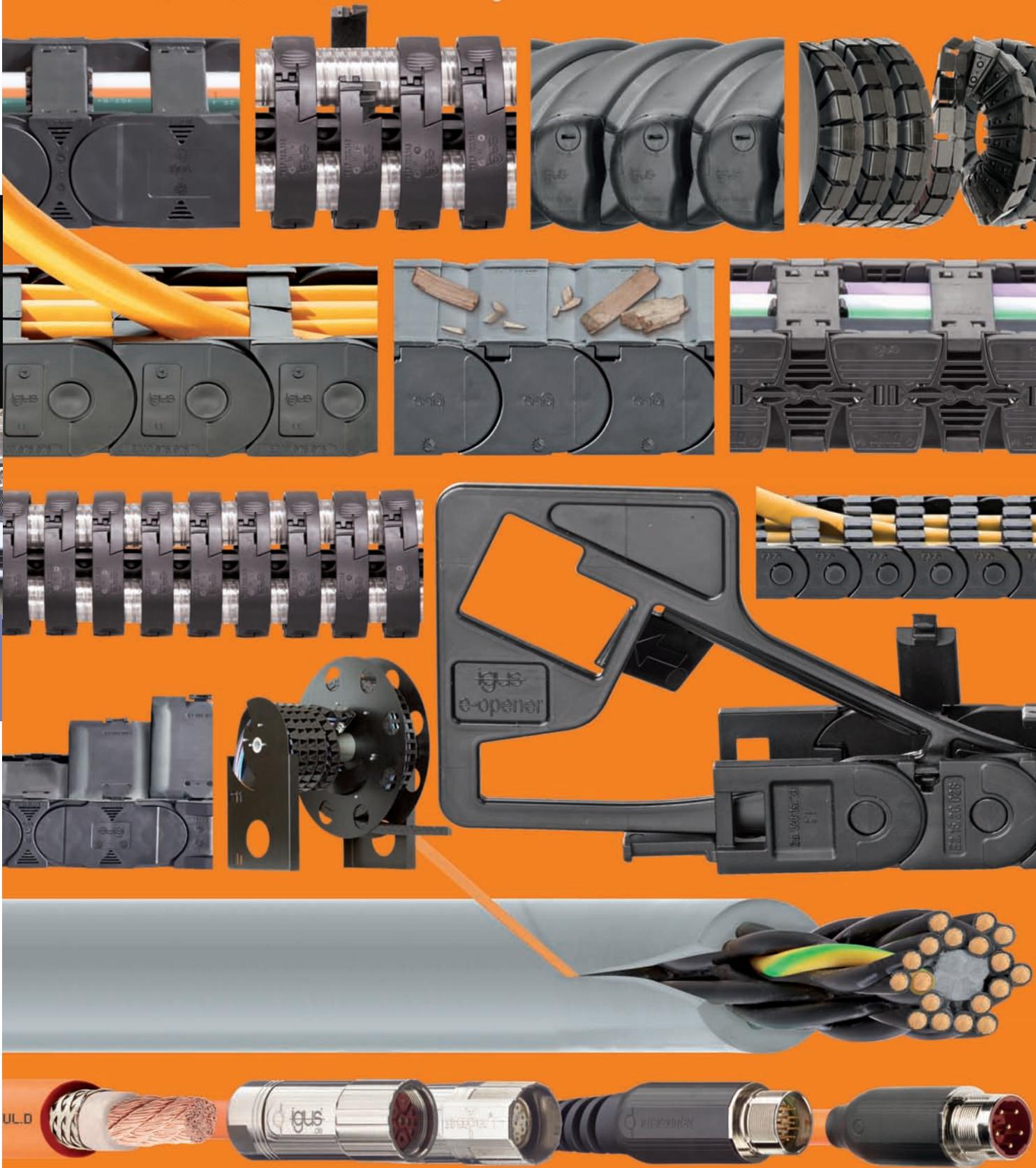
In 2011, TMC developed the first mechanical sorting method that can prevent contamination from minute impurities. Trial production involving small amounts of recycled copper began at TMC’s Honsha Plant in 2013. Once quality had been assessed by Yazaki, the copper was introduced to the wiring harness manufacturing line. Stable production involving recycled copper has been achieved, and annual production of recycled copper using this method will increase to approximately 1,000 tonnes in 2016.

This new technology is the result of TMC’s first collaboration with parts makers and dismantling companies in Japan on next-generation recycling systems. Toyota will continue to enhance this technology while reducing costs and expanding collaborative efforts.

Furthermore, Toyota will create an ongoing next-generation recycling project with parts makers and dismantling companies with the aim of fostering a recycling-based society. This will become a new source of competitiveness for Toyota.

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## GM China achieves breakthrough in developing magnesium alloy castings



The GM China Advanced Technical Centre (ATC) in Shanghai has started the operation of its Vertical Squeeze Casting (VSC) machine. This is the first in the world designed for developing next-generation magnesium castings. This achievement marks a breakthrough in lightweight materials research by General Motors.

This technology will make it easier to manufacture vehicle parts from magnesium alloy, which is lighter than aluminium and helps improve a vehicle's fuel economy. Magnesium alloy is the lightest metal currently available for the mass production of automotive materials. A part made from magnesium alloy is 30 percent lighter than a part made from aluminium alloy. It is estimated that a vehicle's fuel economy will improve seven percent for every 150-kilogram reduction in weight.

The VSC machine was jointly designed by GM's lightweight materials research teams in Detroit and Shanghai. It was built in collaboration with an equipment manufacturer in China. It is designed to improve casting integrity through the application of high squeeze pressure during the casting process. Its fully enclosed magnesium melting and transferring system can significantly improve the performance and quality of the castings.

## Telit acquires NXP's ATOP business

Telit Wireless Solutions has concluded the acquisition of the Automotive Telematics On-board unit Platform (ATOP) business from Netherlands-based NXP Semiconductors. ATOP is an automotive grade solution for vehicle manufacturers to implement eCall or similar functionality from a single compact and cost efficient package, delivering reduction in complexity and minimised costs in vehicle designs, customer data as well as regulatory compliance. The company at the same time launched Telit Automotive Solutions, a new business unit which is to focus exclusively on the Automotive OEM and Tier-one markets.

The new organisation will be headed up by industry veteran and long-time Telit executive, Dominikus Hierl as its CEO. With this acquisition, Telit will integrate the ATOP business into Telit Automotive Solutions.

## IndoSpace Chakan leases space to Delphi

IndoSpace has leased a 129,000 sq ft built-to-suit modern manufacturing facility at IndoSpace Industrial Park Chakan I to Delphi. Delphi is a leading global supplier of electronics and technologies for automotive, commercial vehicles and other market segments. The IndoSpace Industrial Park Chakan I is a fully integrated industrial park.

## Dr Sumantran steps down as Vice-Chairman of Hinduja Automotive Ltd

Hinduja Automotive Ltd, the holding company of Ashok Leyland Ltd, has announced the intent of Dr. V Sumantran, Executive Vice-Chairman, to step down from the Board. This is effective from March 31, 2014. Dr Sumantran has also stepped down from the Board of Ashok Leyland Ltd. However, he will continue as advisor, while he pursues his interests in academia, research and consulting.

## RSB gets new international partner, expands its product portfolio further



SK Behera, Vice Chairman & MD, RSB, with the backdrop of new products launched

Pune headquartered RSB Transmissions (I) Ltd has expanded its product portfolio by joining hands with DHB Automotivos, Brazil, a US\$ 150 million enterprise and the largest manufacturer of passenger car steering system in Latin America. RSB has launched fully assembled manual/power steering gears and also auto components, viz. steering rack & pinion, tie rod, hydraulic pump and aluminium pump.

All products have been officially launched at Auto Expo 2014. "These products will enable RSB to make entry into Latin American market, besides other global markets. RSB will also be catering to existing OEMs, and a host of other clients besides after-sales market. The new venture gives us an opportunity to diversify beyond a predominantly volume constrained commercial vehicle segment to the growing passenger car segment. Besides, we will also make in-roads in Russian market," said SK Behera, Vice Chairman & MD, RSB Group.

RSB has also launched technologically advanced 5th Wheel Coupling for domestic market under the brand name RSB-Fontaine and export to Fontaine, UK.

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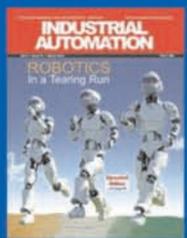
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# Technology meets operational excellence

Automation 2014 promises to be the place for sustainable solutions for profitability, optimisation of plans, cleaner and greener operations, safer and energy efficient.

**A** flagship event of IED Communications, 'Automation' is the biggest show in South East Asia and the second biggest show in Asia after the 'IAS Shanghai'. The 9th edition of Automation 2014 will be held from October 15 to 18, 2014 at the Bombay Exhibition Centre, Mumbai - the financial capital of



India. Automation has always been held in Mumbai and all editions so far have received overwhelming response from the business perspective.

The show is a well-known recognised platform that brings all segments of the automation industry under one roof including industrial, process, factory, building & electric automation, instrumentation & control, robotics, hydraulics, pneumatics as well as wireless and bus technology. It has grown globally from the year 2002 with major and prominent national and international players participating to show case their most superior products. The exhibition gives Indian companies an exclusive chance to take a peek into the latest international technologies, locally. This makes Automation 2014 a must-go-to event for all industries.

Approved by India Trade Promotion Organization (ITPO), Automation 2014 will showcase solutions and systems for industries such as automobile, oil & gas, power & energy management, chemicals/petrochemicals/fertilizer, OEMs, waste and waste water management, metal industry, pharmaceuticals, white goods, plastics as well as food & beverages. The Automation exhibition has been exceeding its own standards, year after year. In the year 2013, the show witnessed more than 775 national and international exhibitors from 20 countries.

More than 45,000 business visitors from across India visited and interacted with exhibitors, resulting in 46 contracts being signed for 2014 at the venue itself. This is testimony to what the event has managed to achieve despite the economic slowdown.

"Today, every industry in India is in dire need of acquiring the most advanced technology based automation to stay ahead of global competition," says M Arokiaswamy, Managing Director, IED Communications Ltd, the organiser of Automation 2014. "We are glad to state here that SME industries in the automation sector registered with NSIC (National Small Industries Corporation) will get the subsidy from NSIC. We have currently exhausted 90 percent of the allotted quota," he added.



“  
Today, every industry in India is in dire need of acquiring the most advanced technology based automation to stay ahead of global competition.”  
M Arokiaswamy,  
Managing Director, IED Communications Ltd, the organiser of Automation 2014

Automation 2014 is also supported by national & international Associations. National associations like Bombay Small Scale Industries Associations, Electronic Security Association of India, Textile Machinery Manufacturers Association of India, All India Association of Industries (AIAI), Indian Printed Circuit Association (IPCA), Indian Industries Association (IIA) and international institutions such as Sercos - The Automation Bus: North America, Control System Integrators Association (CSIA) - US, ISA - International Society of Automation US, India Chapter, and CAN in Automation (CiA) as well as Fieldbus Foundation are supporting Automation 2014.

Automation 2014 will also organise knowledge based technical conferences. A discussion in depth with experts on various subjects such as innovations in technology, foundation field-bus technology, safety and security, tank automation and metering has been arranged during the exhibition. Indeed, the show promises to be the platform sustainable solutions for business profitability, optimisation of plans, cleaner and greener operations, safer and energy efficient. 



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U - Mag Series



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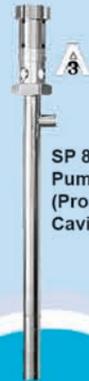
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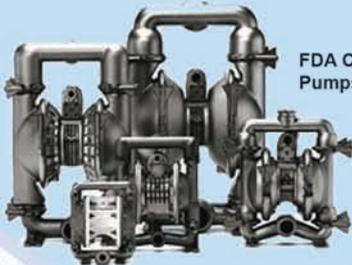


  
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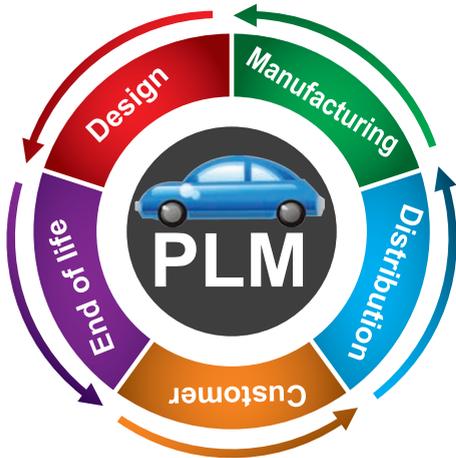
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# Key business driver

In today's competitive market exposed to global players, PLM is important in a CIO's portfolio all the way from new product introduction to environmentally friendly and controlled disposal of products.

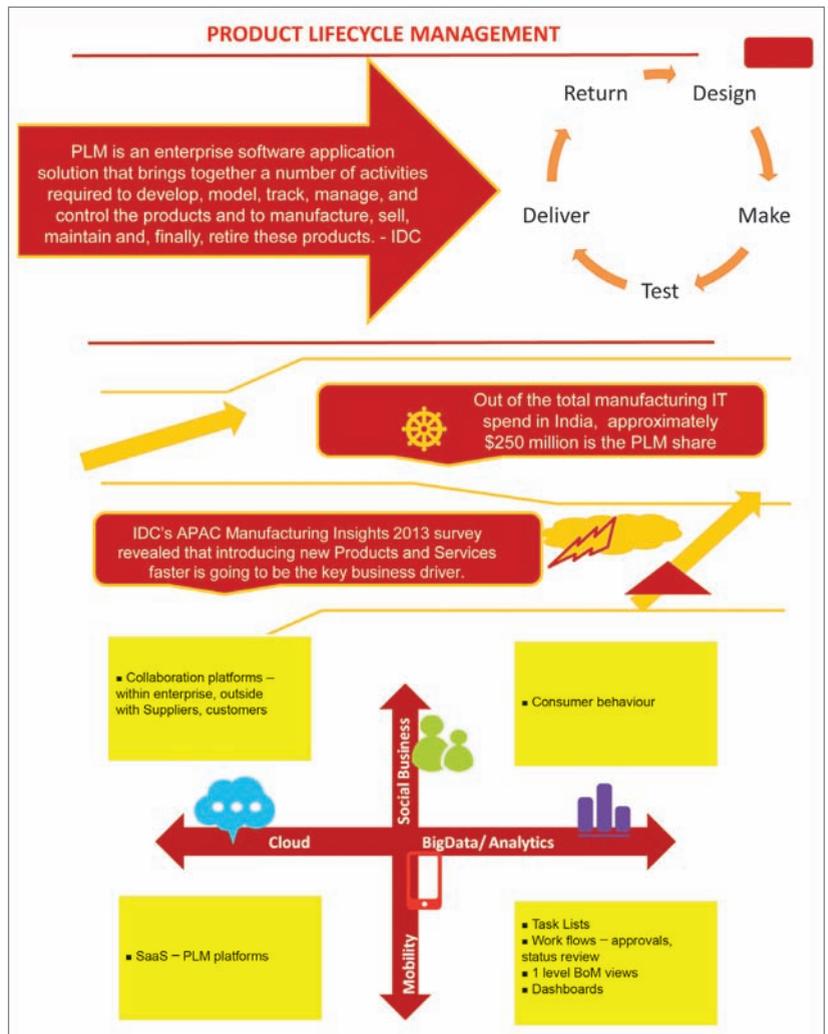
By S Ramachandran

**I**DC defines PLM as an enterprise software application solution that brings together a number of activities required to develop, model, track, manage, and control the products and to manufacture, sell, maintain and, finally, retire these products. In today's competitive market exposed to global players, PLM is important in a CIO's portfolio all the way from new product introduction to environmentally friendly and controlled disposal of products at the end of their life.

From an IT spend perspective, PLM is implemented across major players such as OEMs. The technology is mature but there is still scope for improvement, alignment to the business and with other enterprise systems. The small and medium enterprise segment (SMEs) is still an opportunity for PLM implementation. IDC conservatively estimates the market for PLM related products and services to be US\$ 250 million.

from India. This infographic is a summary of key findings from the survey. This annual survey is conducted each year by IDC to analyse key trends in the region in traditional areas like ERP, PLM, CRM and upcoming areas like the third platform (social business, mobile, Big Data/analytics, cloud).

In this survey, 'Introduction of new products and services



“Including customer feedback into design processes’ comes out at the top ranked area of change expected in PLM in the next two years. This aspect has several hidden initiatives within it.”

In the annual Manufacturing Insights survey conducted at the APAC level, 120 participants from a diverse range of industries (industrial machinery, automobile, electronic components, process industries) provided their inputs



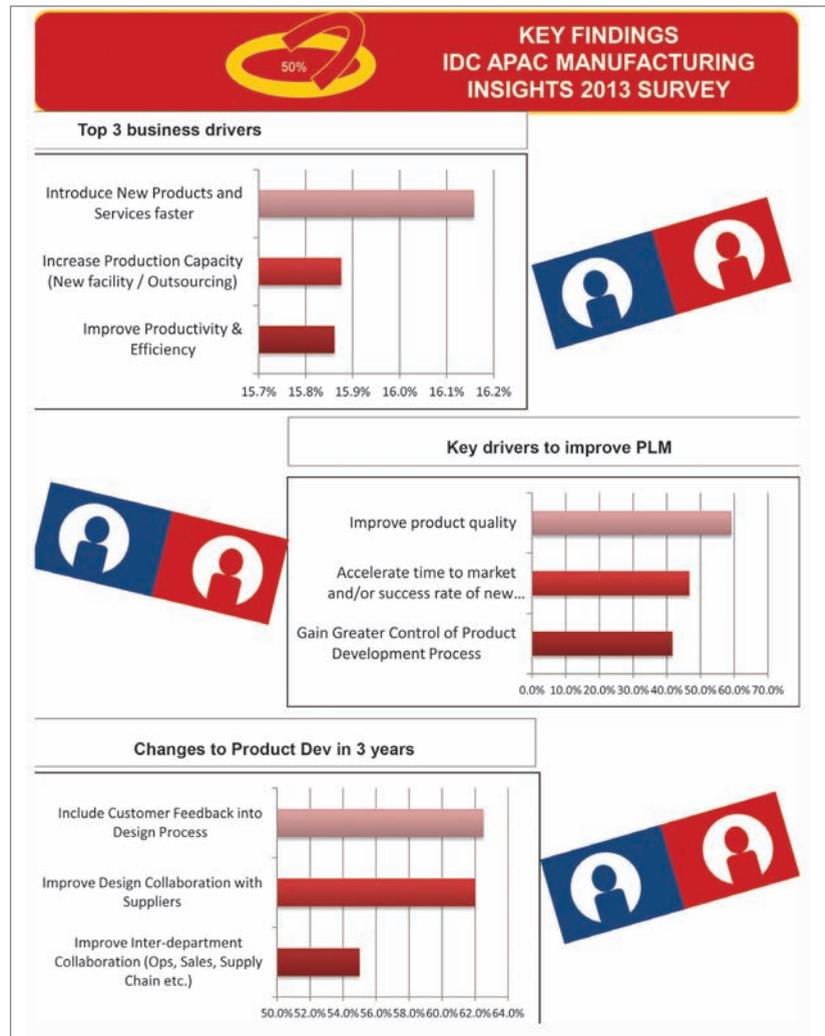
faster' came out as the topmost business driver as seen by leaders in manufacturing firms in the next 12–18 months. Faster NPI (New Product Introduction) is a key business metric in what IDC calls 'Engineering Oriented Value Chain' type of companies which typically comprises of companies in the category of automobile and industrial machinery. This could in turn drive other business metrics such as top line, its growth, market share etc. PLM is the IT tool in a CIO's repository to drive faster NPI. PLM encourages collaboration between multiple functions, within and outside the enterprise (customers, suppliers, partners etc).

Given the position of PLM as a key business driver, what do CIOs expect PLM to deliver? 'Improve product quality' comes out as the highest ranked expectation. Just cranking out new products fast would not be sufficient. The products would need to be of good quality from multiple perspectives – for the end user from a performance perspective, for multiple functions within the enterprise – Design for Manufacturability for the production department to manufacture the part within specifications and cost limits, Design for Assembly for the final assembly line, Design for Serviceability/Reliability etc., PLM ensures that products are not designed in silos but in

“ Social business can be used to keep track of what end users feel about products. Analytics can be used to identify patterns where there is a large volume of transactions in products like consumer devices.

a collaborative environment involving stake holders at early stages avoiding costly rework. PLM product vendors and implementation partners need to keep this in mind during PLM implementation in coming up with robust processes that support lean, first-time-right type of products.

PLM is a broad area. Where should CIOs focus on within it? 'Including customer feedback into design processes' comes out at the top ranked area of change expected in PLM in the next two years. This aspect has several hidden initiatives within it. Social business can be used to keep track of what end users



feel about products. Analytics can be used to identify patterns where there is a large volume of transactions in products like consumer devices. Mobility enabling field and sales teams can ensure high velocity flow of customer feedback to the right departments. How Engineering teams use this information for modifying existing products or creating new products is another area of importance. Hence it is not surprising that 'including customer feedback' is the top most in the list of changes to PLM CIOs are envisaging.

As Big Data/Analytics, Cloud, Mobility and Social come together in an unprecedented way to create entirely new business value solutions, they are enabling intelligent industries and solutions, and most of all - innovation. The four pillars will drive the growth in coming years. Through the infographic, IDC has depicted the mash-ups between the four pillars and what impact each one can offer specifically for PLM. 

*The author is Principal Research Manager - Manufacturing Insights, IDC*



# From idea to execution and beyond

Product lifecycle management enables manufacturing firms to remain competitive by improving the efficiency of the entire value chain of product development.

By Niranjan Mudholkar

**I**n today's complex, dynamic and highly competitive business environment, Product Lifecycle Management (PLM) is absolutely necessary for manufacturers, no matter what the industry segment or size. KG Shenoy, Vice President - Manufacturing, SCM & CME, Farm Division, Mahindra & Mahindra Ltd, calls PLM a robust information strategy which acts as backbone of a business adding value across the enterprise. "PLM helps to compete in the Global arena by managing complex, cross-functional processes, coordinating the efforts of stack-

holders to deliver the efficient and best possible products by crushing the lead time from inception to usage of products by customers."

PJM Khan, GM, Business Development & Performance Support, Cooper Corporation, points out that product lifecycle is becoming shorter today while industries face pressure from competitors and customers for upgradation of product almost every day. "Upgradation of a product as per customer expectation at a competitive price is a real challenge for small scale industries. Product lifecycle management is a tool that



ensures product success in the market and helps in making strategies for a new or upgraded product.”

Gautam Dutta, Director Marketing, Siemens PLM Software India, believes PLM can help manufacturers bring down product costs, reduce time to market, boost productivity, increase revenue and extend lifecycle returns. “PLM does this by creating an integrated information system that provides everyone in the product lifecycle the right information in the right context to make fast, accurate systems decisions that enables them to take smarter decisions across the lifecycle, thereby leading to better products.”

Ulrich Weber, Head of Information Systems of the Freudenberg Forschungsdienst (Part of Freudenberg New Technologies), says that for Freudenberg as a globally active technology group PLM is an important factor – especially within the engineering development process. “A key success factor is to use the existing engineering power of a company in the most efficient way. Therefore Product Lifecycle Management influences and supports the whole engineering process,” he says.

### New product development

According to a recent survey by IDC, ‘Introduction of new products and services faster’ came out as the topmost business driver for adoption of PLM as seen by leaders in manufacturing firms in the next 12-18 months. Kaustubh Nande, Manager – Marketing, Ansys Software Pvt Ltd shares that when his organisation speaks with its customers globally and in India, the focus on getting new products faster to market has always been high on the agenda. “It is mainly because product innovation affects market competitiveness, revenue, profits and fundamentally predicts the future health of the business.”

Deepankar Ghosh, VP – PLM & Engineering Services, ITC Infotech says that keeping pace with changing customer’s need is the biggest challenge in today’s world. “Product companies have also acknowledged varying needs of different groups of customer and therefore need to offer greater choices. All these dynamics require product companies to introduce

new products at faster pace, more variants of a product and do that at a lower cost. PLM is increasingly being seen as the key enabler by improving collaboration, allowing design reuse and automating repetitive activities thereby optimising time to market.”

M&M’s farm division works with a guideline to achieve 20 percent top line growth through new products. “So it is essential to deliver a new product at First Time Right with significantly low lead time of development,” says Shenoy. “Technology and operational complexity demands validation, decision making and innovation all along the product life cycle. We have integrated different tools of PLM for virtual validation like design for manufacturing, design for assembly, design for service and testing, by which we are able to reduce lead time for design validation.”

Dr Chandan Chowdhury, Managing Director, India - Dassault Systemes says that NPDI (New Product Development and Introduction) starts with the identification of an opportunity in the market and ends with a successful launch of the products. “Many functions within a manufacturers’ organisation, from marketing, engineering, finance, to manufacturing and suppliers are involved in this process. It’s all about defining the product components, optimising costs and managing all activities needed to bring the product to the right customers at the right time. For many organisations, conducting an NPDI process is difficult because of organisational and information system ‘silos’ which prevent effective and collaborative exchanges between key stakeholders from taking place.”

Ch SN Sreenivasa, General Manager, Design Department, Schwing Stetter India, believes that in current business sce-

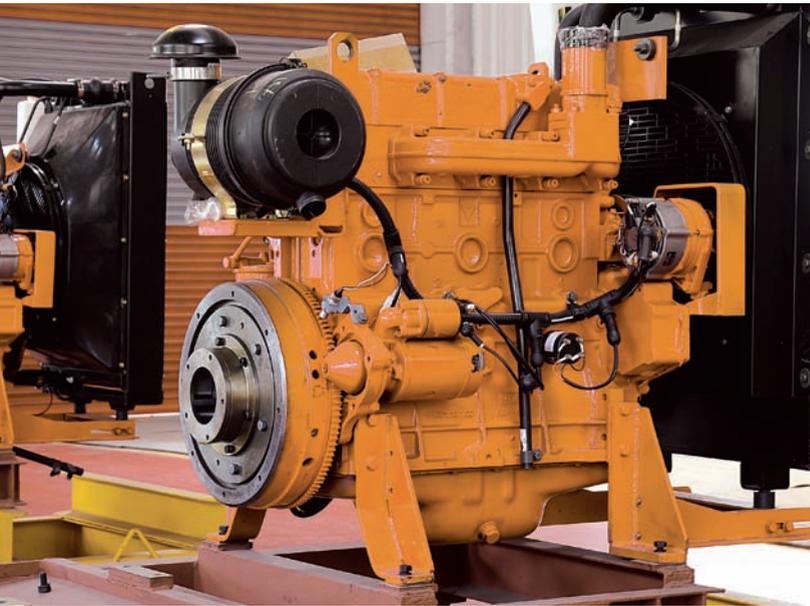


Use of PLM as single platform for accessing required information by various business functions like design, component development, manufacturing, quality and customer care helps to maintain authentic, real time data.”

**KG Shenoy,**  
Vice President -  
Manufacturing, SCM & CME,  
Farm Division, Mahindra &  
Mahindra Ltd.



PLM can help manufacturers bring down product costs and reduce time to market



Companies need to introduce new products faster, with more variants and at a lower cost.

co-ordinated and streamlined fashion by determining areas where the overall process can be improved thereby improving the end-to-end process efficiency and PLM can help in achieving this. The main goal of PLM is the creation of a timely communication among all entities and personnel of an organisation who are responsible for a product, regardless of their geographical location.”

Shenoy of M&M has experienced that use of PLM as single platform for accessing required information by various business functions like design, component development, manufacturing, quality and customer care helps to maintain authentic, real time data. “This information flow reduces the reaction time of all stake holders which in turn helps in tremendous improvement in collaborative working.”

Nande of Ansys says that any company that invests today in PLM has a multi-office set up and generally has globally distributed teams. “So cross functionally PLM is becoming critical in the supply chain.” Sreenivasa says that an enterprise PLM environment

based on a scalable, open architecture enables manufacturers to interact with their suppliers’ databases and process management systems and capture updates on their production schedules, quality results and order status. “Companies must be able to simulate manufacturing and production processes to ensure high quality and smooth flow. PLM technologies enable companies to establish an integrated simulation environment for products by providing a digital manufacturing framework that supports virtual prototyping, including interface prototyping, to ensure first time quality for the whole product.”

Khan of Cooper says the new requirement for ‘collaboration’ between multidisciplinary collaborators induces to exchange and share adequate information on the product, processes throughout the products’ lifecycle. “Thus, effective capture of information, and also its extraction, recording, exchange, sharing, and reuse become increasingly critical. These lead companies to adopt new improved methodologies in managing the exchange and sharing of information.”

Ghosh of ITC Infotech draws attention to another impor-



“It’s all about defining the product components, optimising costs and managing all activities needed to bring the product to the right customers at the right time.”

**Dr Chandan Chowdhury,**  
MD, India - Dassault Systemes

nario, product development and commercialisation processes are disjointed and inefficient. “Design teams alone may not efficiently manage the product development effort in its entirety as the complexity and variety of products increase. Central data base with knowledge management integrated on a common platform facilitate to leverage strategy and scale of products and services to meet varying business environment.”

**Facilitating collaboration**

PLM is also becoming from the point of view of collaboration amongst various business functions and supply chain partners. In fact, the mind-boggling assortment of electrical, mechanical, and software components coupled with globalisation has ensured design and manufacturing happens over geographically dispersed areas and has made product management an all the more daunting challenge. So as Pavan G Ranga, CEO, Rangsons Electronics, says, often the various business functions and supply chain partners are disconnected entities who interact far too less. “The need is to operate in a more



“We see PLM as a strategic business approach. The reliability to access the valid data at every point in time of our engineering process is the basis of an efficient collaboration among our business functions.”

**Ulrich Weber,**  
Head of Information Systems of the Freudenberg Forschungsdienste



“The window of opportunity available to manufacturers to achieve market success with a new product is very small. This means they must get the product right the first time; or miss out on the market opportunity.”

**Gautam Dutta,**  
Director Marketing, Siemens PLM  
Software India

tant aspect. “Product development is no more limited to designing features and functions by engineers. Customers, suppliers, manufacturers and after-market service providers play equally important role in product development. Single source of truth for all product and process information, enabled by a PLM system, is at the core of enabling an effective collaboration amongst all these stakeholders throughout the entire product lifecycle.”

#### Enables sustainability

With sustainability becoming a key business requirement, PLM is likely to play an increasingly significant role in the manufacturing sector. As Chowdhury of Dassault Systemes points out, with organisations becoming more global and products more diverse, PLM has emerged as an approach that has the potential to radically change the way companies develop products from ideas. “Also, businesses are shifting towards sustainable development and enterprises are following the same trend. Sustainable development helps organisations work effectively, yet be environment friendly. With the help of PLM solutions, companies can reduce or even eliminate the use of hazardous materials, thereby avoiding problems such as launch delays, recalls, fines, poor customer satisfaction and a damaged public image.”

Shenoy of M&M says that PLM helps in standardisation of components, processes etc. across different platforms with optimal usage of resources as well as development time. “System supports in adhering regulatory norms at different stages of product development as it passes through various ‘controlled Gateways’ which lead to better and efficient products.” Shenoy’s organisation has added ‘Design for Environment’ process in PLM to create environment friendly products.

Dutta of Siemens PLM says that to successfully develop environmental friendly products, manufacturers must implement a sustainability framework. “PLM can help manufacturers work together with their supply chain to create such

a framework to assess the environmental impact of materials and manufacturing processes early on in the product development process. PLM can also provide standard regulatory rule sets for compliance grading against regulations such as REACH, RoHS and Conflict Minerals.”

Nande of Ansys points out that sustainability fundamentally is about efficiently using and reusing existing resources. “PLM has evolved to a level where it allows you to optimise your resources and processes to achieve. But like any other system there is significant room for development especially by tying the benefits back to the business.”

As Sreenivasa remarks, PLM is aimed at connecting various product stakeholders



**Mahindra Yuvraj: M&M has added ‘Design for Environment’ process in PLM to create environment friendly products.**



“The need is to operate in a more co-ordinated and streamlined fashion by determining areas where the overall process can be improved thereby improving the end-to-end process efficiency and PLM can help in achieving this.”

**Pavan G Ranga,**  
CEO, Rangsons Electronics

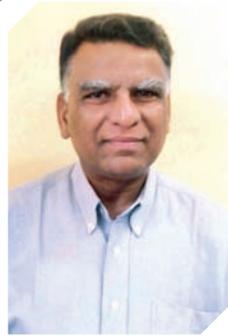


over the entire lifecycle of the product from concept to retirement. "As a technology solution, it establishes a set of tools and technologies that provide a shared platform for collaboration among product stakeholders and streamlines the flow of information along all the stages of product life cycle. Thus it is possible to establish a sustainable corporate strategy via PLM."

Sustainable product development is not a choice anymore, remarks Ghosh of ITC Infotech. "Having product information centralised and in a form that can be analyzed for compliance is vital to being compliant with regulations. In recent times, PLM system has evolved to provide support for collecting supplier and part information, analysing conflict minerals status within products and report on compliance to various regulatory bodies."

**Implementing customer feedback**

Customer feedback today plays in a critical role in not just improving a product but also its success in the market. PLM plays a key role in making this happen. As Ranga of Rangsons Electronics says, customer feedback, field service, and service



“With some help from niche products, and recent strides in next generation technologies such as intuitive user interfaces, cloud computing, social media, enterprise mobility and analytics, PLM promises a lot more now than in the past.”

**PJM Khan,**  
General Manager- Business Development & Performance Support, Cooper Corporation

data often provide a valuable measure of the success to product design and manufacturing.

One of the main reasons for customer dissatisfaction is unreasonable lead time in implementing change, as rightly pointed out by Shenoy. "This is due to correctness of the information flow and delay in capturing 'Customer Voice'. PLM helps in capturing this real time and assists stake holders to implement changes early. Any change in customer requirement, the data can be entered and without time lag and using virtual validation tools and robust implementation systems changes can be done quickly to delight customers."

Weber of the Freudenberg Forschungsdienste states that customer feedback is often the beginning of change request of products. "PLM is able to bring together customer feedback, requirements management and change requests. Program and project management functions help to track change processes in the right matter to fulfil the needs of customers in an optimised, controlled and efficient way."

Chowdhury explains this phenomenon in the context of the automobile industry. To meet requirements for global product development and increasingly complex vehicles and greater need of consumers and customers, automotive OEMs must expand PLM beyond engineering and manufacturing.

"By including everyone with a role in a vehicle's life – from internal functions to end consumers - manufacturers can slash development times and delight retail car buyers. To achieve these goals and innovate efficiently, companies must master disparate sources of globally distributed intellectual assets and facilitate open, frequent, ad-hoc collaboration across the enterprise and into the marketplace."



“Dynamic PLM environment It enables company to bring entire product histories along with the process on one common platform and facilitate views that are relevant to individual user.”

**Ch SN Sreenivasa,**  
General Manager, Design Department, Schwing Stetter India.



Schwing Stetter's Nimo: PLM enables companies to ensure first time quality for the whole product.



PLM improves the efficiency of entire value chain of product development.

Dutta says that many manufacturers have implemented some sort of static customer requirements capture process as part of their product and portfolio planning. “Where PLM can help is in providing a connected requirements environment that directly links product requirements to the digital environment that developers use to design and validate products. This can have a huge impact for manufacturers since studies have shown that up to 90 percent of the cost of a project is committed by the time a product reaches the development stage.”

Ghosh, however, has a practical aspect to this issue. He does agree that collecting customers’ needs and preferences through different ways such as surveys or focus group interactions has been widely adopted by most product companies. “Incorporating customer’s feedback to a product post its launch has been relatively less explored. PLM with integration to other enterprise systems that capture sales and support related information can provide objective insight into the product performance. This can drive both changes to an existing product and also design elements for a future product.”



“PLM today has evolved to a level where it allows you to optimise your resources and processes to achieve. But like any other system there is significant room for development especially by tying the benefits back to the business.”

**Kaustubh Nande,**  
Manager – Marketing, Ansys Software Pvt Ltd



“Single source of truth for all product and process information, enabled by a PLM system, is at the core of enabling an effective collaboration amongst all these stakeholders throughout the entire product lifecycle.”

**Deepankar Ghosh,**  
VP – PLM & Engineering Services, ITC Infotech

Dynamic PLM environment provides feedback loop that is fundamental to improved service and maintenance, reducing warranty and repair costs. “It enables company to bring entire product histories on one common platform and facilitate views that are relevant to individual user. Therefore the customer feedback can quickly be absorbed and change process is implemented quickly,” says Sreenivasa.

#### Way ahead

PLM is here to stay. Ghosh has a sound explanation why. He says: “Product companies are forced to adjust to new market dynamics such as growing competition from an increasingly globalised market, need for faster time to market and changes in regulations and laws. Margins are constantly being cut due to competitive pricing. Global market further adds to the complexity and requires companies to develop larger number of product variants and service them with parts, products & technical information across different geographies. PLM helps companies remain competitive by improving efficiency of entire value chain of product development.”

Nande too believes that PLM has never been more important than today as it is an integrated process for product innovation and management. “PLM is undergoing a transformation of sorts with commoditised hardware, software accelerating at a rapid pace, while processes are being evolved to accommodate product and market pressures.”

And this is just the beginning. As Khan of Cooper says, with some help from niche products, and recent strides in next generation technologies such as intuitive user interfaces, cloud computing, social media, enterprise mobility and analytics, PLM promises a lot more now than in the past.

Ranga is correct when he says that PLM helps product manufacturers manage complex, cross-functional processes, co-ordinates the efforts of distributed teams to consistently and efficiently create the best possible products in an increasingly competitive marketplace, cost control is very important. “PLM impacts profitability through successful product introductions, minimised product development cost, accelerated time to market and improved product quality.” 

# Improving the Quality of Decision Making on Shopfloor

The effectiveness of a decision will significantly improve if a decision maker considers 'all variables' impacting the decision.



In an organisational context, a manager while taking a decision needs to consider all factors (variables) that materially influence the result that he is hoping to achieve.

By Niladri Roy and Kiran Shetty

The quality of decision making impacts business results; it is an assertion which has been borne out in management literature. Most managers do understand this intuitively but very few reflect on the ways and means of improving the quality of their decisions over a period of time. This leads to sub-optimal decision making which managers are not often aware of!!

A student of mathematics will vouch for the fact that completeness of variables leads to improved solutions to any problem. In an organisational context, this would mean that a manager while taking a decision needs to consider all factors (variables) that materially influence the result that he is hoping to achieve. Simple as it may sound, it rarely happens in organisations. And even if it does, seldom does it happen systematically.

This article diagnoses and provides some pointers for managers to improve this process. The objective is to build the

case of holistic decision making by appealing to the incremental value that it would thereby create.

Let us understand the factors that lead to this sub-optimal decision making.

- 1 **Precedence:** "What has worked in the past, is good for the future ....". Why should I change the way of looking at things!
- 2 **\*Bounded Rationality:** When it seems tiring or energy consuming to find an alternative, decision makers settle for an option they consider optimal and in some cases best. The fact remains; every feasible solution is not the best optimal solution.
- 3 **Organisational Processes:** Organisational processes (Planning, Target Setting, Rewards or Work processes)

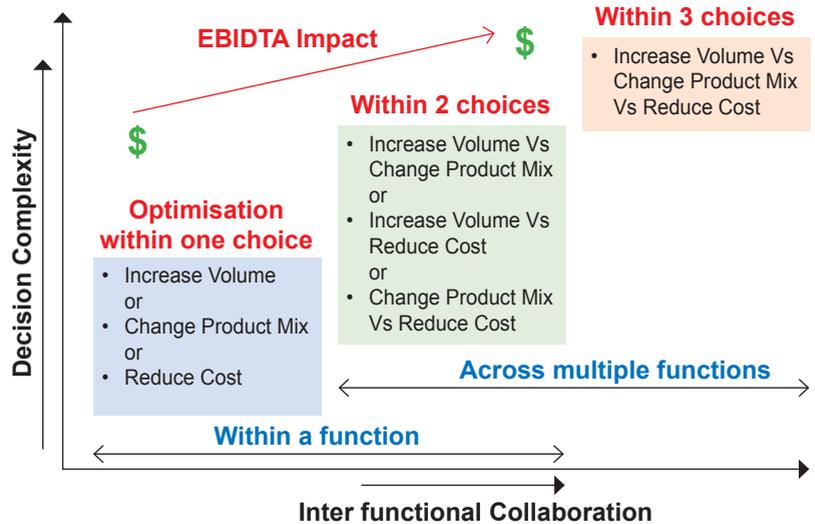
| Table (A)                 |  | Cross Functional Choices  |   |  |
|---------------------------|--|---|---|--|
|                           |  | ➔   |   |  |
|                           | <b>Operations</b>  | <b>Sales &amp; Marketing</b>  | <b>Procurement</b>  |  |
| <b>Functional Choices</b> | <b>(A) Volume</b>  | <b>(B) Product Mix</b>  | <b>(C) Input Mix</b>  |  |
|                           | <ul style="list-style-type: none"> <li>• How much to Produce?</li> <li>• How much to produce from each machine/line? (Machine Mix)</li> <li>• What should be the rate of production? (Speed)</li> <li>• How much of time should be given for planned maintenance?</li> </ul> | <ul style="list-style-type: none"> <li>• What to produce?</li> <li>• How much to produce for each product?</li> <li>• What should be the run length? How many changeovers?</li> <li>• What should be the product sequencing?</li> </ul> | <ul style="list-style-type: none"> <li>• What should be the input mix w.r.t product mix?</li> <li>• What should be my RM (Raw Material) mix?</li> <li>• Which RM/fuel is better? What is the impact on yield, efficiency and product quality?</li> <li>• How much of RM/fuel should I procure and when? At what cost?</li> <li>• How much of RM inventory should I keep?</li> </ul> |  |

are not necessarily set up to optimise decisions for the enterprise. Most functional organisations take decisions which are functionally optimal and hope that the General Manager (P/L Leader) plays the role of an integrator. This is often a challenge because the General Manager may not be fully aware of the decision variables of each function.

Having made a case of decision making and its implications on results, let's understand this through a simple example. Table A represents a set of functional choices that respective teams (Operations, Sales & Marketing, and Procurement) in an organisation have to make. These choices have been framed as a set of questions. Answering these questions within each functional silo will optimise functional performance.

However it is important to understand that optimising functional performance does not optimise enterprise performance. Answering the questions horizontally forces the decision maker to include multiple variables in the decision

**Table (B)**





“ Answering the questions horizontally forces the decision maker to include multiple variables in the decision making process thereby improving the quality of the decision.”

**Niladri Roy**

making process thereby improving the quality of the decision. Table (B) illustrates paired choices. In order to maximise results a manager needs to move to the highest level (multi-variate choices; in this case a choice between Increase Volume Vs Change Product Mix vs Reduce Cost).

Real life situations have been simulated to arrive at this conclusion (improved results). This has been done by using various mathematical techniques; Linear Programming Models being one of them. The question that would come to the mind of a reader would be ‘do I have to be a mathematics genius to get this right’. Well, the answer to this is a resounding NO.

Managers would require to develop the following skills to make this happen:

- 1 Cognitive/ ‘Hard’
  - a. Understand the difference between “Local/Functional” Optimisation to “Whole System Optimisation”. – Systems Thinking.
  - b. Understand the trade-offs at the interface of the

functions (Ex-Run length vs Production Rate vs Changeover Time).

- c. Ability to shift reviews from functional to reviews of key decisions.

- 2 Affective / ‘Soft’
  - a. Ability to break silos and understand the implications of cross-functional collaboration. Raise the bar of conversations of their colleagues.
  - b. Persuade and enable colleagues to bargain their functional position for overall organisational goal attainment.

The authors have observed managers across levels and functions to arrive at these conclusions. In their experience, the best managers display cognitive competencies, which they might have honed by deliberate practice. However, it is very rare to find managers with an optimal combination of the hard and the soft skills. This obviously presents a very unique challenge to Human Resources functions across organisations. In the forthcoming issues, the authors will dive deep into the techniques and solutions to address these challenges. The authors will demonstrate the effectiveness of Decision Making models for Demand Allocation/ Order to Ship and Fuel Mix Optimisation Decision.

*\* Bounded rationality is a concept proposed by Herbert A Simon as an alternative for the mathematical modeling of decision making. It is based on the premise that rationality of individuals is limited by the information they have as well as by the cognitive limitations of their minds and the finite amount of time they have to make a decision. It perceives decision making as a fully rational process of finding an optimal choice based on the information available.* 

*The authors are Members of Group HR – Performance Management, Aditya Birla Group.*



# Going beyond

Anshul Goel, MD, Duroshox Pvt Ltd, has taken his company from being a manufacturer of shock absorbers for two wheelers for a few Indian customers to become a leading player across a variety of product segments catering to international players

By Niranjan Mudholkar

It has been a long journey for Duroshox since 1987, a company located at Sanaswadi near the Pune city. What started as a company manufacturing only shock absorbers for two and three wheeler applications for a few Indian customers has today emerged as a leading player across a variety of product segments catering to not just domestic OEMs but also many international players. And its second generation entrepreneur Anshul Goel believes that this is just the beginning.

## Bringing changes

Duroshox has been growing quiet robustly under the leadership of Anshul for the past few years. He joined the business in 1998. Then, he was away for a couple of years but came back in 2003. "I have been running the business in the capacity as MD since 2009," he shares. Of course, he brought in a lot of changes after taking charge. Having understood the business from the grass root level, he did a SWOT analysis and started looking at the business from a wider perspective. "We built systems to ensure that things were happening correctly. We went live on SAP. Basically, we started strengthening ourselves from the organisational perspective, from the market perspective, from the operational efficiency perspective and from the IT perspective. In terms of organisational structure,

*Indian SMEs have been the worst hit during the recession. And yet, they continue to drive the economy through their contribution to the manufacturing sector. In this section, we will speak to SME entrepreneurs who are carving a niche for themselves in a competitive market. In this issue, we meet **Anshul Goel** of Duroshox.*



Plant 1 produces shock absorbers, dampers, gas springs, industrial shock absorbers, and front forks.

we brought in alignment to ensure that everyone is working towards a common goal," Anshul shares.

Anshul has extensively used the Kaizen institute to transform his organisation. "We changed our layout from line assembly to cellular assembly. We condensed our workplace to almost 50 percent of what we were using when we started. It was all about standardising the workflow." All this has obviously delivered the results. Duroshox has seen an average growth rate of 25 percent over the last eight years. "We had some bumper years where we have doubled our turnover and we have had a couple of years when we have grown only seven percent but the average is around 25 percent," Anshul says. The last ten years have been profitable for the company.

While Duroshox started as a manufacturer of shock



“We had some bumper years where we have doubled our turnover and we have had a couple of years when we have grown only seven percent but over the last eight years the average growth has been around 25 percent.”



absorbers for two wheelers, the company started looking at global applications much beyond from the year 2002-2003. "Today, we have pretty diversified end applications ranging from construction equipment, agricultural equipment, commercial vehicles, small golf cars, cranes, power transmission equipment, forklift trucks and so on." Anshul believes that his company's strength lies in its ability to conceptualise, design, execute and manage projects. "We deliver to our customers what they want and today, we are adding a lot more value for our customers rather than just being a supplier."

### Focus on quality

A key reason for Duroshox's success according to Goel is the company's adherence to stringent quality policies. "Production control begins with all purchased raw materials being thoroughly tested to ensure that they meet standards for precision manufacturing. Modern production quality control, based upon SPC and Taguchi techniques, ensures that



We changed our layout from line assembly to cellular assembly. We condensed our workplace to almost 50 percent of what we were using when we started. It was all about standardising the workflow."



Plant 2 produces stampings, metal formed parts, seating suspensions, slider mechanisms, tubular frames and other fabricated assemblies. This plant also supplies other specialised engineering components.

strictest quality standards are met. These quality standards are supported by superior systems and a well-qualified control and manufacturing team," he says. Duroshox has been accredited with ISO 9001:2000 and ISO/TS 16949:2002 certification and is presently working on ISO 14000 and OSHAS 18001 certification. The company has an active supplier development and audit program. The in-house processes use tools such as Poka Yoke (Error proofing), SPC, FMEA and control plans to ensure consistent high quality production. The company has an elaborate laboratory equipped with the requisite testing facilities.

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**Additional feature:-** (R-603C) Temperature, Frequency



Model:- R-2070A / R-2070B

### Features:-

Voltage DC, Voltage AC, Ampere AC, Resistance, Diode Testing, Continuity Buzzer, Data Hold, Back light, Polarity Measurement  
**Additional feature:-** (R-2070B) Temperature, Capacitance



Model:- R-2025 / R-2025C / R-2025Hz

### Features:-

Voltage DC, Voltage AC, Ampere AC, Resistance, Diode Testing, Continuity Buzzer, Data Hold, Back light,

### Additional feature:-

1) Temperature (R-2025C)

2) Frequency (R-2025Hz)



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The layout has been designed through value stream mapping and with an aim to achieve the best floor space utilisation

### Manufacturing

The company's shock absorber and gas spring manufacturing plant is spread across four acres of land. The plant also houses the company's research and development centre. The metal forming plant is also located close by and is spread across two acres of land. Both facilities have been ERP Live on SAP R/3 platform since February 1, 2009. The plants follow lean manufacturing systems and cellular manufacturing. The layout has been designed through value stream mapping and with an aim to achieve the best floor space utilisation. The company has worked extensively with the Kaizen Institute since 2001 to maximise production efficiency and has deployed tools such as Single Minute exchange of Dies (SMED), Just in Time (JIT) and Statistical Controls over a number of years. In order to generate maximum value and optimise costs, the plant carries out a variety of operations in house.

### Way ahead

While Duroshox's first plant was started in 1987 at the time of inception, its second plant came in 2006. Within a very short time, Duroshox have filled the capacity and now it is reaching a point where it will have to start

## Research & development

Recognising the dynamic nature of the industry, Duroshox is aggressive on new development and has a well-equipped research and development department, using techniques such as Advanced Product Quality Plans, Failure Mode Effect Analysis (FMEA), Quality Functional Deployment (QFD), and Design of Experiments (DOE) in order to build parts first time right.

From the choice of product families and the unique specifications of components that the company has developed, it can always offer the optimal performance characteristics for any specific application resulting in optimum performance and customer comfort.

The Research and Development team consists of over 15 engineers that are motivated to build new designs and continually upgrade existing products. In addition to the in-house design capabilities, Duroshox also partners with outside design shops to provide a rapid design cycle to its customers.

**“In the next 3-5 years, we want to start executing plans for inorganic growth. We have already started taking baby steps towards it. Within this year, we will have a lot of clarity on this. We are also going shortlist some targets. That is what will catapult us to the next levels.”**

a third facility. “As of now, we are looking line balancing and optimising the return on capital investment. I think there is a lot of opportunity and scope for further improvement within the existing capacities before we actually expand. But yes, eventually that will happen. The growth we are foreseeing the next two years is averaging between 25 percent to 28 percent. For this kind of growth, our current capacity is adequate enough,” Anshul explains.

Anshul is quite happy that the he has been consistently growing the business. And now he is getting ready for the next level. Duroshox already has a business plan for the next three years and Anshul is sure that the company will grow at about 25 percent to 30 percent. But he will have to look at inorganic growth if he is to go beyond those numbers. “In the next 3-5 years, we want to start executing plans for inorganic growth. We have already started taking baby steps towards it. Within this year, we will have a lot of clarity on this. We are also

going shortlist some targets. That is what will catapult us to the next levels.”

Anshul will be looking at opportunities in developed countries. It could mean diversification but into products that are allied, which would be complementary to what Duroshox is doing now. “We would be looking at parameters like common customers, common markets, common raw materials and so on. We will also look at whether it will help us in terms of technology and processes. We also want to keep in mind cost synergies when we actually take the step. We are a niche player and we want to consolidate this position. So the inorganic growth must complement our existing position,” he explains.

### Activities at the two plants

| Plant 1  | Plant 2  |
|--|--|
| <ul style="list-style-type: none"> <li>Grinding.</li> <li>Resistance welding: Projection and seam welding, Mig / Mag welding.</li> <li>Automated Hard chrome Plating with SCADA system.</li> <li>Conveyorised powder coating with pre-treatment.</li> <li>Burnishing and Superfinishing.</li> <li>Assembly of shock absorbers, dampers &amp; gas springs.</li> </ul> | <ul style="list-style-type: none"> <li>Stamping.</li> <li>Robotic welding.</li> <li>Automated welding.</li> <li>Powder Coating.</li> <li>Assembly.</li> <li>E-coating</li> </ul> |



## Locations for the 10th annual conference

**Cambridge:** Sept 17–19

**Boston:** Oct 8–10

**Curitiba:** Oct 23–24

**Bangalore:** Nov 13–14

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- The exciting introduction of the newest version of COMSOL Multiphysics
- The chance to interact with peers and explore the simulation work of engineers.

at the conference will have their work recognized and shared with more than 165,000 people. Engineers and scientists will have a unique chance to present in front of colleagues who are working through similar problems," says Jinlan Huang, Program Chair for the Boston conference. "Attendees can really benefit from sharing new simulation techniques and innovative design strategies."

Papers and posters presented at the conference will be published on the COMSOL website where they reach a worldwide audience of engineers. Explore the contributions to last year's conference by visiting: [www.comsol.co.in/2013-user-presentations](http://www.comsol.co.in/2013-user-presentations). Engineers are invited to be a part of this annual event and showcase oral and poster presentations.

## Suggested presentation topics

- |  |   |
|--|---|
| <ul style="list-style-type: none"> <li>• AC/DC Electromagnetics</li> <li>• Acoustics and Vibrations</li> <li>• Batteries, Fuel Cells, and Electrochemical Processes</li> <li>• Bioscience and Bioengineering</li> <li>• Chemical Reaction Engineering</li> <li>• Computational Fluid Dynamics</li> <li>• Electromagnetic Heating</li> <li>• Geophysics and Geomechanics</li> <li>• Heat Transfer and Phase Change</li> <li>• MEMS and Nanotechnology</li> <li>• Microfluidics</li> </ul> | <ul style="list-style-type: none"> <li>• Multiphysics</li> <li>• Optics, Photonics, and Semiconductors</li> <li>• Optimization and Inverse Methods</li> <li>• Particle Tracing</li> <li>• Piezoelectric Devices</li> <li>• Plasma Physics</li> <li>• RF and Microwave Engineering</li> <li>• Simulation Methods and Teaching</li> <li>• Structural Mechanics and Thermal Stresses</li> <li>• Transport Phenomena</li> </ul> |
|--|---|

## Call for papers and abstract submission

Abstract submissions will be reviewed by a Program Committee of experts in simulation. This year, the Program Committee comprises an impressive assembly of scientists and researchers from academia and industry.

Visit [www.comsol.co.in/conference2014/india/papers](http://www.comsol.co.in/conference2014/india/papers) to submit an abstract of your work and view submission requirements and deadlines. Conference presenters who submit an abstract by the Early Bird Deadline will receive a discounted conference registration fee. 



In appreciation of the critical role played by Plant Heads in the success of manufacturing organisations, The Machinist has started a new section called 'Plant Head of the Month'. We will be featuring some illustrious plant heads in this section giving preference to the ones whose plants have accomplished noteworthy milestones recently.



# The **GATEKEEPER**

It is a highly competitive world and the only way to stay ahead of competition is to innovate and to bring in new technologies, says **Joydip Ghosh**, Vice President - Filters Business & HK Operations, Disa (The Norican Group)

By **Niranjan Mudholkar**



“A plant is the final gatekeeper of the product going out to customers and must play crucial role in ensuring that nothing passes its gate that is not worth carrying our name.”

**Joydip Ghosh,**  
Vice President - Filters Business & HK Operations, Disa (The Norican Group)

The plant is the ultimate frontier in the manufacturing business. And it is the person in charge of the plant, who along with his team plays a vital role in ensuring that the facility keeps delivering as per the organisational goals and strategies. The success or failure in achieving this goal is primarily determined by how the plant and its top boss take on the challenges thrown at them. Joydip Ghosh, Vice President - Filters Business & HK Operations, Disa (The Norican Group), tells The Machinist how Disa India's Hosakote facility has not only overcome the challenges but also has doubled its output in the past four years (with 50 percent YOY growth in 2013) under his leadership.

So what have been these challenges and how has Ghosh tackled them? He identifies bringing in visibility of goals, bottlenecks and process performance indices as the first key issue. And his tool in this fight has been communication. “We are never shy of spending more energy on communication of various important information, which is relevant to the shop floor,” Ghosh says. This starts with a monthly communication meeting, where entire company performance, market conditions, other highlights and so on, are presented. This is also an Open Forum for answering questions on any subject by anybody. This is

## Plant Data

Established in: **1997**

Location: **No. 50, KIADB Industrial Area, Hosakote, Bangalore - 562114**

Size: **Total area 4.5 acres (18,500 sq m),**

covered area: **7,500 sq m**

Staff strength: **110 (including 40 white collar staff)**

Products: **Filters (Air Pollution Control Equipment), Industrial Fans, Shot Blast Machines (All types of Surface preparation equipment), various accessories of these machines.**

Manufacturing principles followed: **Lean, WCM, Job Shop production (project specific).**



### Qualities of a successful Plant Head

- Set correct Goals, Strategy and Tactics to achieve them.
- Follow strict Work Ethics
- Believe and practice Team Play. Evolve larger community belongingness in each employee.
- Understand Cost
- Benchmarking and Networking
- Focus on Safety

followed by project specific communication. All important parameters like quality, safety, delivery, customer complaints, cost and so on are constantly reviewed and communicated to the team. “Many a times, excellent suggestions come up from the grass root level of the organisation, resulting in very good savings or solution of problems,” Ghosh says.

Another major concern is controlling the fixed cost. Ghosh believes in keeping it lean. “Following Toyota WCM, there is obvious focus on Lean manufacturing practices. Daily practice of tools like 5S and Kanban ensure good control on cost. Total strength of workmen has been restricted, considering the cyclical nature of the capital equipment market. All demand surges are handled by hiring trainees as well as by outsourcing,” he explains.

How about handling customer issues? “Through very strong tracking, review process, root cause analysis, problem solving techniques, each and every customer related problem is handled. A monthly review meeting, attended by the MD and other senior management team members, critically analyses the customer issues and resolution,” Ghosh says.

It is a highly competitive world and Ghosh believes that the only way to stay ahead of competition is to innovate and to bring in new technologies. “Disa has been a leader in this for over 113 years. There is a big focus to develop the mindset of our employees towards innovation and new products. We have run very successful technology transfer programs, wherein, several products from our European and American technology centres have been indigenised. The R&D facility at Bangalore has also developed high-end technologies, suitable for India and Asia. Moreover, our team has been

trained on new technologies in India and abroad and has very successfully embraced the same.”

Success of any organisation entirely depends upon the success of its team. “At Disa, we are fortunate to have a strong team, which helps in overcoming any challenge. Yearly target of training man-days are fixed at the beginning of the year after a detailed competency mapping and training need identifications. Through various internal and external trainings, knowledge and skill levels of our workmen and staff are continuously upgraded.”

Today’s manufacturing plants are all about centralisation of functional areas such as IT, procurement, warehousing, and even HR and accounting. In this scenario, how is the role of the ‘plant head’ evolving? Ghosh says that centralisation of functional areas like IT, HR, and accounting helps in relieving the plant head of some of these activities. “Most important part of this is to define the process well and help the centralised systems take over. Input data related to these functions must be provided by the plant team and the importance of the same should be communicated well. Identification and focus on key indices, which are controlled by the plant team, but measured and reported by the central head office team, is crucial.”

Ghosh is happy that today, many of these activities are being completely outsourced by organisations. “This is welcome from cost

“  
There is a big focus to develop the mindset of our employees towards innovation and new products. We have run very successful technology transfer programs, wherein, several products from our European and American technology centres have been indigenised.”



control and operational hassle point of view. However, proper definition of processes and control points is very important to ensure success,” he says.

With increasingly intense competition, quality plays a key role in differentiating manufacturers and their products in the market. While metrics like productivity and efficiency are important within a manufacturing organisation, what the customer values most is quality. But many times quality is sacrificed to cut costs or to ensure productivity.

In this light, what are Ghosh and his facility doing to build quality management within the manufacturing system? “Disa equipment is considered to be premium quality and expected to offer premium performance. This puts lot of responsibility on the shoulders of the entire team. A plant is the final gatekeeper of the product going out to customers and must play crucial role in ensuring ‘nothing passes our gate that is not worth carrying our name.’”

With growing competition, quality of everything a plant does has become more important and Ghosh believes that it starts with the mindset of people. “At Disa we always encourage complete ownership of any activities, be it manufacturing of equipment or preparing a drawing or making a purchase order.”

The person responsible for an activity is identified, given complete authority and freedom to make decisions, and held fully responsible for the outcome. “Along with the ownership, we ensure lot of visibility of quality related issues across the organisation. Nobody wants to see his name next to a ‘failure complaint’.”

Quality of vendors is equally important to a plant’s success. “A very strong vendor evaluation system, involving regular audit, training, reward

### Plant’s overall approach

**Technological leadership:** Keep the team ahead of competition through training, communication and culture change.

**Respect and empower:** Inculcate the feeling of belongingness

**Customer first:** Deliver to commitment. Commercial considerations become secondary, in case of a failure in meeting customer commitments.

### Approach to people management

**Empowerment:** Give respect and freedom and make them accountable.

**Clear Communication:** Set clear goals and expectations to the maximum details.

**Team work:** No excuses acceptable for not following this. It is very important to understand the cross cultural issues and expectations in an MNC environment. Often, communication and understanding each other can resolve most of people issues, Ghosh believes.

and penalty, etc. is in place. Our ‘Green Channel’ vendors are ensuring 100 percent defect free items delivered on time and competitive cost,” informs Ghosh.

Having right quality partners and maintaining relationships with them over long period is important. Lot of customised parts and one-off parts are to be developed to meet unique customer need. Vendors need very high levels of technical knowledge and experience and at the same time have to be very flexible to develop, experiment and deliver such small quantity of complicated parts.”

Ghosh also points out that Disa has been partnering with highly motivated and committed vendor base over a long period and have helped them grow together with Disa. “Our supply chain partners are considered the extended workshop of Disa, enjoying high level of focus, training, quality systems implementation, audit process, etc.”

Ghosh identifies safety as his priority number one. “There can be nothing more important than safety of people. We believe, if we do not have the capability to give someone a hand or leg or part of his body, we have no business of being responsible for him losing one. There are absolutely no excuses and no compromises on safety related issues. At Disa, safety of plants is monitored across the world and regular audit is conducted by a global safety director. A dedicated safety officer keeps watch over entire operations and is empowered to shut down operations, in case of a serious safety risk identified.”

“ Our plant encourages complete ownership of all activities, be it manufacturing of equipment or preparing a drawing or making a purchase order. Along with the ownership, we ensure lot of visibility of quality related issues across the organisation.”

*Licence to Mill*



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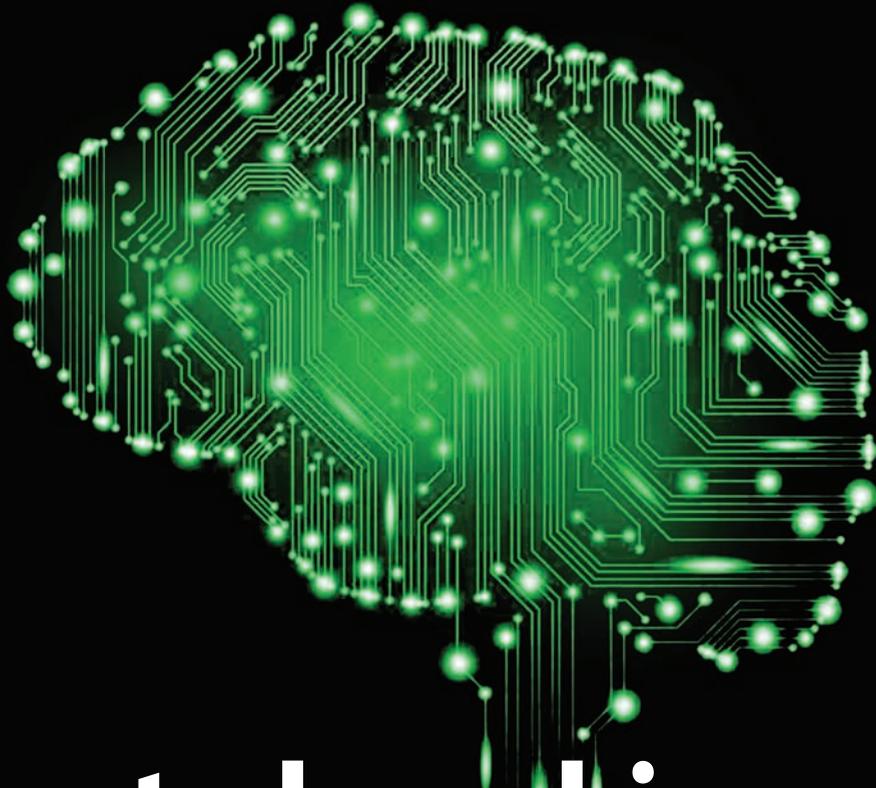
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# Educated machines

The future holds great promise for machinery capable of being tracked and dynamically readjusted in real time. Thus, machine learning technologies and analytics will gain momentum

By Susmita Nandi

**M**achine learning technologies were used even as early as the year 2000, when the computer chip embedded in a truck's engine would adapt a varied algorithm to maximise its operating efficiency. For example, the truck being driven on plain road would have a different efficiency algorithm than when it is being driven on high-terrain. Auto-insurance premiums have been determined by collecting, monitoring and analysing the driver's behaviour by key functions performed by the driver through a remote sensor placed in the car. If the driver pressed his brakes too hard continuously, or continued to

drive over the speed-limit, he was associated with high-risk attributes and was charged high premiums. This method of dynamic assessment of driver behaviour for charging premiums was considered an innovative as good driving skills could be rewarded with lesser premiums in the future.

The concept of machine learning is to configure mathematical algorithms in the computer so that it can pick up prominent key words or patterns from huge amounts of data with minimal human intervention. Today, machine learning technology has evolved to capture real-time sensor data from various parts of the machines and be able to predict, using statistical modelling, the exact time when a part may need to be replaced.



The concept of machine learning is to configure mathematical algorithms in the computer so that it can pick up prominent key words or patterns from huge amounts of data with minimal human intervention."



Terabytes of data produced at manufacturing plants are impossible to analyse by the human eye alone, but on the other hand, hold important information on risk and efficiency. Machine learning technology coupled with Predictive Analytics can detect the likelihood of a machine part of requiring servicing or replacement ahead of time, thus minimising production downtime and production of defective products. The role of the analyst here is also important as he needs to ensure that the analysis conforms to business logic and decisions from it will be positive.

Warranty or service contracts are other areas of potential savings and optimisation using a combination of machine learning and predictive modelling. Warranty is provided to customers along with the product sold, and may contain a variety of plans of how the customer may be able to fix a broken part for a period of time, and extended warranties are also sold to mitigate the risk of big repair costs in the future.

However, focus on warranty services has not been a priority for manufacturers, and as a result a yearly global cost of US\$70 billion is spent in this area. Poor data quality, manual warranty or claims process that are disconnected with product issues, lack of visibility or insight due to absence of analysis and functional teams working in silos are some reasons for heightened risk for fraud and poor supplier recovery.

Once the data streams are consolidated and distilled, insights on a variety of business areas can be discovered, for example,

patterns of fraudulent claims, faulty parts from a particular dealer or supplier, or detection of a machine part that is vulnerable and require reengineering. If the likelihood of a part breaking down often every few months is high, then the warranty service could be aligned towards addressing it. This would help the company save on warranty claims cost by proactively fixing problems; it would also increase extended warranty revenues and brand value.

**Household appliances will have sensors feeding live data on the performance of each part.**



Machine learning technology can minimise production downtime and production of defective products.



Today, machine learning technology has evolved to capture real-time sensor data from various parts of the machines and be able to predict, using statistical modelling, the exact time when a part may need to be replaced."

Many consumer goods producers are taking control of their business by listening to what the millions of consumers have to say about their brand and using that input to tweak their messaging or even their product features. Computer algorithms crawl through the billions of blogs, tweets and other social platforms to filter and capture pertinent words about a specific brand.

The words then can be analysed through predictive modelling to understand the likelihood of a successful launch and which other features consumers would like in their product. This type of man-machine collaboration and the use of analytics could help a business stay ahead of competition.

According to the concept of 'Internet of things', the future holds great promise for

almost all machinery capable of being tracked and dynamically readjusted in real time. Soon, all household appliances will have sensors feeding live data to the central warehouse, which will track the performance of each part, and just-in-time maintenance process will ensure the replacement of any expired component.

A few of such examples are already seen in some industries, but this trend is likely to see explosive growth in the next decade. Already certain automobiles are geared with Artificial Intelligence to prevent accidents if the driver fails. Robots are placed in bio-hazardous job roles, who imitate human limb movements to perform dangerous functions. Gradually, all health-risk related tasks may be given to robots. Although, the machine learning capabilities can bring about tremendous benefits through its disruptive technologies, human intervention will still be necessary to understand the context and drive the business forward. 

*The author is Practice Manager- Analytics, Blue Star Infotech Ltd*



# Creating Sustainable Industry-Academia Linkages

National Knowledge Functional Hubs, an initiative of FICCI engaging academia and industry, aims is to provide professional exposure to fresh graduates

Lack of appropriate industry-academia linkages and engagements have been identified as one of the critical reasons for the lack of quality of fresh graduates in engineering and other disciplines in the country. There is very limited knowledge sharing between the two key stakeholders about each other's specific needs, capabilities and resources. Although we have clusters of industry existing in the country, there is minimalistic interaction with the local universities and higher education institutions to jointly address the issues of industry or the community. The present interaction is limited largely to summer internships or placement of the students in the industry, which is neither productive nor effective.

Poor quality of engineering graduates and the resulting lack of employability is a grave concern in India. The problem areas identified include lack of soft skills, inadequate exposure to industrial environment, inability to solve real time problems, irrelevant curriculum and lack of research environment.

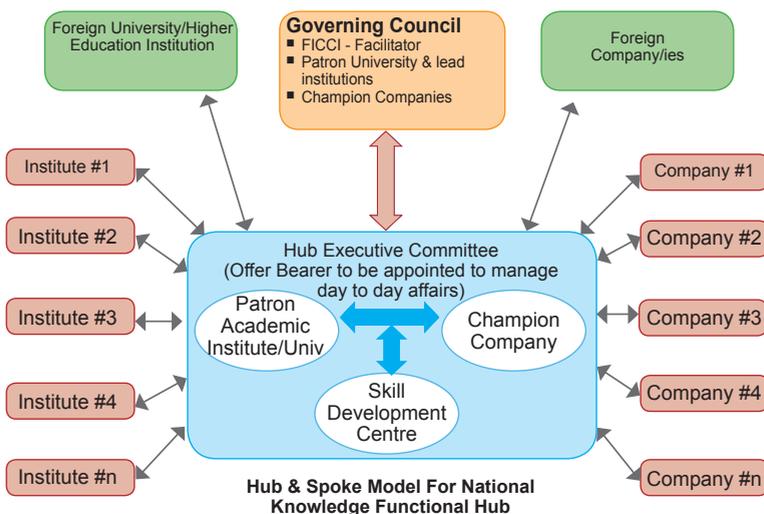
Institutions tend to work in isolation due to lack of managerial capability and initiative in creating dynamic linkages with the industry. All these factors make the four-year engineering course and other professional and general programs futile for students as well as the industry, as companies end up reinvesting money and efforts on training of new recruits.

### Concept of NKFH

National Knowledge Functional Hubs (NKFH) is a collaborative framework of FICCI engaging academia and industry, focusing on multiple disciplines and sectors. The aim is to create a knowledge network of leading universities and companies with tier II and tier III institutions and local SME industry with the primary objective of providing professional exposure and confidence to fresh graduates through involvement with real life industrial activities. Leading companies and academic institutions in a region will come together as a 'Hub' to facilitate mutually beneficial linkages. The 'Hub' will create and sustain

a network of 'Spokes' with other companies and institutes in the region. Further, each hub could also draw strength by collaborating with leading foreign universities and companies for sharing of best practices in academic programs and collaborative industry research. Each hub would be financially sustainable in due course of time with minimal support from the government. Initial seed funding is proposed to be generated with contributions from industry and institutions. Subsequently, the hub has to come up with activities that would generate funds through sponsorships; project funding from industry and government; earnings from conferences / training programs; membership fees, subscriptions etc.

### Organisational framework



### Expected outcomes

A key objective of the initiative would be the successful formation of a financially viable pub-



| <b>Benefits</b>   |   |
|---|---|
| <b>For industry</b>   | <b>For academic institutions</b>  |
| <ul style="list-style-type: none"> <li>• Introduction of industry-relevant curricula.</li> <li>• Introduction of new courses on topics relevant to industry.</li> <li>• Refresher courses and training to practicing industry professionals through continuing education programs / summer schools.</li> <li>• Workshop / Lab facilities from academic institutions to trainees from industry.</li> <li>• Joint research projects with academic institutions.</li> <li>• Industry-faculty interaction for professional enrichment.</li> <li>• Incubation of new technology, leading to Industrial applications and commercialisation.</li> <li>• Help in filing Patents and protecting Intellectual Property.</li> <li>• Collaborate with academic institutions in developing 'Model' documents such as MoU, Collaboration Agreement, Licensing Agreement, NDA, etc.</li> </ul> | <ul style="list-style-type: none"> <li>• Employment opportunities to fresh graduates having requisite skills and qualifications.</li> <li>• Summer internship opportunities to students.</li> <li>• Industrial projects to students as part of Degree requirements of Graduate / Post Graduate courses.</li> <li>• Collaborative research projects with industry.</li> <li>• Industry exposure to faculty members through joint projects.</li> <li>• Guest lectures by industry experts for students and faculty members.</li> <li>• Opportunities for industrial application/commercialisation of appropriate technologies generated through academic research.</li> <li>• Machinery, test rigs, prototypes, industry models and other assets donated to academic institutes as 'endowment'.</li> <li>• Scholarship schemes for bright students working on projects of mutual interest.</li> </ul> |

lic private platform for sustained industry-academia linkages. This will lead to well connected existing industry clusters and universities/institutions working together to address industry and community relevant issues. There will be dedicated Think Tanks in the area of higher and vocational education related research – policy issues, academic practices, research & development guidelines, student and faculty development issues, etc. This will lead to the creation of industry ready graduates, thereby reducing non-employability of graduates through structured industry internships and community programs.

A platform like this will help enhance the competitiveness of the local companies through collaborative research and development activities. It will drive the growth of local industry and entrepreneurship due to lifelong learning skills imparted through executive training programs and create enhanced vertical and horizontal linkages between vocational and higher education. A robust platform like NKFH will also make available funding options for disadvantaged local students through scholarships and soft loans through local industry support.

**Current status**

Currently, five regional hubs have been launched for western (NMIMS Mumbai), northern (Thapar University Patiala and UPES, Dehradun) and southern region (Manipal in Bangalore and Amritha University in Coimbatore). The Governing Council at the national level and the Executive Committee at the hub level has been formed. The Governing Council is in the process of finalising the Memorandum of Association. Efforts are on to make at least two Hubs operational in the country in collaboration with patron institutions and champion companies. The Governing Council is in the process of getting NKFH registered as a Society. To make NKFH self sustaining, the revenue model is being worked out and is in the process of finalisation. The Planning Commission has incorporated the NKFH concept in the 12th Plan document (Narayana Murthy Report on Corporate Engagement in Higher Education).

**Key objectives**

- To create a mechanism for sustained academia-industry linkages to ensure effective and efficient engagement for mutual benefits.
- To enhance the employability of graduates through development of appropriate skills relevant to the Industry verticals.
- To align higher education, technical education and research with the current and future requirements of industries.
- To address the skill sets required across the value chain in the industry.

**Roadmap for scaling up**

The initial launch of key regional hubs across the country (North, West, South, East and Central) has been on a pilot scale (during the first year). During the second year, the NKFH implementation framework and financial model will be validated and further refined through these hubs. During the third and subsequent years, there will be creation of subsequent additional hubs around key industry belts (such as automobile, engineering, textiles etc.) and development of surrounding academic institutes with teaching / research focus primarily in these sectors.

Subsequently, there will be integration and consolidation of hub level activities at National Level through the NKFH Governing Council, thus providing a sustainable platform for shaping national policies and strategies (to be an ongoing and consistent effort).

Of course, active collaboration with leading international universities, industry bodies and agencies to benchmark the NKFH initiatives with global trends and standards will be an ongoing process.

*Courtesy: Toshi Hormusjee, Chairman of the Southern Hub of NKFH*



# Advanced sensing technology for academic institutions

Automation major Pepperl + Fuchs has joined hands with Ajay Kumar Garg Engineering College to establish an advanced training facility in the field of industrial sensing.

Pepperl + Fuchs together with Ajay Kumar Garg Engineering College (AKGEC) have recently established an advanced training facility in the field of industrial sensing at Center of Relevance and Excellence, AKGEC Ghaziabad.

This initiative taken up by Pepperl + Fuchs and AKGEC is yet another step in the industry-academia interface which brings relevant and contemporary knowledge in the domain of technology and industrial applications to the academic institutions for training and manpower development. This initiative shall go a long way not only to aid the institution in imparting education on relevant technology but it shall provide a good platform to give hands on training to students for a deeper understanding of the subject with the help of real life industrial equipment.

The training facility and course material are unique and tailored to meet the growing needs of Indian Industry and engineering education in the domain of Automation. The training facility covers in depth Industrial scenarios and has complementing hardware which suggests and trains the best fit technology and solutions. It aptly covers the domain of modern industrial sensing, bus based technology, RFID and po-

sitioning systems. Students can be trained in these areas on world class training kits which can be said to be currently the best in India in the arena of education.

Industry-academia partnership stands on four strong pillars namely, the students, the faculty, the industry and the administration of the academic institution. The needs, goals and aspirations of all four must be taken into account for a strong, healthy and result oriented industry-academia partnership.

Ravi Agarwal,  
Director of Pepperl+Fuchs  
India

AKGEC has since long been striving to have a complete and effective facility for comprehensive development and training for budding and existing professionals. This addition to their existing facilities diligently covers the latest and important facet of technologies which shall enable the much needed and exhaustive exposure of equipment to their pupils and industry in general.

This facility shall be part of an integrated center for learning for Automation which has been mooted by AKGEC to increase the employability of fresh graduate engineers and is being facility to produce, retrain and guide existing professionals to in the field of Industrial Automation. The resulting trained manpower shall be an asset to the Indian manufacturing industry and shall help the industry to adopt the latest technologies to improve quality and productivity on the shopfloors.

Michael Fuchs, the co-owner of P+F group of companies and Ravi Agarwal, Director of Pepperl+Fuchs India inaugurated the training facility for teaching of industrial sensors, vision, RFID and positioning systems at AKGEC. A



detailed MOU (Memorandum of Understanding) was signed between AKEGC & P+F to outline the areas of co-operation and further strengthen this relationship. There will be a further joint development of teaching curriculum, research projects, individual technology demonstrations, and training workshops under the MOU. The idea is to infuse contemporary technology and content into the educational system. This shall also create a center of competence for industrial automation at AKGEC.

Fuchs in his inaugural address congratulated the AKGEC management, professors and specially the students who would benefit the most. He cherished the idea and stated that the joint initiative taken up by P+F and AKGEC shall bear good fruits in the future. He specially remarked at the new thrust in technical education and quality of its delivery in India as exemplified by the multiple training and modern facilities at AKGEC. He remarked that during his interaction, he found that the enthusiasm of students and their appetite for better education and technology solutions was highly appreciable and promising.

Speaking on the occasion, Anup Wadhwa, Director AIA (Automation Industry Association) directed everybody's attention on how to best adopt industrialisation and good work practices for the betterment of the society. New generations can be the best agents to learn the new and adopt the best fit for the industry and products. For this to begin there is a need to bridge the gap between the industry and academia.

As appreciable as the training efforts are, he emphasised, there is also a dire need for holistic development, skills and value education to complete the making of sound professionals to lead the Indian Industry.

Prateek Garg, Chairman, Western Zonal Council, Confederation of Indian Industry (CII) delved onto the fact that global forces are now influencing our economy and presenting multiple challenges. Therefore it becomes imperative that our industry finds ways to nurture talent and undertake continuous skill enhancement and training.

He stated that today Industry must attract the right talent and encourage the passion to deliver. He congratulated AKGEC and P+F and emphasised that such collaborations pave the way for better knowledge and technology transfer from academia to industry and vice-versa.

Dr RK Agarwal, Director AKGEC stated that this collaborative effort is to encourage young professionals to take up this cross disciplinary field as a career of their choice and acquaint themselves with the latest technological developments in the field. He shared his vision that the competence centre being so envisaged would aim to train young engineering graduates and diploma students of all engineering disciplines up to the expectations of the industry and foster research and innovation in the field of applied automation.

Ravi Agarwal, Director and head of the FA business in India shared his thoughts on the high importance and the neces-

sity of Industry and academia working together in India. He stated that for the future needs of our country and technology driven economy, there is an urgent need to increase the exposure and practical knowledge of our future engineers.

He emphasised that industry-academia partnership stands on four strong pillars namely, the students, the faculty, the industry and the administration of the academic institution. The needs, goals and aspirations of all four must be taken into account for a strong, healthy and result oriented industry-academia partnership. Such collaboration as entered on the date holds the key to a good and productive future of the society and to give improved future perspective to the four stakeholders as aforesaid.



**There's an urgent need to increase the practical knowledge of our future engineers**

**"This initiative shall go a long way not only to aid the institution in imparting education on relevant technology but it shall provide a good platform to give hands on training to students for a deeper understanding of the subject with the help of real life industrial equipment."**

Pepperl + Fuchs has been engaged in India since 1987, and since last fifteen years has been established as a 100 percent owned subsidiary of P+F Germany. Its products are widely used in India in a many sectors like machine building, pulp & paper, cement, metals & minerals, automotive, material handling, food & beverages, ceramics, process controls, gas & petrochemicals, fertilizers and so on.

Ajay Kumar Garg Engineering College, is a premier engineering institution of North India, affiliated with Uttar Pradesh Technical University, Lucknow and is duly approved by All India Council of Technical Education. The college offers B.Tech courses in seven disciplines of engineering and Postgraduate courses in computer applications and M.Tech in five disciplines. The college has won an award for Best Industry-Academia Interface by the Hon'ble Minister of Science & Technology. 



# Expanding horizons

E-commerce platforms provide endless opportunities to small businesses and it is time for India SMEs and entrepreneurs to effectively leverage the power of the web

By Khalid Isar

**A**s manufacturing costs across the world continue to rise, more buyers from overseas are looking for sourcing options from countries with distinct, quality products at competitive prices. Indian manufacturers have demonstrated a proactive approach to understanding the buyer's needs and are making a conscious effort to move away from the traditional methods and more into innovation. It is not surprising therefore that with the incredible number of growing enterprises in India, the country is increasingly being recognised as a hub for manufactured products for export.

Thanks to e-commerce and the internet, industries such as machinery, chemical and engineering amongst others have witnessed demand come in from APAC, BRIC and other emerging countries. We have seen small businesses in the machinery industry leveraging the power of e-commerce to make the most of global opportunities. This is reflected in machinery being the top category for buyer inquiries made to Indian suppliers on our website. Other top categories include agriculture, textile, minerals, chemical, automobile and apparel. This brings



Thanks to e-commerce and the internet, industries such as machinery, chemical and engineering amongst others have witnessed demand come in from APAC, BRIC and other emerging countries."



to the forefront that there are endless opportunities that the internet can offer. Let us see the various ways in which Indian SMEs can effectively leverage the power of the web.

### Embrace the net

SMEs who embrace the internet are able to take their business to new heights. E-commerce platforms provide small businesses with opportunities to establish their presence on the internet by providing them a one-stop shop, identifying potential trading partners, learning more about global trade, sharing trading experience and interacting with each other to conduct business online. Because of the wide reach, these virtual marketplaces can provide great benefits to users with limited or even no investment and minimum time.

### Using big data & digital media

Small businesses that use big data intelligently can boost efficiency and sales of their business. Netpreneurs or entrepreneurs with a presence on the internet, inadvertently accumulate a lot of data – records of what buyers are searching for, where they are from, what they buy, when and how often, amongst other trends. This allows them to pick the right keywords, customise their marketing strategies and tailor-make a more personal experience for their buyers.

### Brick to click to mobile

With the emergence of mobile, Indian SMEs should prepare themselves for an omni-channel approach, ensuring that their buyers have a uniform buying experience no matter which platform they choose or which part of the world they are based in. Thanks to the growing popularity of smartphones and tablets, more people now want to be able to shop using many different channels. With smart digital devices and improving connectivity, today's discerning consumers have more information, choice and flexibility at their fingertips. More shoppers are now evaluating purchase decisions on the web and even while on the go, using their smartphones.

Once SMEs master the technique to promote their business on the web, the next step that they should focus is how to connect with traders across world markets. Below are quick guidelines to keep in mind:

### Build customer confidence

If Indian SMEs hope to raise their profiles amongst the international buyer community and tap the growing demand for Indian products, then Indian SMEs will have to ensure promptness and transparency in business dealings.

Manufacturing suppliers must get into the habit of updating their company profile on the website and e-commerce platforms. Simple things such as having product pictures, complete product descriptions, accurate contact details will go a long way in assuring buyers. Responding to customer enquiries promptly and anticipating their needs are also key points for international business acumen.

“If Indian SMEs hope to raise their profiles amongst the international buyer community and tap the growing demand for Indian products, then Indian SMEs will have to ensure promptness and transparency in business dealings.”

### Quality content

Getting one's website SEO-ready and ensuring a top spot in search results should be your priority. The first step that you must take is update complete, relevant information about your company. This works as a company profile online, giving prospective buyers detailed information about your business operations. The company profile can include information such as product offerings, experience with domestic and international trade, company certifications, manufacturing units and capacity, number of employees, awards & recognition, major markets and lastly, company contact details. Using the right keywords while updating this information can go a long way.



**These virtual marketplaces can provide great benefits to users with limited or even no investment and minimum time.**

It is observed that 80 percent of buyers search for products using keywords on the internet, which the search engine recognises and matches with web pages, tossing up the search results.

### Adopt mini-sites

The internet is only as effective as you make it. A savvy entrepreneur should ensure that his online storefront attract buyers, generate interest, build recall and lead to positive inquiries. Small businesses can experiment with a wide range of features such as inserting banners, a slideshow of pictures and videos of products, groups that categorise each product type amongst others. These in turn will attract more traders to your company website. 

*The author is Country General Manager, Alibaba.com India.*



# Need for *OVERHAULING*

According to a report by FICCI-KPMG, all round improvements, including in the MRO segment, are required to make Indian aviation sector number one globally by 2030.

India has the potential to become the third largest aviation market by 2020 and the largest by 2030. However, in order to achieve the vision of becoming the third largest aviation market by 2020, a lot more needs to be done, according to the FICCI-KPMG 'Indian Aviation 2014' report launched recently in Hyderabad during India Aviation 2014. In order to become a top aviation market, all round improvements are required – in airports, air navigation, cargo, general aviation, human resource development and very importantly Maintenance, Repair and Overhaul (MRO).

Notwithstanding the huge potential and the progress done so far towards achieving the same, it is ironical that not a single commercial aircraft of Indian carriers undergoes repairs in India. Empty aircrafts are flown to MRO facilities in our neighbouring countries and paid for in foreign exchange. The loss of revenue, foreign exchange, employment and direct taxes is immense. All this is thanks to the short-sighted policies regarding indirect taxes (Service Tax and VAT) and cumbersome Customs procedures regarding import of aircraft parts and consumables.

India's current MRO market size is estimated to be around US\$ 700 million. By 2020, the total Indian fleet would double in number, making it critical to have a strong domestic MRO industry. As per Boeing, the market is expected to grow at seven percent

CAGR for the next eight years to reach US\$ 1.5 billion by the year 2020.

The Indian MRO industry is facing significant challenges which are slowing down the growth of this industry. Some of these factors include un-friendly taxation structure,

**"Not a single commercial aircraft of Indian carriers undergoes repairs in India. Empty aircrafts are flown to MRO facilities in our neighbouring countries and paid for in foreign exchange."**

| Key issues surrounding high taxation of the MRO industry in India  |  |
|--|--|
| Apply zero rate of VAT on MROs   | Zero rating of VAT would enable development of MRO infrastructure in India. The government would earn significantly larger revenues from the multiplier effect of MROs, generation of local employment spend and growth of ancillaries.                  |
| Alternatively, if zero rate of VAT on MRO is not possible, aircraft parts and consumables can be brought under declared goods category | This would ensure uniformity of a low VAT rate across the country. If the size of the MRO pie is made ten times larger, a smaller percentage of VAT would yield much higher revenue for the State than by imposing a higher tax rate on a miniscule pie. |
| Provide zero rated Service Tax structure to the Indian MRO sector  | In case MRO repairs are undertaken outside India, service tax is not charged which makes Indian MRO industry uncompetitive with respect to other neighboring countries.  |
| If zero rating of service tax is not possible, the abatement should be increased to 95%  | Currently, MRO services qualify as 'Works Contract Service', which attracts service tax @12.36% on 70% of the service portion of the work. The present rate of abatement should be increased from 30% to 95% to reduce the service tax incidence.        |

Source: KPMG Analysis

cumbersome procedures for import of components and movement of foreign experts, and inadequate infrastructure.

According to industry sources, merely 5-10 percent of the MRO work for domestic scheduled carriers is carried out in India and most of the maintenance activity work is outsourced to third-party service providers outside the country. This marks a lack of competitiveness in the Indian MRO sector and is in fact a classic case of scoring self-goals. An inter-ministerial task force on MRO needs to be formed immediately by the government to check the outflow of MRO revenue, foreign exchange and jobs. It is critical that both the taxation and policy related bottlenecks are thoroughly examined and addressed to put the Indian MRO industry on a high growth trajectory. One main issue that needs to be tackled on an urgent basis are the unnecessary taxes on the industry which drive down the domestic MRO industry's competitiveness and reduce investors' interest in it.

### Rationalise tax structure

MRO is critical to the growth of the aviation sector in India. It generates employment, revenue and government taxes. A close collaboration between the government, airlines, airports and the MRO industry would be crucial for addressing the high taxation in the form of VAT and Service Tax along with other policy level issues.

Some actions are urgently required to make India a global MRO hub. This starts with the elimination of discriminatory taxation policy for domestic MRO players. Due to discriminatory tax policy, Indian MRO players have to suffer an additional tax burden of nearly 40 percent over

**“India’s current MRO market size is estimated to be around US\$ 700 million. By 2020, the total Indian fleet would double in number, making it critical to have a strong domestic MRO industry.”**

foreign MROs. These are in terms of import duties, VAT and service tax. This has led to a strange situation. India carriers prefer to fly their aircrafts and crew at a high cost to other MRO locations like Dubai, Singapore, Malaysia, Sri Lanka etc, since it still works out to be more cost-effective than doing the repairs in India. There is an urgent need for rationalisation of this anomalous taxation policy that has only weakened India's competitiveness as an aviation hub.

Secondly, it is important to abolish import duties for spare parts. Due to high import duties, (not applicable to foreign MROs) local MROs are not able to maintain an inventory of key spare parts. This, at times, leads to Indian aircrafts being grounded for longer periods. Abolition or reduction of import duties for spare parts will cut short the timelines for servicing the aircrafts.

Thirdly, given that the aerospace and MRO industry in



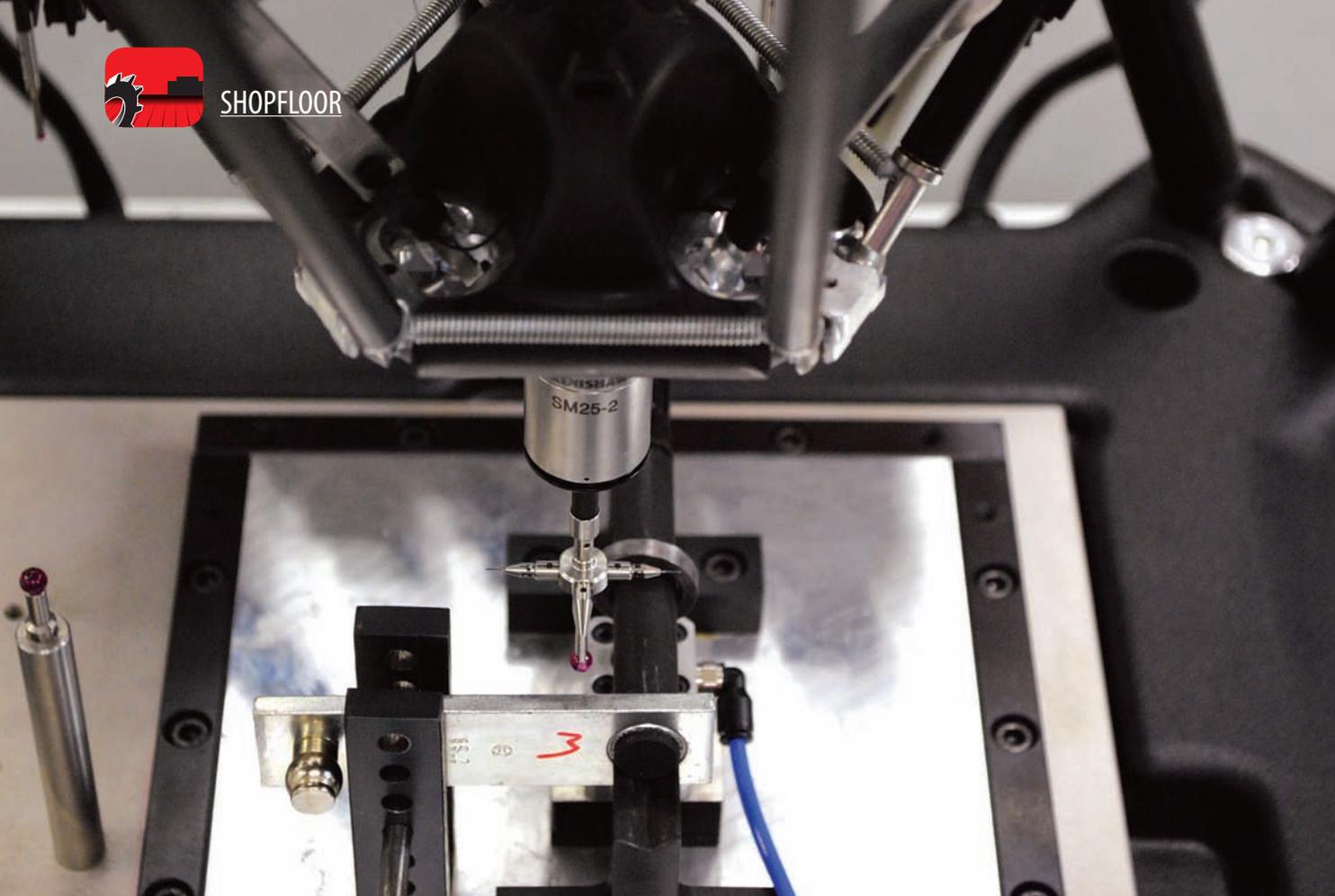
**Engine overhaul is the largest segment of the MRO market, according to the report.**

India is in its infancy, and that there is a heavy dependence of Indian carriers on MROs in foreign countries, the domestic MRO industry should be supported as a means of import substitution. For instance, manufacturing of power sector equipment for domestic industry is treated as deemed exports and receives significant tax benefits.

Then, there should be impetus given to MRO joint ventures. The Government should incentivise airlines to consider setting up their dedicated MRO hubs in India through three-way joint ventures with MRO service providers and airport operators. This assures sustained business for the venture as well as cost advantage for the airlines.

Equally important is the streamlining of licensing and security clearance procedures. According to industry players, receiving approvals for an MRO establishment is extremely challenging. Currently the license is given out as a ground handler instead of a MRO player which suggests that the authorities are not distinguishing between these two very distinct services.

In case of urgent repairs of a grounded aircraft, requiring foreign specialists to be flown in at short notice, the amount of time taken for getting security clearance for such experts is highly time consuming. Their late arrival causes significant losses for the airlines since the opportunity cost of a grounded aircraft is extremely high. There is an urgent need to streamline clearance procedures so that there is a reasonable balance between business exigencies and security considerations. 



Equator has overcome difficulties of gauging a conical hole on a motor crank arm

# Versatile and innovative

An auto component manufacturer is able to significantly reduce non-productive waiting times, while maintaining the high quality and manufacturing efficiencies with rapid, comprehensive and fully automated gauging

**E**ponsa, a manufacturer of automotive components located near Barcelona, Spain, has purchased a versatile and innovative shop-floor comparative gauge, the new Renishaw Equator. The purpose is to check the quality of stamped parts and assemblies. This will reduce non-productive waiting times to a fraction of the time taken now, while maintaining the high quality and manufacturing efficiencies that are critical for the success of an automotive subcontractor. Other advantages for Eponsa are that Equator can scan the form of part features with its SP25 probe and change styli with the stylus change rack, included as standard, to check a

large variety of parts.

Eponsa believes “Equator could reduce or eliminate quality room waiting times. This is because Equator can be used on the shop floor, alongside the machines producing the parts, and with the low purchase cost we can have several Equators positioned where we need them. We plan to have Equators alongside the stamping area and in the area for assembling mechanisms, where they will be particularly important. The speed of operation and measurement capability of Equator will ensure rapid, comprehensive and fully automated gauging.”

#### Automated shop-floor gauging

Eponsa believes that Equator will be



This mechanism is lightweight, allowing rapid motion, yet very stiff during comparison measurement of features, with repeatability of less than  $\pm 2 \mu\text{m}$ . This has been proven on a wide variety of both prismatic and free-form features.”

welcomed on the shop floor since it will reduce the workload considerably. Eponsa operators are inspecting thousands of parts every day, using documented procedures. Visual checks are done to ensure holes are present and that there are no cracks in the material, followed by dimensional measurements with hand instruments like callipers and plug gauges. Because the stamping processes are automated, making them very consistent and reducing the chances of human error, operators can usually detect potential problems before scrap parts are made, to ensure 100 percent good parts. However measurement with hand gauges is time consuming, repetitive and all down to the skill of the operator - there is more chance of the inspection process being wrong than the manufacturing process. Equator's repeatability is set to change all that.

Equator is an independent and traceable test of part quality, with the difference that all the operators can use it rather than just quality staff – currently a quality inspector walks around the plant constantly checking that procedures

“Once the check is complete the operator sees a clear indication of whether a part has passed or failed – in the quality department we then only have to deal with any suspicious parts, instead of every part. This is reducing the load on the quality department considerably.”

are being followed and parts are good. This is done with a visual check followed by taking the last part in every batch and performing a full inspection in the quality room. Experience has shown that if the last part is good then the whole batch is good, but this still means a long queue at the quality room.

**Easy shop floor use**

The Equator system includes easy to use graphical software called MODUS Organiser, which is designed for shop floor operators to activate checks, with just a few minutes of training. This software is vital to the operation of Equator, “MODUS Organiser is the perfect way to run Equator on the shop floor, it is so simple

and useful. The operators are able to choose programs and start checking the parts in a few seconds, with an immediate view of how long the check will take on a countdown timer. Once the check is complete the operator sees a clear indication of whether a part has passed or failed – in the quality department

**80:20**  
**The ratio of Eponsa's business reflecting auto component manufacturing and general subcontract stamping, welding and assembly work. Designing and commissioning all their quality and manufacturing processes themselves is a big advantage, allowing them total control.**



Eponsa produces all the stamped parts for windscreen wiper mechanisms



An Eponsa engineer loads a wiper mechanism part onto Equator ready for gauging

we then only have to deal with any suspicious parts, instead of every part. This is reducing the load on the quality department considerably.”

**Restricted access to programs**

The gauging programs are written using Renishaw MODUS software, but use of this is access-controlled. As Eponsa says “It is a very good idea that only programmers can create and change programs, we can then set up the Equators knowing that the programs are running correctly and operators will not be making any changes. We make it easy for the operators to find the right program in MODUS Organiser by including photos of the part, which also shows them how the part is placed on the fixture. The intention is to use as few fixtures as possible, with many parts using each configuration.”

**Gauging repeatability through mastering**

Equator uses a comparison method of mastering and measuring that will be very familiar to any existing users of dedicated gauging systems. A master component with features of known dimensions is used to ‘zero’ the system, with all subsequent measurements compared to this part. The key to the Equator system is a highly repeatable and radically different metrology mechanism based on a structure known as parallel kinematics. This mechanism is lightweight, allowing

“ We make it easy for the operators to find the right program in the software by including photos of the part, which also shows them how the part is placed on the fixture. The intention is to use as few fixtures as possible, with many parts using each configuration.”

rapid motion, yet very stiff during comparison measurement of features, with repeatability of less than  $\pm 2 \mu\text{m}$ . This has been proven on a wide variety of both prismatic and free-form features.

**Manufacturing at Eponsa**

Eighty percent of Eponsa’s business is producing automotive components, the other 20 percent is general subcontract stamping, welding and assembly work. Designing and commissioning all their quality and manufacturing processes themselves is a big advantage, allowing them total control. This includes design of the stamping tools and welding/assembly jigs.

Eponsa is certified to ISO-TS16949, a specific standard for the automotive industry and ISO14001. It directly supplies factories around the world in Mexico, South Africa, Germany, Hungary, China and Korea.

**Improve efficiency and reduce costs**

The pressure on automotive subcontractors to reduce costs while simultaneously improving efficiency and quality might seem to be at odds with each other, but Eponsa firmly believe that Equator technology is the break-through they need to help them achieve this. 

*Courtesy: Renishaw*



## Optimised servo drive system for motion control applications

Siemens Industry has launched the newly-developed SINAMICS V90 servo drive and SIMOTICS S-1FL6 servo motor for motion control applications. The drive and the motor together form an optimised servo drive system for positioning, speed and torque control. It is not only cost-effective but also shortens time-to-market with easy commissioning, thus improving customers' competitiveness.

**Cost-effective:** SINAMICS V90 has various integrated control modes to address a wide range of applications such as pick & place, labeling, horizontal packaging, printing etc. It also finds use in winders and unwinders and automatic assembly machines. Point-to-point positioning is possible by using a basic PLC without a positioning functionality. With integrated braking resistor for all frame sizes, most applications can be realised without an additional braking resistor.

**Optimised servo performance:** SINAMICS V90 enables the machine to achieve a high dynamic performance and smooth operation through automatically optimised control loop parameters. Presence of 1 MHz pulse train setpoint and 20-bit encoder resolution enables the system to reach high positioning accuracy. The 300 percent overload capacity of the drive and motor along with fast acceleration and braking ensures high productivity for customers' machines.

**Easy to use:** SINAMICS V-Assistant, an optimised, standalone, graphic configuration software tool makes commissioning and diagnostics quick and easy. This tool performs parameter



settings, jogging, trouble shooting and monitoring. Standard interface makes it easy to couple the drive with PLCs and motion controllers.

**Reliable operation:** PCB coating on the SINAMICS V90 and high quality bearings of SIMOTICS S-1FL6 ensures a high robustness of the drive system, thus enabling them to withstand harsh environmental conditions. The integrated safety function STO (safe torque off) prevents the motor from unexpected movement; thereby ensuring safety of both machines and employees.

SINAMICS and SIMOTICS form an integral part of Siemens Integrated Drive Systems. Drive Technology based on Integrated Drive Systems ensures maximum productivity, energy-efficiency, and reliability in any automation environment and throughout the lifecycle.

*More information at: [www.siemens.co.in](http://www.siemens.co.in)*

## IPad App for effective shopfloor communication

CGTech, the developer of VERICUT NC verification, optimisation, and simulation software, has announced that its new "VERICUT Reviewer" iPad App will be available through the iPad App store starting on March 1, 2014.

"It's no longer necessary to visit the NC programming office or an engineering workstation to view an NC program being simulated on a virtual CNC machine," said CGTech Product Marketing Manager Bill Hasenjaeger. "With VERICUT Reviewer on the iPad, shop floor personnel and other production staff can view 3D animations of CNC machining processes at the machine tool, during meetings, or at any other location. Intuitive touch controls and navigation make it easy to rotate, pan and zoom to view machining operations from any perspective as they are being simulated."

VERICUT's simulation moves according to the NC code the same as the CNC machine, so virtual machining exactly mimics real machining. The user can select and closely examine



specific sections of NC code where a potential problem might exist.

A VERICUT report containing information about cutting tools, job setup, machining instructions and other information can be automatically packaged within each saved Reviewer session, creating a virtual workshop document. VERICUT reports are PDF files automatically generated during VERICUT simulations.

The NC programmer saves a "Reviewer" file after simulating his NC programs in VERICUT to ensure they are correct. The file can be saved at any point in a VERICUT simulation session. It is then transferred to the VERICUT Reviewer iPad App through iTunes, Dropbox for iPad App, or email. The App is offered free of charge.

*More information and sample Reviewer files can be downloaded from [cgttech.com/ipad/](http://cgttech.com/ipad/). Contact: Indudhar C, Phone: 080 2318 6981; Email: [Indudhar.chandruppa@cgttech.com](mailto:Indudhar.chandruppa@cgttech.com)*



### Automation and flexibility



TS-120



TMC-250

More and more automation is the only solution for mass production components. The production line with long unattended operation shall require machine like TS-120, a perfect production line Twin Spindle Twin Turret Chucker with complete automation. These machines are equipped with integral Gantry for Loading & Unloading of job with changeover station for job set up, enabling long hours of unmanned operation. These series is perfect for multi-process integration at the time of mass production machining. These machine systems allow both bar work & chuck work

Putting a step ahead in turning technology, Jyoti CNC introduces a TMC series giving flexibility to produce complete component in one single set-up and distinct competitive edge. TMC Series consist of 12-Station Servo Driven Tool Turret which is able to perform milling, drilling, boring & turning saving set-up time which improves the consistency of the machine to machine components with repeated accuracy. The rigid single piece 45° Slant bed made of high grade cast iron for rigidity with heavily ribbed structure with standards in terms of power and torque, enabling heavier cuts and faster production, with virtually no vibration increasing tool life giving cost effective solutions.

For more information, visit [www.jyoti.co.in/](http://www.jyoti.co.in/)

### ALC technology for optimised laser cutting

Following the success of Adaptive Laser Cutting (ALC) on the Impuls laser cutting range, LVD has announced that ALC will be installed as a standard feature on all Sirius and Sirius Plus 4 kW lasers. ALC technology automatically optimises laser cutting results in thicker mild steel materials.

ALC technology uses dynamic feedback to monitor and regulate laser power, speed and assist gas pressure in real time during the cutting process, automatically optimising cutting parameters and ensuring a consistently accurate cut, high productivity and reduced scrap.

Unlike other process control systems, ALC does not rely on pre-defined parameters but measures and adapts in process to achieve the best cutting results. ALC is ideal for processing thicker materials in an unmanned environment. In such applications, machine speed is often restricted to ensure reliability and account for potential variations in material properties, limiting productivity and increasing the cost per part. ALC automatically adjusts to changing conditions, processing at the highest speed with the most efficiency and so alleviates the need to restrict or control the laser cutting system, providing up to a 10 percent increase in productivity.



Consistently accurate processing also eliminates scrap or rework of expensive thicker materials. ALC is available now for all models of LVD Impuls and 4 kW Sirius and Sirius Plus laser cutting systems.

For more information, e-mail: [kvcl@lvd.be](mailto:kvcl@lvd.be) or [marketing@lvd.be](mailto:marketing@lvd.be) or visit [www.lvdgroup.com](http://www.lvdgroup.com)



## Highly flexible manual chuck

**S**chunk, the competence leader for clamping technology and gripping systems has developed the highly flexible manual chuck ROTA-S flex particularly for users, who want to machine a possibly wide workpiece range on milling/turning machines. It is a combination of the proven lathe chuck of the series ROTA-S plus with extended guideways, and transforms them into large, light chucks, which are particularly versatile in use. Compared to conventional lathe chucks used for large clamping diameters, the weight with ROTA-S flex drops down to 60 percent. At an identical table load much heavier workpieces can be machined, and due to the low height enough space remains for the workpiece and the tools. On the other hand, for machining smaller workpieces the extended guideways can be easily disassembled, so that the workpiece accessibility has been considerably improved compared to a clamping application with conventional large chucks.

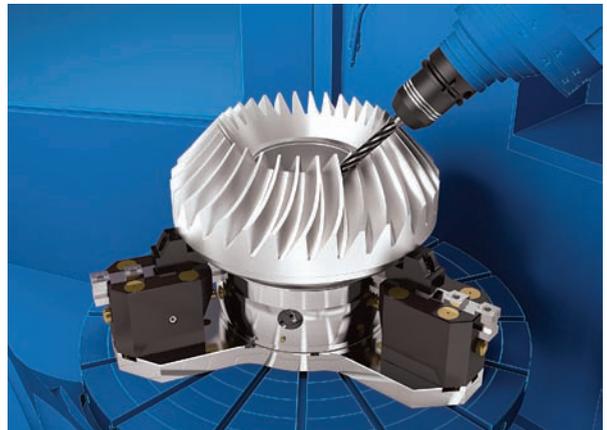
A special lubrication system ensures for permanently high clamping forces of both variants. Dirt seals prevent chips and dust from entering the workpiece. The ROTA-S flex can be easily assembled on a machine table, and by using the optimised jaw quick-change system, retrofitting can be done within seconds. The chuck clamps small parts as reliably as large ones, and thereby ensures maximum operator's safety. The clever clamping solution is available in the sizes 700, 1000, and 1200 for ROTA-S plus, and the manual chuck ROTA-S plus 2.0 is available in sizes 315, 400, and 500. Depending on the size, the chuck (without top jaws) weighs 170 kg, 360 kg, or 490 kg. The ROTA-S flex can be combined with numerous chuck jaws from the 1,200 types of the world's largest standard chuck jaw program from Schunk.

Contact: Satish Sadasivan

Ph.: 080-40538999; Fax: 080-40538998, Email: [info@in.schunk.com](mailto:info@in.schunk.com), Web: [www.in.schunk.com](http://www.in.schunk.com)



The Schunk manual chuck ROTA-S flex weighs up to 60 percent less than conventional lathe chucks, and covers a particularly large clamping range.



With the ROTA-S flex, the field of milling/turning machine's applications can be enlarged many times over.

## Mechanical engineering software

**C**ADVision Engineers has completed the phase one of beta testing on a software product that uses Bricsys' LGS 2D component technology for parametric constraint solving. The product is a first level computer aided software tool that an engineer would use in creating sketches of concepts, progressing to synthesising geometry and concluding with analysing the integrity of design to quickly assess practicality of a design concept. CADVision believes this is a smarter methodology that uses Engineering Design Synthesis to shorten design cycles and thus time to market or time to complete engineering change/configuration orders.

Phase One of beta testing and product debugging is complete, and the company expects to complete phase two by mid 2014, with commercial availability beginning

shortly thereafter. CADVision expects to make a formal announcement of the commercial launch and other details in the middle of the year.

CADVision Engineers licensed LGS 2D from Bricsys to implement constraint support in its brand-new software product. Using the full power of LGS 2D, Design Engineers can solve complex engineering problems early in their design cycle.

"LGS 2D from Bricsys perfectly suits our needs in a powerful constraint solving engine that is able to support sophisticated engineering design. We are also happy with its affordability for start-up companies," said Siddharth Reddy, Director of CADVision Engineers Pvt Ltd.

Contact: [info@cadvisionengineers.com](mailto:info@cadvisionengineers.com)



### CNC gantry routers fitted with chip guards as standard

Haas Automation, Inc's range of GR CNC gantry routers are now fitted with chip guards as standard, further increasing the safety and cleanliness of the machines. The Haas Automation design team has created an innovative enclosure based on full-perimeter light curtains for these very successful, gantry-style machines. Designed to keep operators and moving components apart, the concept for the travelling guard is simple: chips and coolant inside, people outside! From a safety and cleanliness perspective this clearly offers great advantages to customers. All Haas GR models sold after January 1, 2014 accommodate the new chip guard as standard, with the first enhanced GR machines shipping in March 2014.

Featuring a powerful 40-taper milling head, GR routers are available in two model configurations: the GR-510 and the GR-712. While the former offers travel in the X, Y and Z axes of 3073 x 1549 x 279 mm respectively, the latter offers customers longer X and Y travels of 3683 x 2159 mm, and the same 279 mm Z-axis.

Each Haas GR gantry router has a 10,000rpm, 11.2 kW vector drive spindle that provides the power to cut a wide range of different metals, and the speed to cut various plastics and additional light materials. Long extrusions and large sheets of material can be processed with ease.

The rigid steel construction of GR machines provides a stable cutting platform, while a 25 mm thick aluminium table



is offered as standard. Fitted with a direct speed belt drive, the routers are capable of generating 23 Nm of torque at 4600 rpm, along with 20.3 m/min cutting feed rates. Also featured are a 10-pocket automatic tool changer (ATC), memory lock key-switch, 15" colour LCD monitor and USB port. Standard G-code programming is facilitated through the user-friendly, full-function Haas CNC control.

Available options include a high torque 5,000 rpm spindle; extended Z-axis clearance/travel; high speed machining with look-ahead capability; rigid tapping; 20-pocket ATC; Haas Intuitive Programming System; coolant system with 360-litre tank; remote jog handle; user-definable macros; and an Ethernet interface.

For more information, visit [www.HaasCNC.com](http://www.HaasCNC.com)

### Aerospace specific products

Aerospace tools are specially designed for machining Aluminium and special materials like Titanium, Inconel etc. New generation geometry prevents oscillation of the tool against the component enabling optimum surface quality with maximum feed rates, specifically to minimise stress on materials and allow very thin wall machining even at maximum material removal rates.

Following are two of GW India's wide range of technologically advanced products designed for high performance aerospace applications:

#### GW 489 – Multi Radius Endmill

GW 489 Point Angle



GW 489

#### Highlights:

- Higher stepover pitch eliminates/reduces the semi finish cut
- Uniform stock achieves a better surface finish in the finishing cut
- Suitable for machining upto 68 Hrc steel
- Very high federate.

#### GW 481 – Ball Nose End Mill

GW 481 Point Angle



GW 481

#### Highlights:

- All four cutting edges are to the centre
- For hard machining
- Doubles feed rate cutting time by 50 percent.



### Tool setter for compact VMCs

**P**21 series with 0.0005mm accuracy is one of the most popular and economical tool setters used in CNC machines worldwide. This series is used for length detection of tools such as drills, endmills, and taps mounted in machining centers and drill-tap machines. The high-level of repeatability offered by the sensor ensures precise measurement of the tool,



compensating the thermal growth within the machine axis and even the slightest tool wear is updated automatically. The timely breakage detection by the sensor prevents rejection of workpiece and damage to subsequent tools. Its compact size facilitates easy accommodation on the machine table and with complete IP67 protection; it is designed to work inside machine tools.

**Functions of the tool setter:**

- Automatic tool off-set measuring
- Automatic tool wear updation
- Automatic tool breakage detection.

Contact: Metrol Corporation Indian Branch Office, Bangalore -560003,  
Phone – 080-41101550

### Mechanical conceptual with benefits of cloud

**D**assault Systèmes has announced that Solidworks Mechanical Conceptual, the first application on the 3DEXperience platform, is now available. Already installed in production environments at numerous customer sites, this application delivers significant collaborative benefits through its use of cloud-based capabilities.

Unveiled at Solidworks World in January, Solidworks Mechanical Conceptual on the 3DEXperience platform embraces the new realities of today’s world of design in the age of experience: it is more social and conceptual and delivers on the promise of ease-of-collaboration among key contributors.

“Now that the majority of the companies we partner with

have embraced cloud technologies, GoEngineer has seen a dramatic increase in requests from our customer’s engineering, design, and manufacturing departments for help in leveraging the cloud in their organisations. We are excited to offer them Solidworks Mechanical Conceptual as a solution that effectively combines the benefits of cloud, integrates the amazing power of social technologies, and addresses the need for some design teams to have preliminary layouts before finalising their CAD work,” said Brad Hansen, CEO of GoEngineer.

More information at: <http://www.solidworks.com/sw/products/3dexperience/solidworks-mechanical-conceptual-overview.htm>

### Milling solution that balances economy and performance

**S**eco’s new Square T4-08 shoulder milling solution with four cutting edges and innovative cutter design balances economy and performance in cast iron and steel machining applications, as well as those that involve contouring operations in challenging materials.

The Square T4-08’s strong, reliable pocket seats combined with multi-edge inserts optimise cutting stability and allow for clean 90-degree walls. The inserts mount tangentially in the cutter so that the cutting forces impact the thickest parts of the inserts, allowing manufacturers to achieve the required levels of strength for increased depths of cut with small diameters. The Square T4-08 also provides a smooth cutting action via positive rake angles with a variable lead angle on the cutting edge.

In addition to high metal removal rates, manufacturers will also benefit from the versatility of the Square T4-08. There is a wide variety of insert geometries and grades, and it is available in various mounting types that include Cylindrical, Weldon, Arbor and Combimaster.



For additional information, Tel: 02137-667300; Email: [reconditioning.india@secotools.com](mailto:reconditioning.india@secotools.com)  
[www.secotools.com/in](http://www.secotools.com/in)



## From the idea to the finished product

Celos from DMG Mori marks the beginning of a new era. At the Open House Event in Pfronten, DMG Mori presented 18 of the 66 exhibits in the new uniform design with Celos. Celos is as easy and intuitive to use as a smartphone. Celos simplifies and accelerates the process from the idea to the finished product and also forms the basis of paperless manufacturing. In addition, Celos Apps provide the user with integrated and digitised management, documentation and visualisation of order, process and machine data. As well as the above, Celos is also compatible with PPS and ERP systems and can be linked to CAD / CAM applications and is designed to work with other forward-looking Celos Apps.

Celos will be provided on all new high-tech machines from DMG Mori. The first 20 machines from DMG Mori with Celos will be available for delivery from the second quarter of 2014. At first glance, Celos provides the user with a uniform



operator interface with multi-touch functionality. But Celos is much more than this and can do much more. Of crucial additional benefit to the customer are various Celos Apps.

The Status Monitor is the starting point for the interaction

between the operator and the machine. Here, Celos displays up-to-date monitoring of the machine and and process. It supplies important key performance indicators for the current order as well as for the order progress. Moreover, it notifies the operator with special icons as well as text messages of any errors, problems or upcoming required maintenance work.

Job Manager and Job Assistant support the machine operator with regard to network-integrated planning, preparation, optimisation and systematic processing of new machining jobs. Apart from the advantages for the user, the integrated interaction of Job Manager and Job Assistant also demonstrates the excellent scalability of Celos for very different company sizes.

Small companies with a high level of personal operator responsibility particularly benefit from the option of paperless production. On the other hand, already widely networked large companies can optimally organise and use the different competencies of their employees by means of these two Celos production applications.

## Repeatable, faster and cost-effective ERP implementation results

Epicor Software Corporation has launched its enhanced signature methodology and expanded portfolio of services capabilities to deliver repeatable, faster and cost-effective enterprise resource planning (ERP) implementation results to its growing global customer base.

The Epicor Signature Methodology provides a flexible framework to prepare, plan, design, validate and deploy Epicor ERP solutions to customers worldwide. The new five-stage model is scalable based on project size and complexity. Each stage includes a series of segments that are filled with a

set of inputs, tools, techniques and deliverables all building upon one another to provide better project governance, a collaborative implementation and continuous improvement. The methodology contains built-in sign-off processes to better ensure each party is satisfied throughout the project before moving on to the next group of milestones. It also provides industry-specific business process models and tools to accelerate project delivery and reduce customisation.

For more information, visit [www.epicor.com](http://www.epicor.com).

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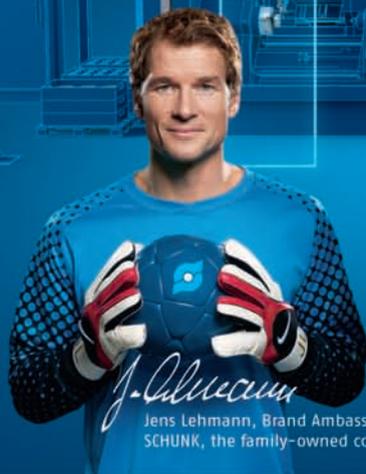
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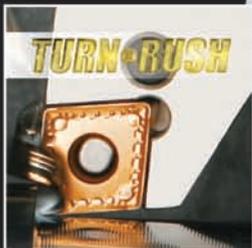
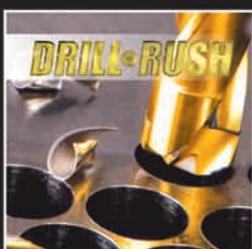
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